

WEDNESDAY + THURSDAY, MARCH 14 & 15

ATLANTA

MARCH 15–18

2018

Science on My Mind

NSTA NATIONAL CONFERENCE

VOL. 1

GENERAL INFORMATION

www.nsta.org/atlanta

#NSTA18

NSTA National
Science
Teachers
Association



Next Generation **INSPIRATION**

A PHENOMENAL EXPERIENCE AWAITS

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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:

- Previews of the **NEW** © 2020 *Inspire Science* for grades 6–12.
- Live demos of K–5 *Inspire Science*.
- Workshops by Page Keeley, Dinah Zike, and other NGSS experts.

See schedule and daily giveaways MHEONLINE.COM/NSTA2018

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Registration Hall B

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for Onsite
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**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
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**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.

STORE HOURS

Wednesday, March 14	4:00 PM–7:00 PM
Thursday, March 15	7:30 AM–5:00 PM
Friday, March 16	7:30 AM–5:00 PM
Saturday, March 17	7:30 AM–4:00 PM
Sunday, March 18	8:00 AM–NOON

NSTA National
Science
Teachers
Association



NSTA 66th National Conference on Science Education *Science on My Mind* Atlanta, Georgia • March 15–18, 2018

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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-NSTA 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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NCASE and the Air & Space Education Pavilion Exhibitors

Exhibitor List

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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.



National Center for Civil and Human Rights

—Photo courtesy of Gene Phillips/Atlanta Convention & Visitors Bureau

National Science Teachers Association

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Arlington, VA 22201-3000

703-243-7100

E-mail: conferences@nsta.org

www.nsta.org

NSTA Affiliates

Association for Multicultural Science Education (AMSE)

Association for Science Teacher Education (ASTE)

Association of Science-Technology Centers (ASTC)

Council for Elementary Science International (CESI)

Council of State Science Supervisors (CSSS)

National Association for Research in Science Teaching (NARST)

National Middle Level Science Teachers Association (NMLSTA)

National Science Education Leadership Association (NSELA)

Society for College Science Teachers (SCST)



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.

Sponsors

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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



NORTHROP GRUMMAN



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.

President's Welcome



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 inclu-

sion 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

NSTA Teacher Awards Gala



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

By ticket only: #M-1
Evening/Cocktail attire
requested.



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*



Zoe Evans



Jeremy Peacock



Rabieh Hafza

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
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NSTA Conferences Go Green!

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

Conference Previews

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

Online Conference Information and Personal Scheduler

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

Final Conference Programs by E-Mail/Conference 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.



—Photo courtesy of Gene Phillips/Atlanta Convention & Visitors Bureau

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.



—Photo courtesy of AtlantaPhotos.com

Registration, Travel, and Hotels

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!

- Visit gwcc.clickandpark.com and find the NSTA National Conference on the calendar by searching dates 3/14/2018 to 3/18/2018.
- 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.



—Photo courtesy of Georgia World Congress Center

National Science Teachers Association Shuttle Service to Georgia World Congress Center

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

ROUTE 1

AC Hotel Atlanta Downtown
 Courtyard Atlanta Downtown
 DoubleTree by Hilton – The American
 Hampton Inn & Suites Atlanta Downtown
 Holiday Inn Express & Suites Atlanta DT
 Westin Peachtree Plaza

Boarding Location

At Westin Peachtree Plaza
 At Westin Peachtree Plaza
 At Westin Peachtree Plaza
 At Westin Peachtree Plaza
 At Westin Peachtree Plaza
 Curbside on Ted Turner Dr.

ROUTE 2

Hyatt Regency Atlanta
 Sheraton Atlanta Hotel

Boarding Location

Curbside on Baker St.,
 across street
 On International Blvd.,
 across street

ROUTE 3

Atlanta Marriott Marquis
 Hilton Atlanta

Boarding Location

Curbside on Peachtree Center Ave
 At Atlanta Marriott Marquis

Walk Hotels

The hotels listed below are within walking distance of the GWCC.

Embassy Suites Atlanta Centennial Olympic Park
 Glenn Hotel
 Hilton Garden Inn Atlanta Downtown
 Omni Hotel at CNN Center

All hotel shuttles, including Short Courses at Westin Peachtree Plaza, board outside GWCC Building B.

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 Off-Peak: 3:30 – 7:30 PM *
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
 Short Course Shuttle between Georgia World Congress Center and Westin Peachtree Plaza Off-peak: 2:00 – 4:00 PM ♦

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: 10:30 – 11:30 AM ♦
 Off-peak: 2:00 – 3:00 PM ♦
HHMI Movie Night at GWCC 6:00–9:00pm Off-peak: 7:00 – 9:30 PM ♦♦
 Shuttle between Route Hotels and Georgia World Congress Center

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.

Registration, Travel, and Hotels

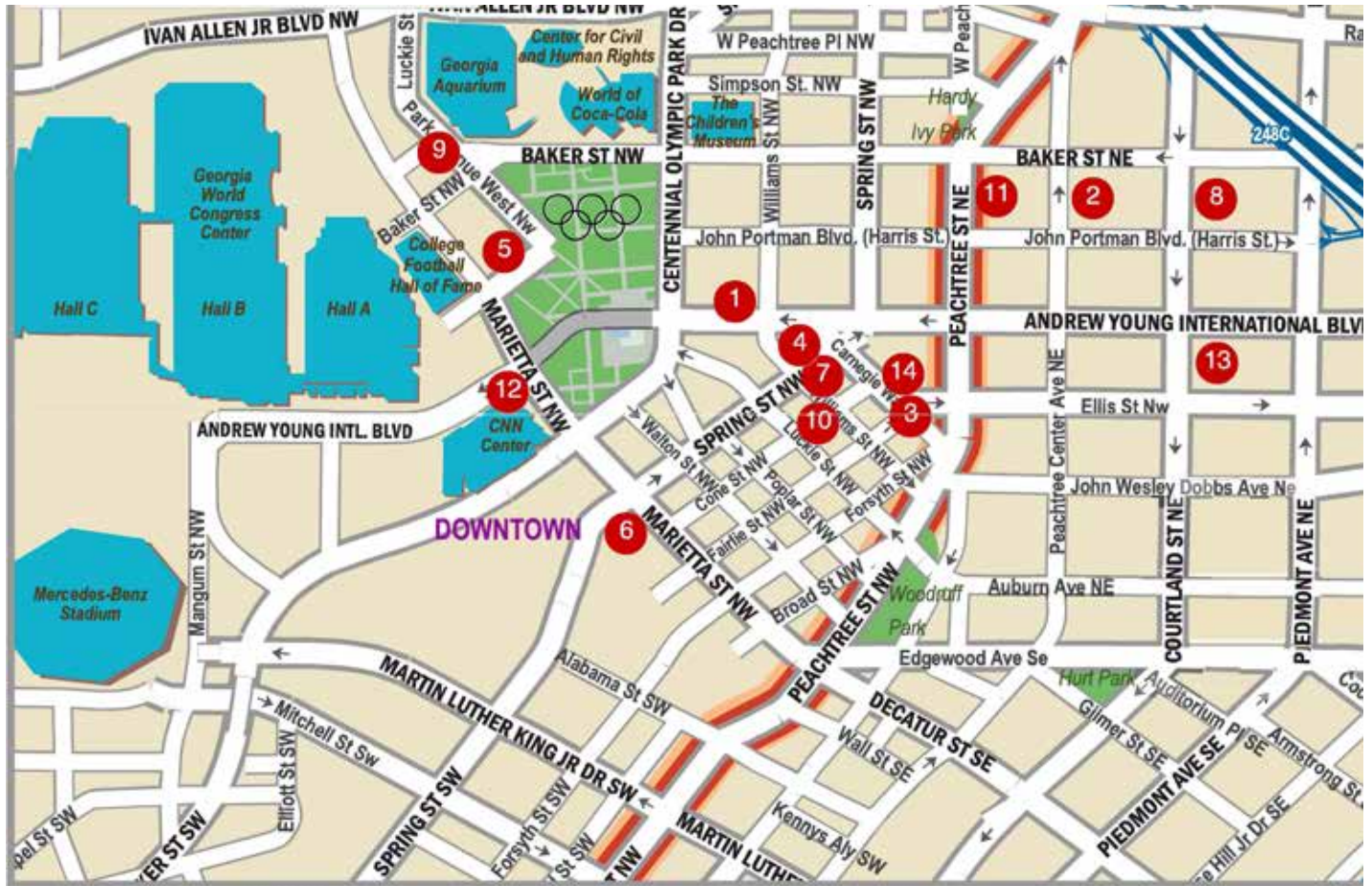


—Photo courtesy of Gene Phillips/Atlanta Convention & Visitors Bureau

NSTA Conference Hotels

Numbers correspond to map on facing page.

1. AC Hotel by Marriott Atlanta Downtown
101 Andrew Young International Blvd. NW
404-604-2030
2. Atlanta Marriott Marquis
265 Peachtree Center Ave. NE
404-521-0000
3. Courtyard Atlanta Downtown
133 Carnegie Way NW
404-222-2416
4. DoubleTree by Hilton: The American
Hotel Atlanta Downtown
160 Ted Turner Dr. NW
404-688-8600
5. Embassy Suites by Hilton Atlanta at
Centennial Olympic Park
267 Marietta St. NW
404-223-2300
6. Glenn Hotel, Autograph Collection
110 Marietta St. NW
404-521-2250
7. Hampton Inn & Suites Atlanta—Downtown
161 Ted Turner Dr. NW
404-589-1111
8. Hilton Atlanta
255 Courtland St. NE
404-659-2000
9. Hilton Garden Inn Atlanta Downtown
275 Baker St.
404-577-2001
10. Holiday Inn Express & Suites Atlanta
Downtown
111 Cone St. NW
404-524-7000
11. Hyatt Regency Atlanta
265 Peachtree St. NE
404-577-1234
12. Omni Atlanta Hotel at CNN Center
(Headquarters Hotel)
100 CNN Center NW
404-659-0000
13. Sheraton Atlanta Hotel
165 Courtland St. NE
404-659-6500
14. The Westin Peachtree Plaza
210 Peachtree St. NW
404-659-1400



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.



—Photo courtesy of Jacob Slaton

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 stu-

dents 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.

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. 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**



• CONFERENCE APP



www.nsta.org/conferenceapp

Conference Resources

NSTA Coordinating Center for People with Special Needs

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.

First Aid Services

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.

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 **EDUO 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/2jwJzff 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.



—Photo courtesy of Jacob Slaton

NSTA TV

The National Science Teachers Association is partnering with WebEdge, 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.



—Photo courtesy of Jacob Slaton

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 Center.....channel 65

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.

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

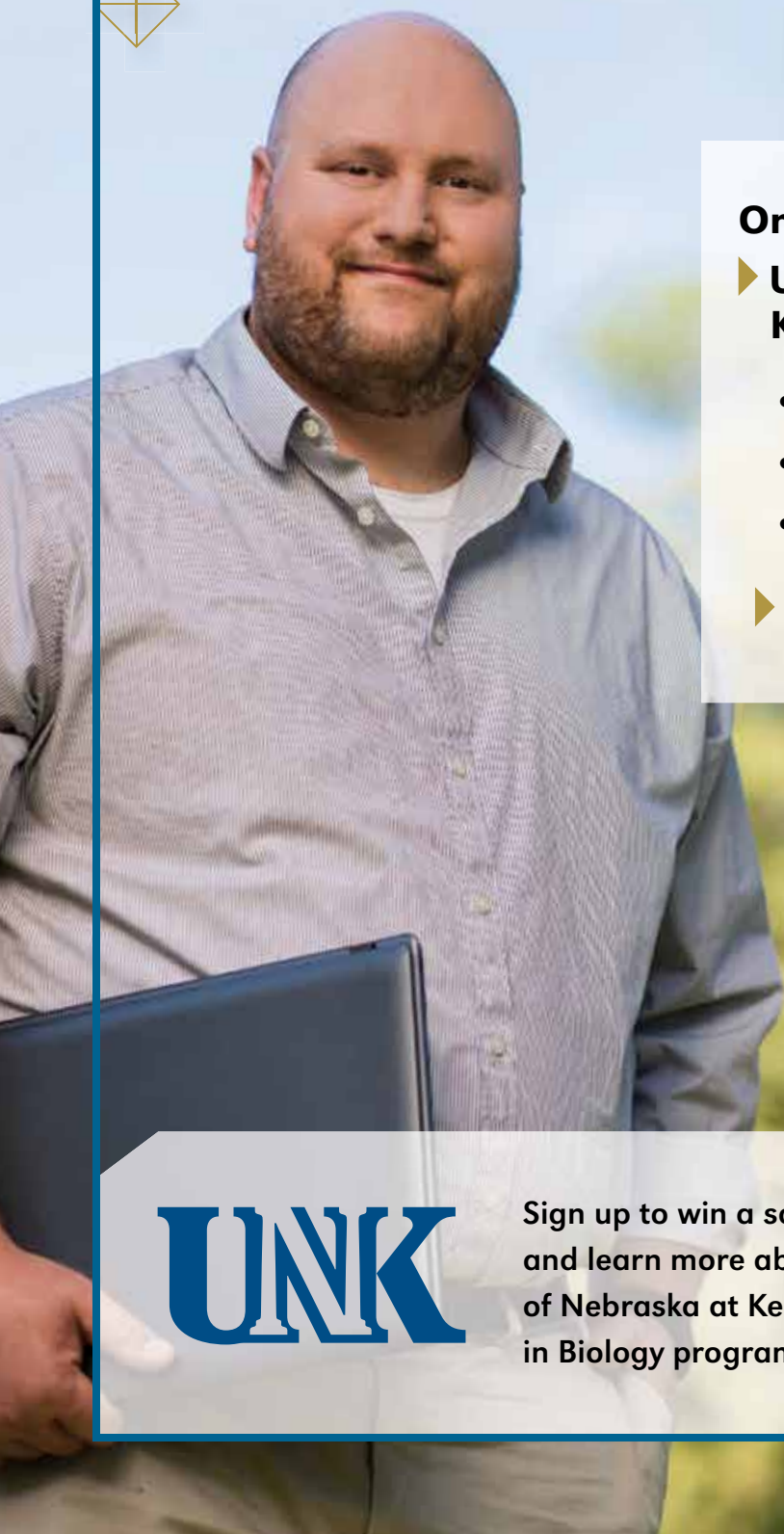
- *Wear comfortable shoes. You'll be doing a lot of walking!*
- *If you like to collect posters, bring a cardboard tube.*
- *Leave plenty of empty space in your suitcase...in fact, bring an extra large one. You will collect pounds and pounds of literature and stuff.*
- *If you read through the schedule 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

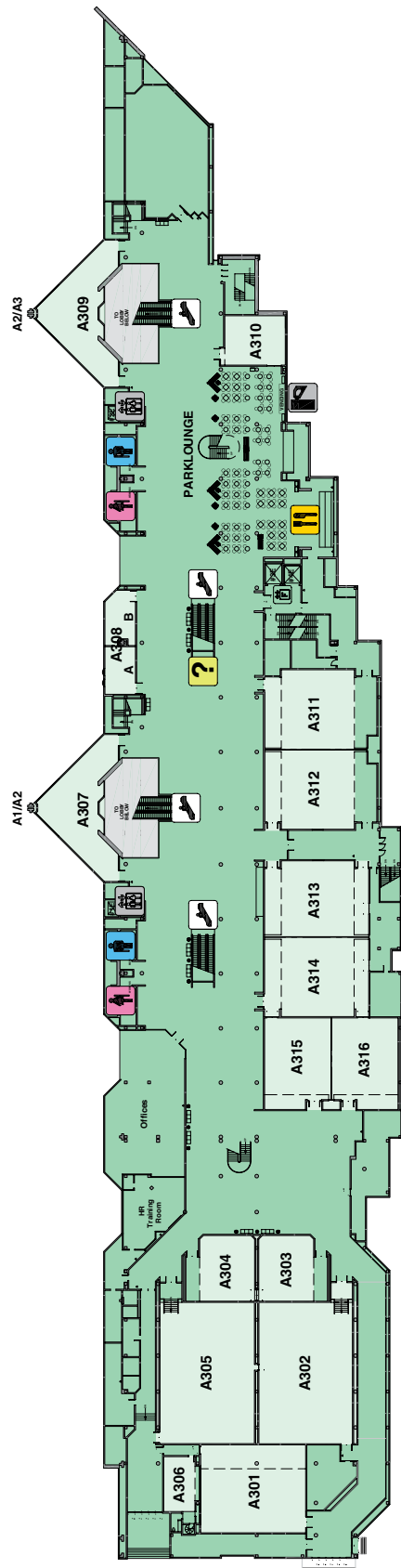
► online.nebraska.edu

UNK

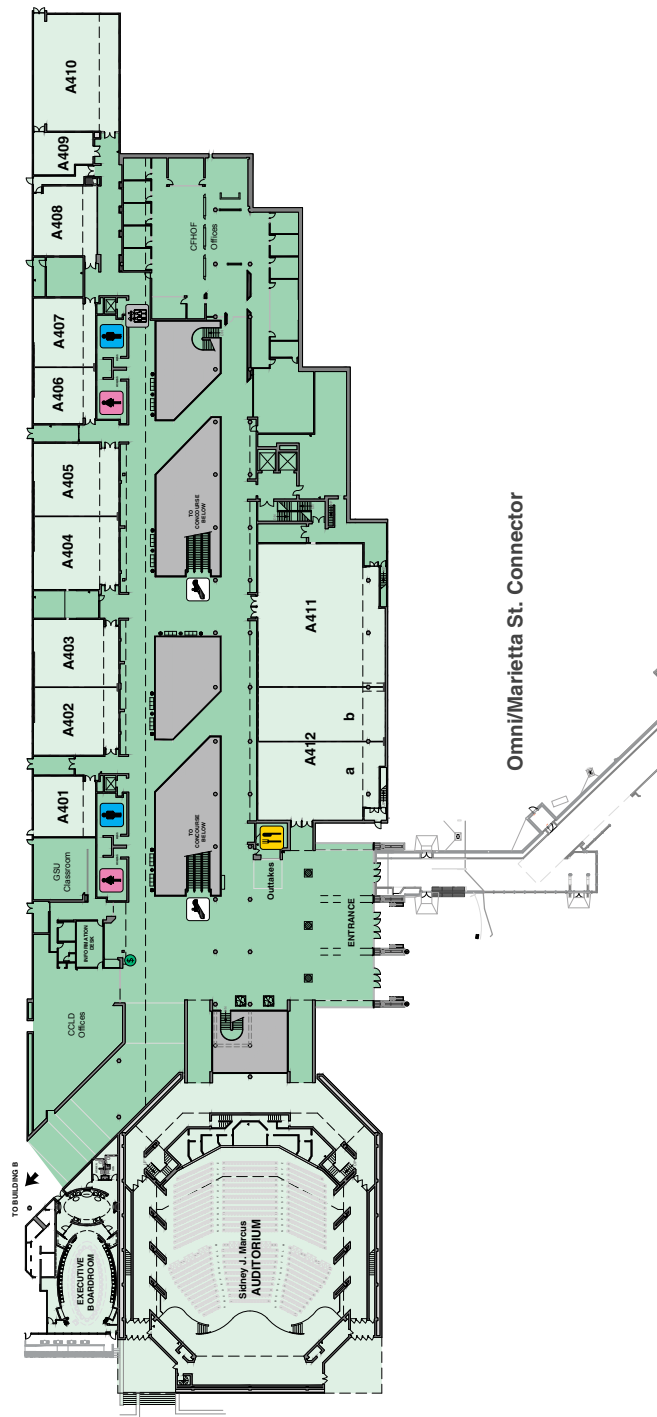
Sign up to win a science teaching kit
and learn more about the University
of Nebraska at Kearney’s online MS
in Biology program: BOOTH 1414.

UNIVERSITY OF
Nebraska
Online

Building A, Level Three



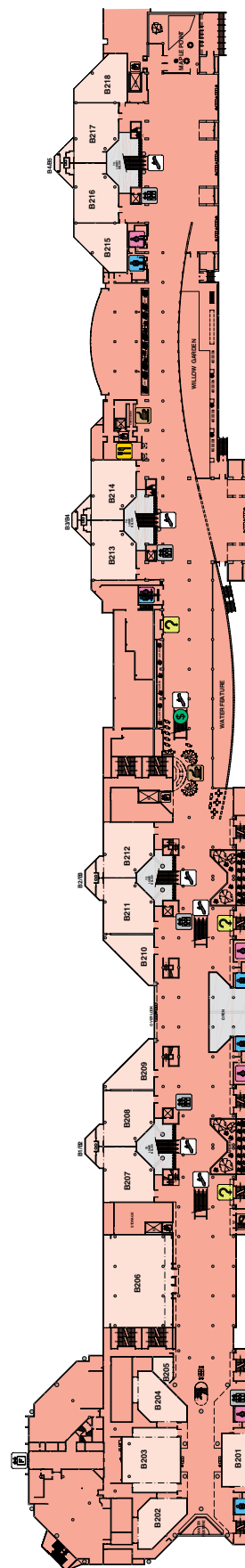
Building A, Level Four



Building B, Level One



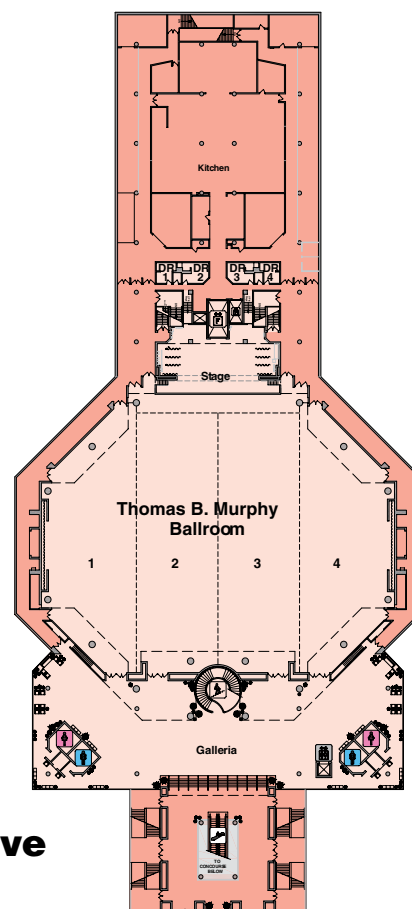
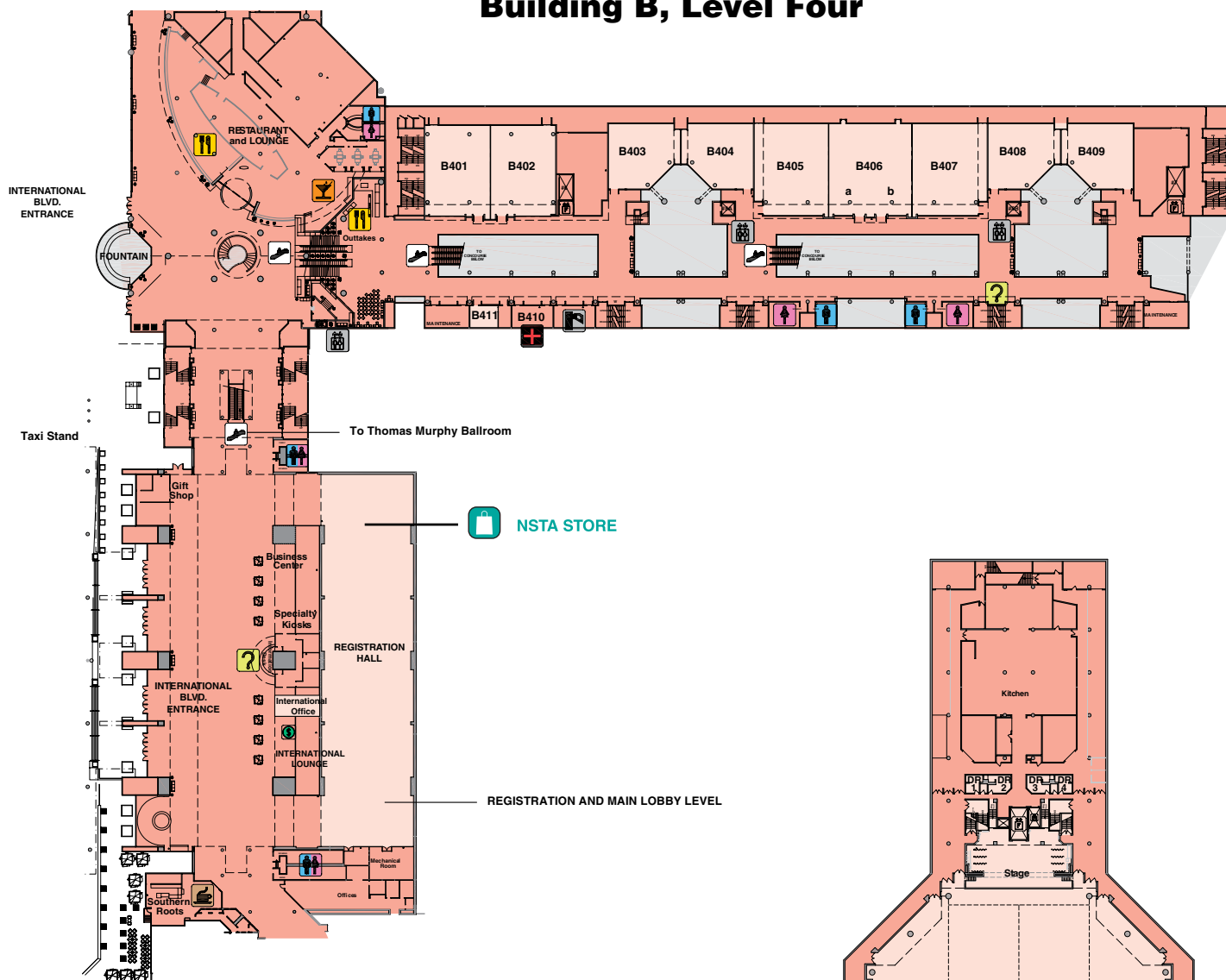
Building B, Level Two



Building B, Level Three

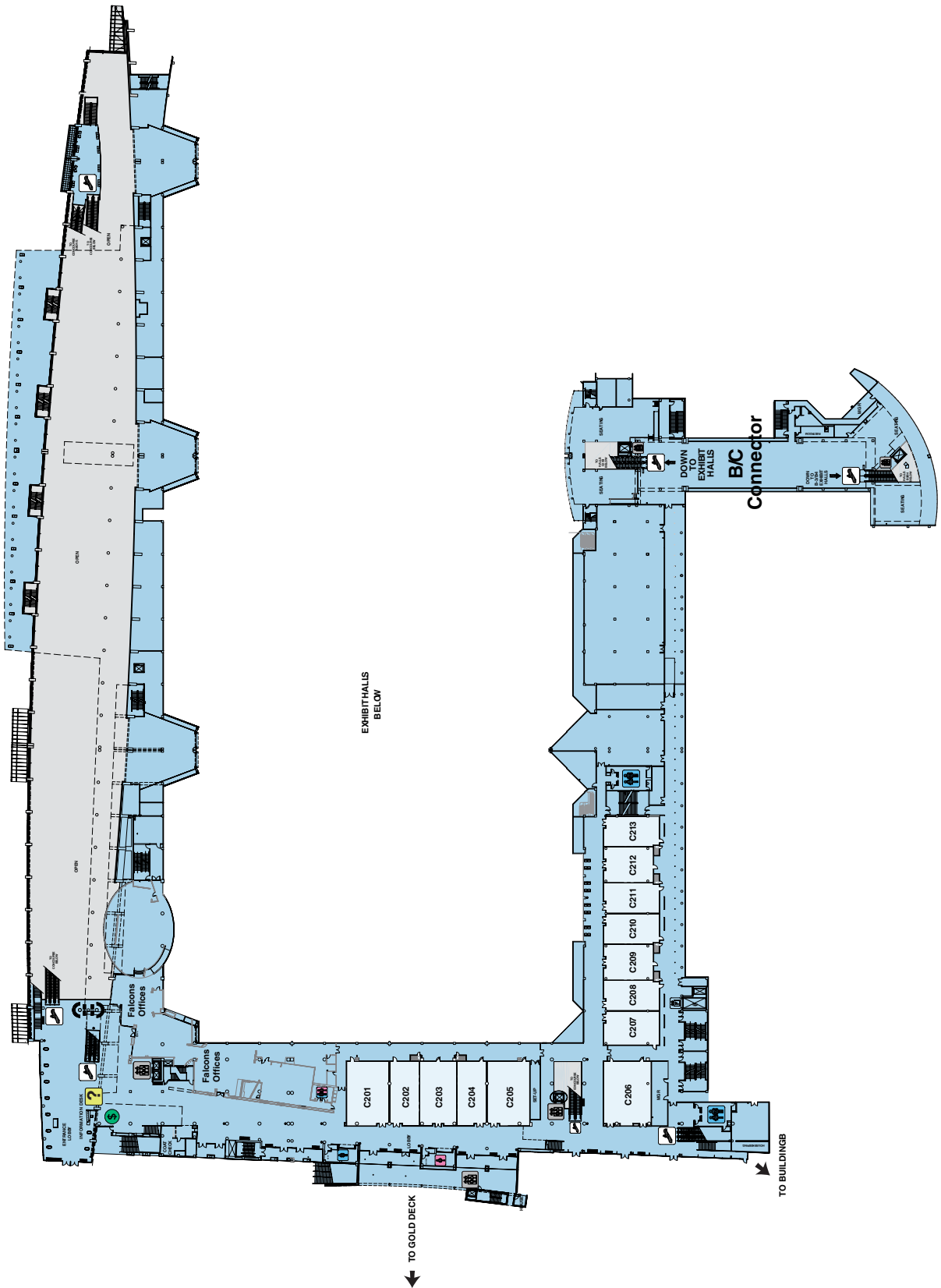


Building B, Level Four

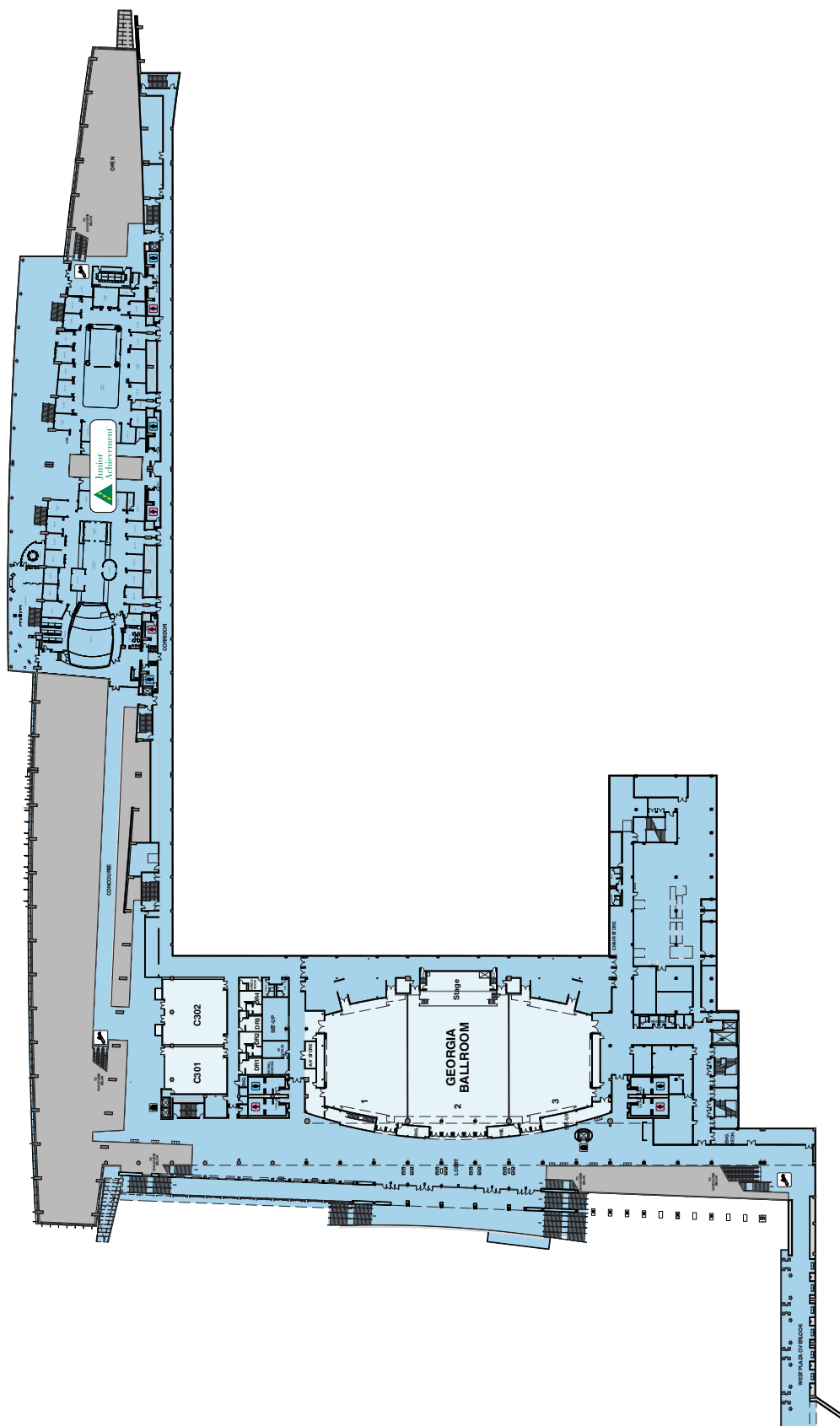


Building B, Level Five

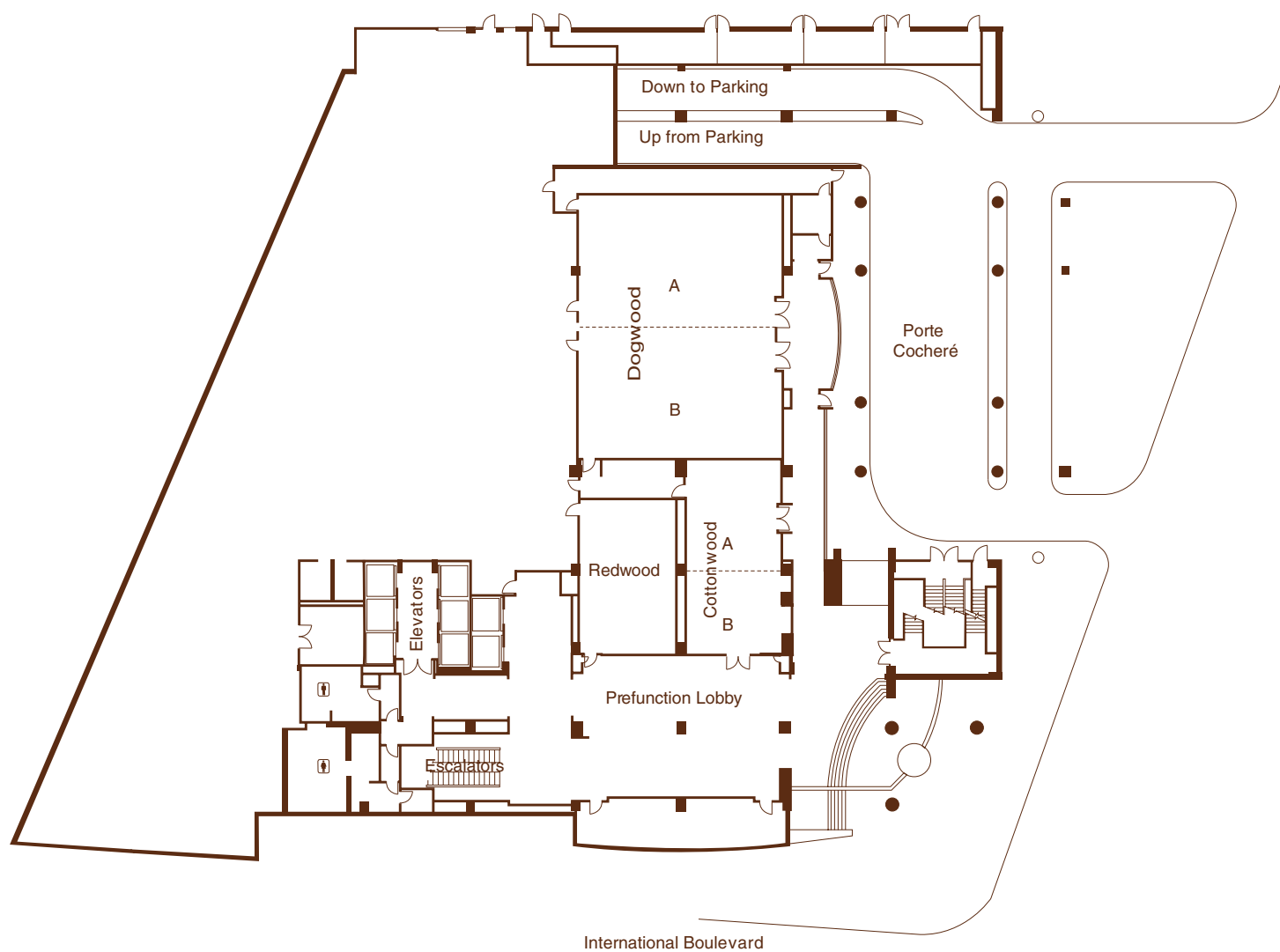
Building C, Level Two



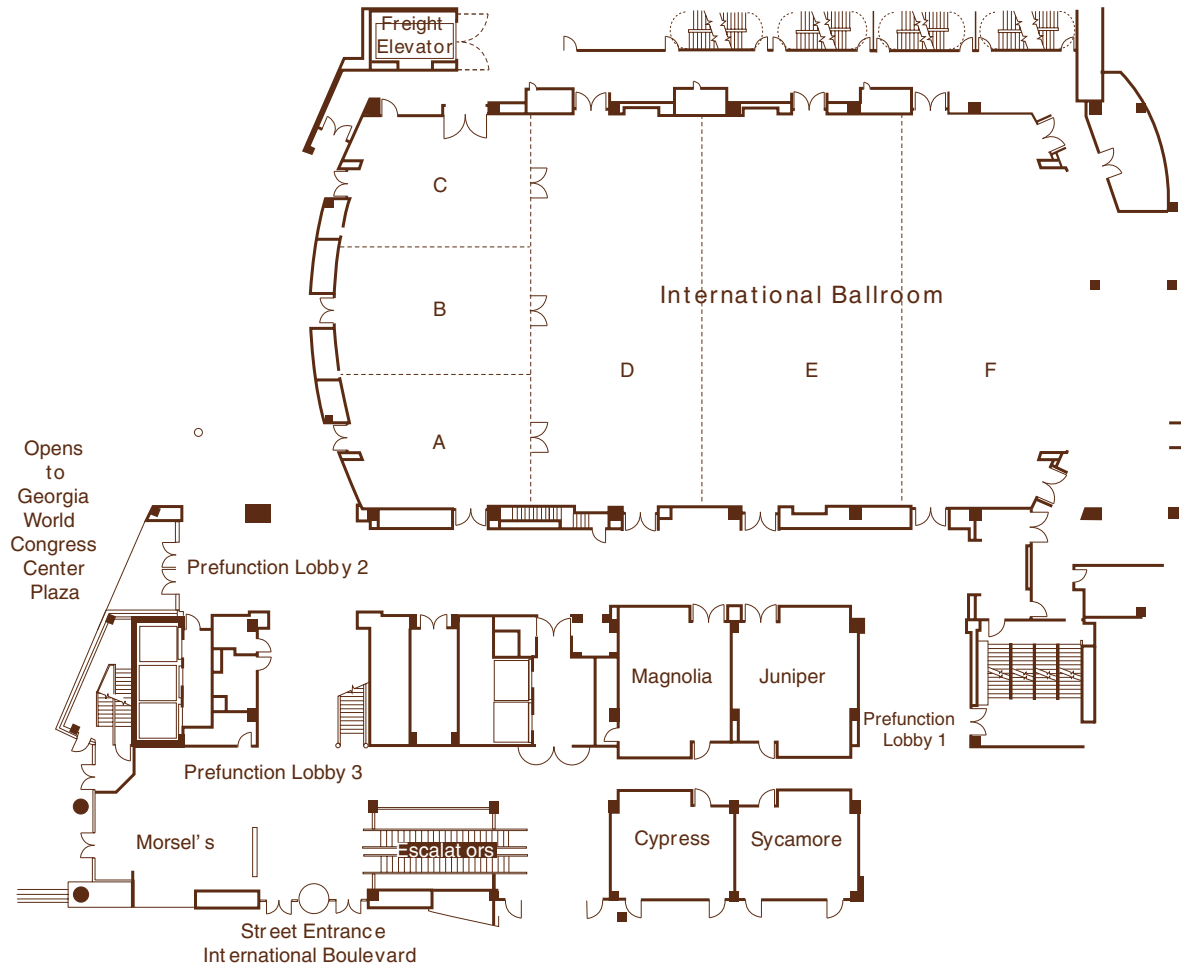
Building C, Level Three



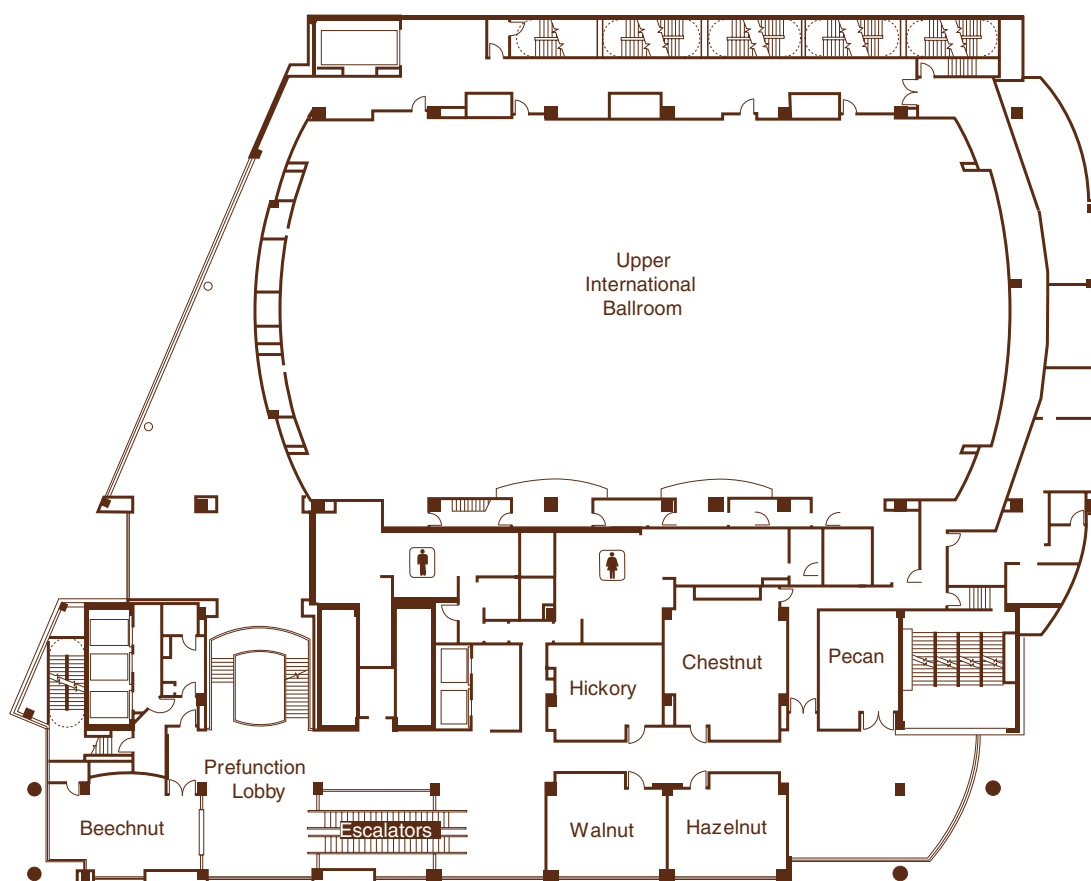
CNN North Tower M1 Street Level



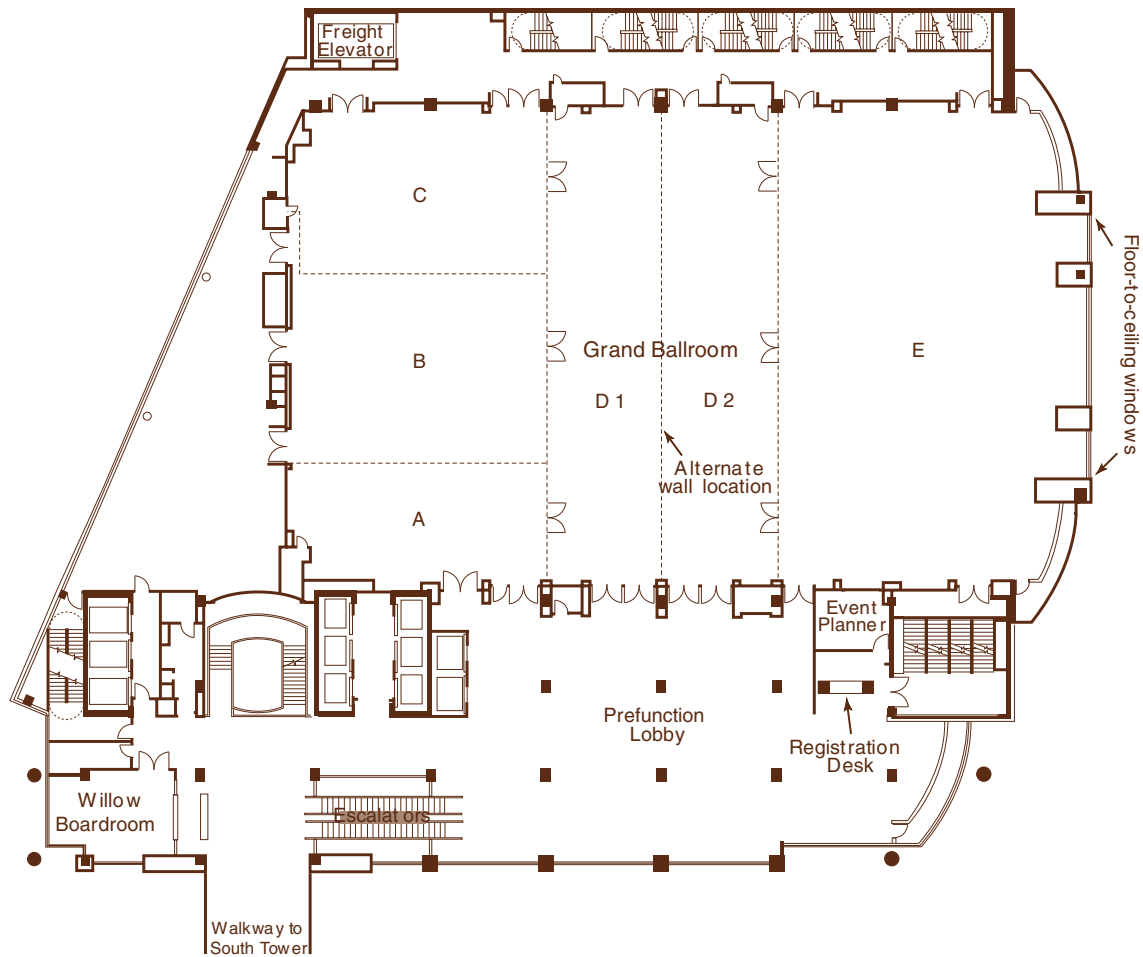
CNN North Tower M2 International Ballroom



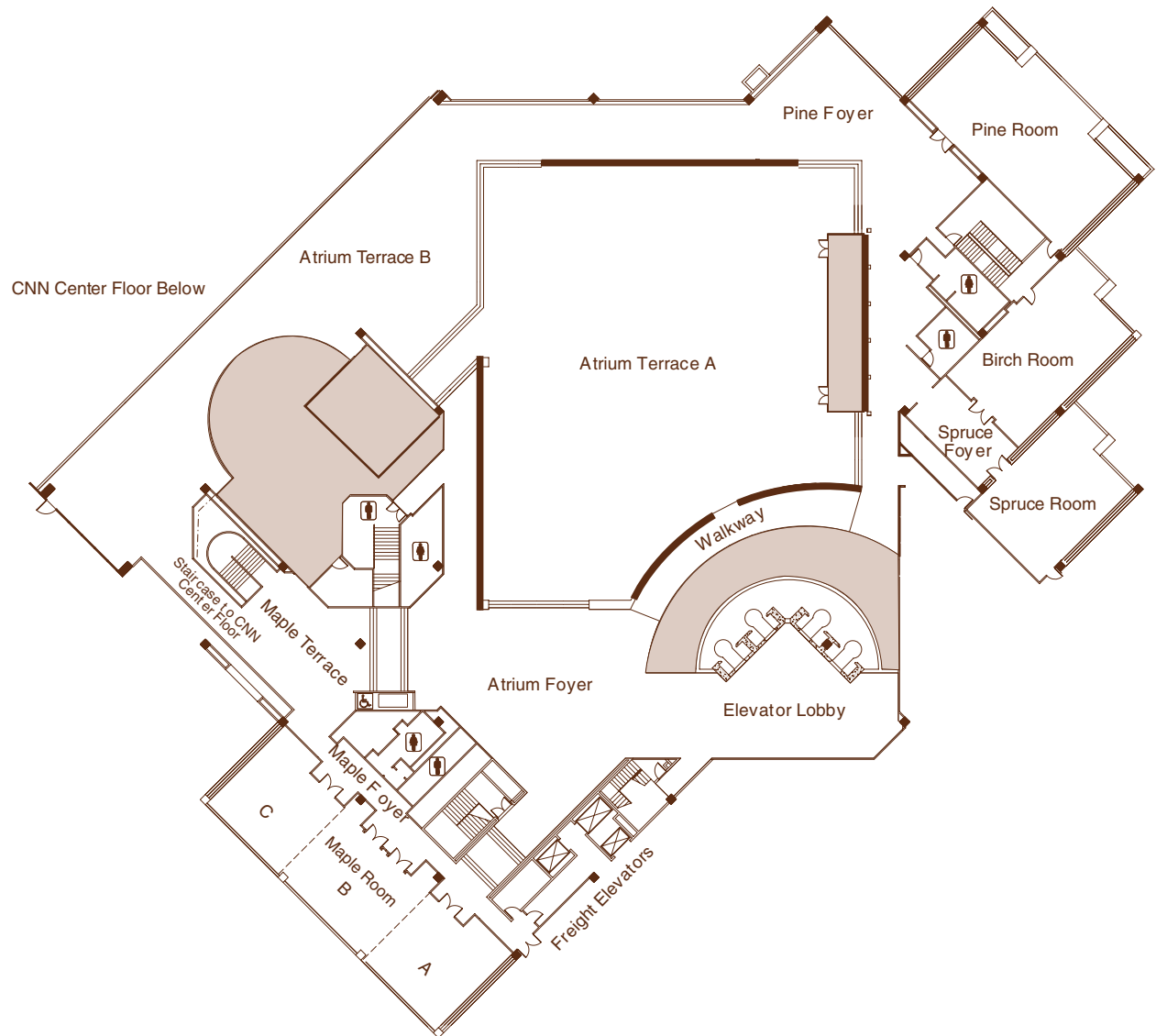
CNN North Tower M3 Meeting Level



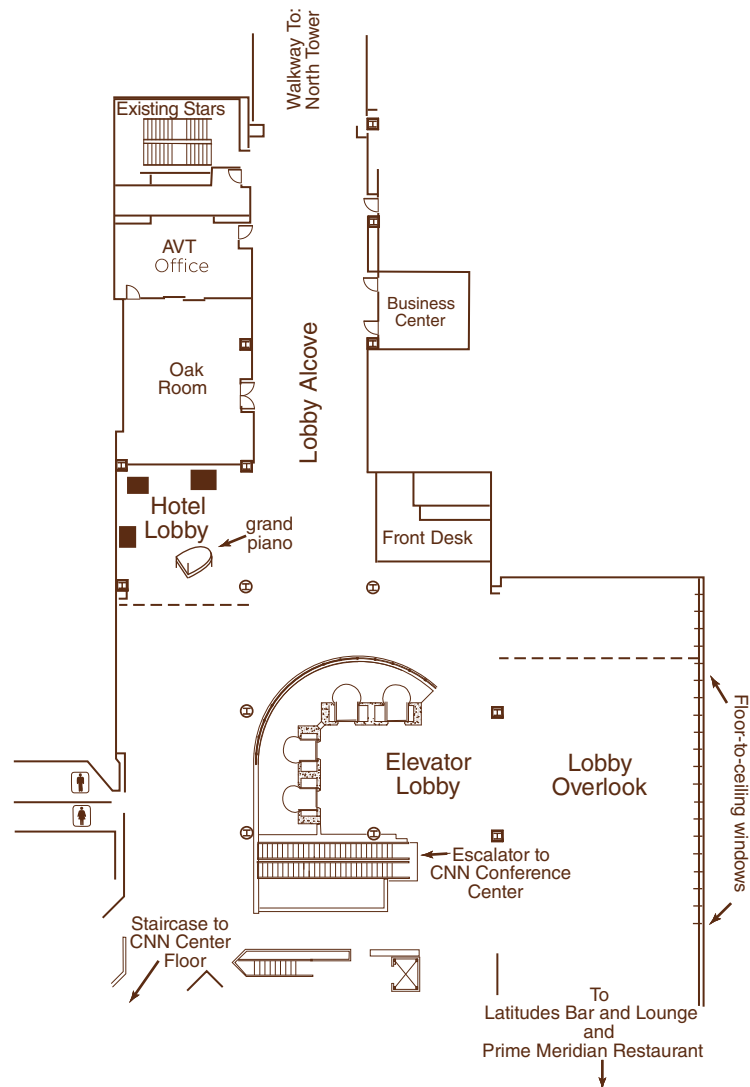
CNN North Tower M4 Ballroom Level



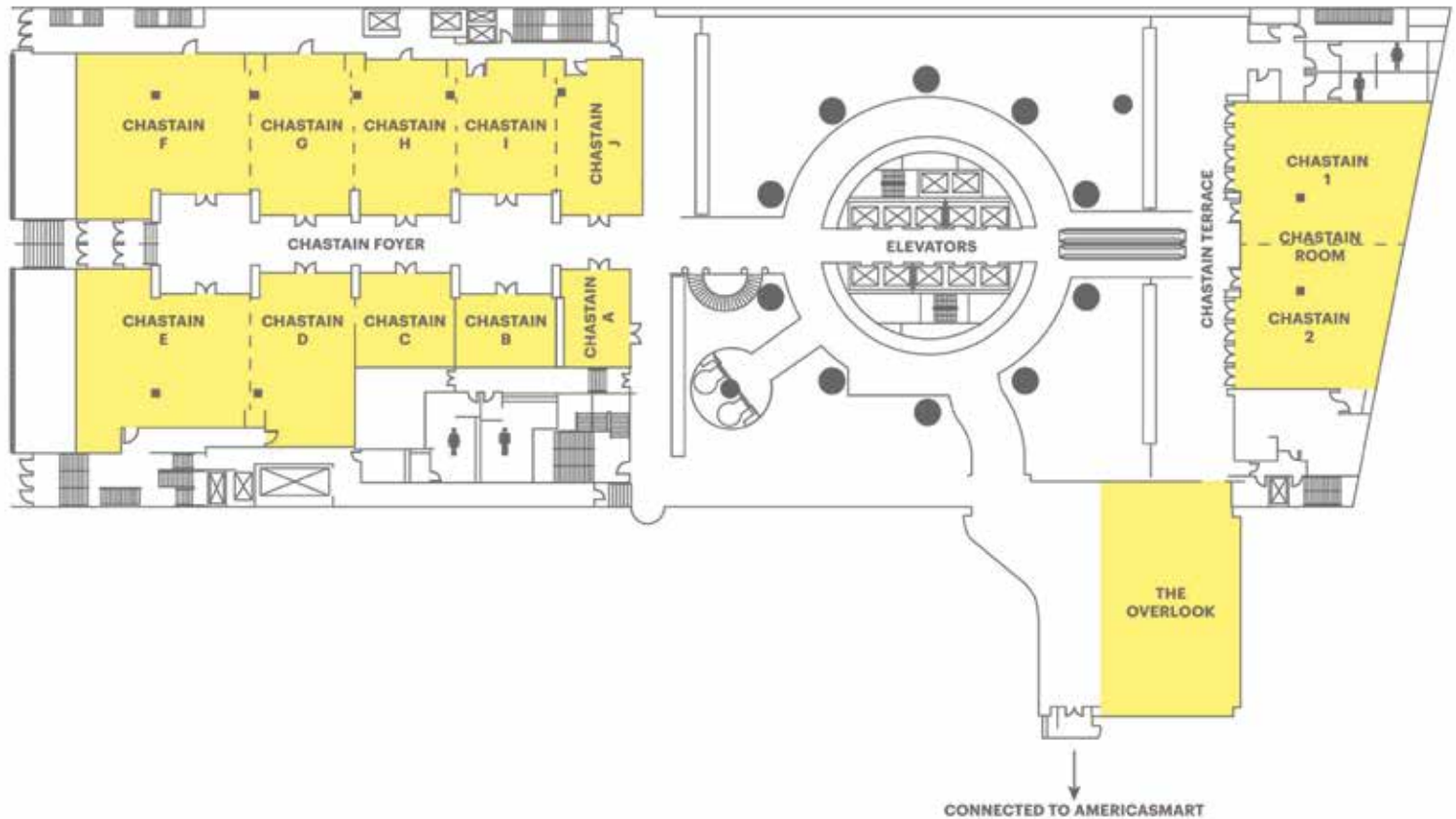
CNN South Tower Atrium Terrace



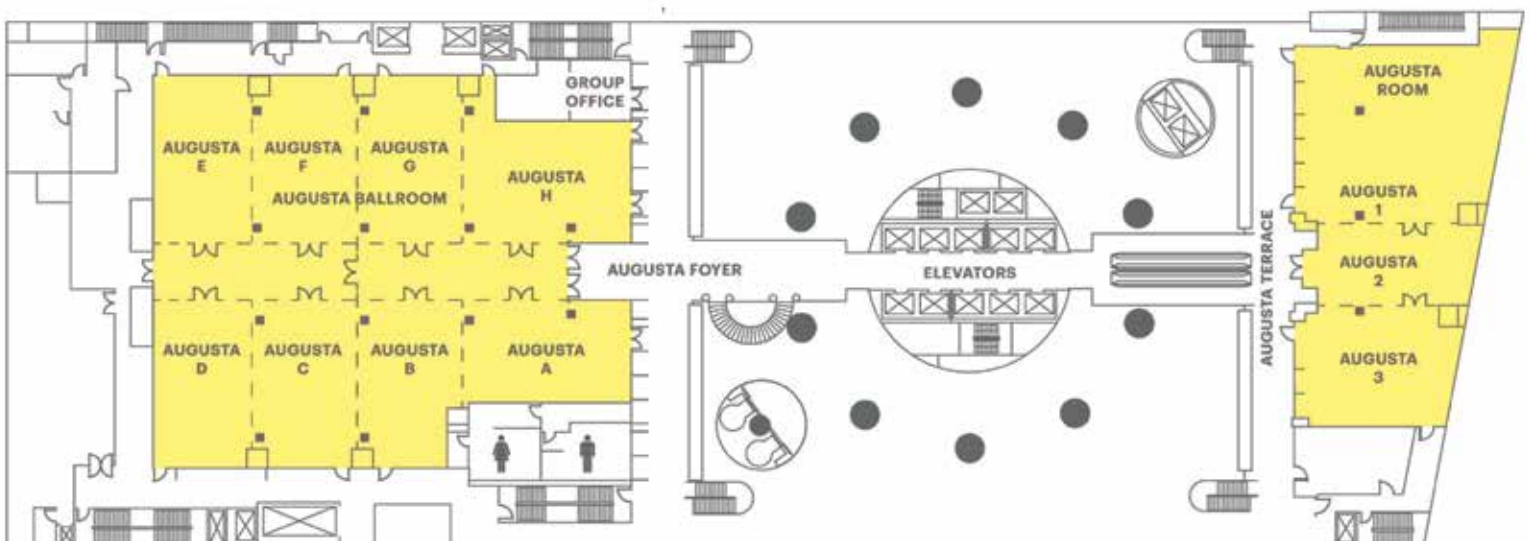
CNN South Tower Hotel Lobby Level



Sixth Floor



Seventh Floor



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 (learningcenter.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

Start Time	End Time	Activity/Event Title

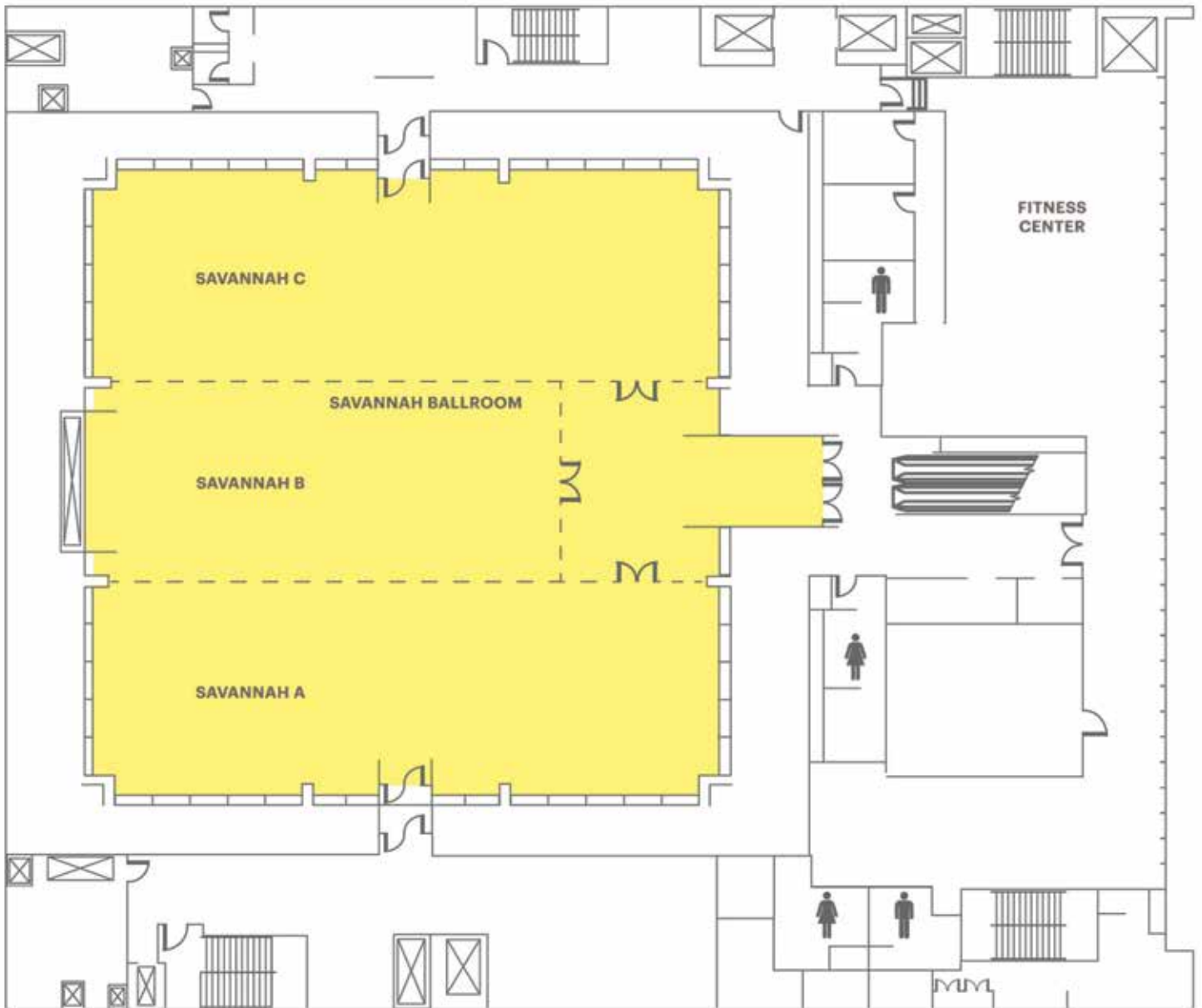
Saturday, March 17, 8:00 AM–8:00 PM

Start Time	End Time	Activity/Event Title

Sunday, March 18 8:00 AM–12 Noon

Start Time	End Time	Activity/Event Title

Tenth Floor



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

David T. Crowther, President
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
Paul Adams, Preservice Teacher Preparation
Eric Brunsell, Professional Development
Emily Schoerling, Research in Science
Education

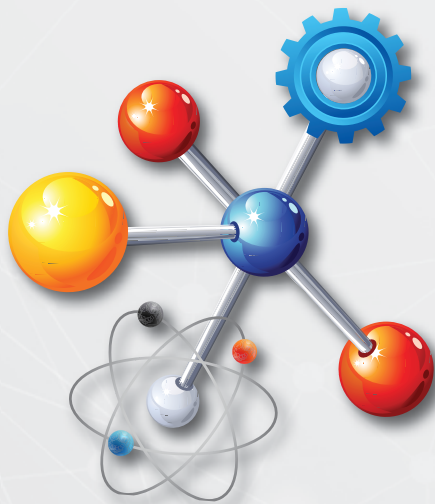
LeRoy Lee, Treasurer
David L. Evans, Executive Director

Council

David T. Crowther, President
Carolyn Higgins, District I
Doug Hodum, District II
Mary C. H. Weller, District III
Mary L. Loesing, District IV
Zoe Evans, District V
Cindi Smith-Walters, District VI
Sheila Smith, District VII
Dennis Alan Casey, District VIII
Brenda Walsh, District IX
Shannon Hudson, District X
J. Carrie Launius, District XI
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



*Building
partnerships
for students
and teachers.*

Northrop Grumman and the Northrop Grumman Foundation are committed to supporting students and teachers focused on increasing STEM awareness, interest, & engagement

www.northropgrumman.com

NORTHROP GRUMMAN



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

NSTA 2019 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

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National Science Teachers Association

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Cary Snider
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

National Science Teachers Association

Distinguished Informal Science Education Award

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



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



Claire Lannoye-Hall
Curator
Detroit Zoological Society
Royal Oak, MI



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

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

Sheila Alger
Frederick County Public
Schools
Winchester, VA

Michelle Bayly
Fesler Junior High School
Santa Maria, CA

Jacqueline Beaupre
Hingham High School
Hingham, MA

Chelsea Bernien
West Kindergarten Center
Baraboo, WI

Johanna Brown
Pullman High School
Pullman, WA

Charlotte Crone
Josephine Dobbs Clement
Early College High School
Durham, NC

Meghan Denson
South Shades Crest
Elementary School
Hoover, AL

Covey Denton
Greenfield School
Wilson, NC

Jessica Guccione
Venado Middle School
Irvine, CA

David Hansen, Jr.
Salisbury Middle School
Salisbury, MD

Chun H. Hsieh
Lakewood High School
Raymond, ME

Melissa Kowalski
Put-in-Bay School
Put-in-Bay, OH

Lewis Naeger
Lindbergh School District
St. Louis, MO

Kasey Nail
Florence Middle School
Florence, MS

Michealrose Ravalier
Ivanna Eudora High School
St. Thomas, VI

Jennifer Tyler
Needham B. Broughton
High School
Raleigh, NC

eCYBERMISSION Team Advisor National Recognition

Sponsored by U.S. Army Educational Outreach Program (AEOP)



6th Grade
Ramu Ramachandran
Kennedy Junior High School
Lisle, IL



7th Grade
Kathy Dinman
Kailua Intermediate School
Kailua, HI



8th Grade
Gretchen Hein
Lake Linden-Hubbell School
Lake Linden, MI



9th Grade
Nixon Xavier
STEM 4 Girls
Portland, OR

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
Goldsboro Elementary
Magnet School
Sanford, FL

Middle Level



Robert Hodgdon
Science Teacher
Bryan County School
District
Richmond, GA



Leah LaCrosse
Science Teacher
McCormick Junior High
School
Huron, OH

High School Level



George Hademenos
Science Teacher
Richardson High School
Richardson, TX



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



Bob Talbitzer
Science Teacher
Kearney High School
Kearney, NE

College Level



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

Shell Science Teaching Award

Sponsored by Shell

Awardee



Richard Embrick
Science Teacher
David Crockett Middle
School
Richmond, TX

Finalist



John Gensic
Science Teacher
Penn High School
Mishawaka, IN

Finalist



Annette Simpson
Science Teacher
McCleskey Middle School
Marietta, GA

Sylvia Shugrue Award for Elementary School Teachers



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



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



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



Aidé Villalobos
Science Teacher
Evergreen Elementary
School
Shelton, WA



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

Northrop Grumman Foundation Excellence in Engineering Education Award

Sponsored by Northrop Grumman Foundation



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

Sponsored by Bio-Rad Laboratories



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

National Finalist

District IV

(NJ, NY, PA)

**Rebecca Grella 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

National Finalist

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

National Finalist

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

National Finalist

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

(AK, OR, WA)

Carly Boyd

Emerson High School
Mount Vernon, WA

District XVIII

(CANADA)

Nicole Anthony

John Polanyi Collegiate Institute
Toronto, ON, Canada

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
9:30–10:30 AM	Robert H. Carleton Lecture: Edward Ortleb
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 "Fred" 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.

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



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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.

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.

Focusing On Evidence of 3-D Learning

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!

11:00 AM–12 Noon

How to Transition to 3-D Standards-Based Grading

12:30–1:30 PM

Using Phenomena in the Physical Sciences

2:00–3:00 PM

Rethinking Assessment: Strategies for the NGSS Classroom

3:00–6:00 PM

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

3:30–4:30 PM

Phenomenal Mysteries and Probes in Science

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)

11:00 AM–12 Noon

Using NGSS Resources to Flip a Science Lesson on Evidence of Multidimensional Learning in Grades 3–5

12:30–1:30 PM

NGSS Physical Science Fun and Inquiry Across the Grade Bands

2:00–3:00 PM

Classroom-Embedded Assessments (CEAs): 3-D Assessments for Learning in Elementary and Middle School Classrooms

Build a Bug: Creating 3-D Insects, Supporting 3-D Learning

3:30–4:30 PM

The Environment in Three Dimensions: Connecting Students to Environmental Science Through Authentic Student Products

5:00–6:00 PM

Designing and Using Equitable 3-D Formative Assessments to Support Meaningful NGSS Investigations

Sunday, March 18

11:00 AM–12 Noon

Coaching Teachers Through Backward Planning for 3-D Lessons and Units

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

Reflecting On Access for All Students

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”

10:0 AM–5:00 PM

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 Researcher Day

Thursday, March 15, 8:30 AM–4:30 PM
International Ballroom F, Omni

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: <i>The Teacher Researcher</i>
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

Friday, March 16, 9:45 AM–4:30 PM
Rooms A311–314, A411/412b, GWCC

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

ELEMENTARY EXTRAVAGANZA

Friday, March 16, 2018

8:00–10:00 AM • Exhibit Hall B-1
GWCC

- 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: **CAROLINA**
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Learning A-Z

Science
Delta Education

PITSCO
EDUCATION

Organizations participating in the Elementary Extravaganza include the Association of Presidential Awardees in Science Teaching, the Council for Elementary Science International, the NSTA Committee on Preschool–Elementary Science Teaching, *Science & Children* authors and reviewers, and the Society of Elementary Presidential Awardees.



NSTA National
Science
Teachers
Association

NGSS@NSTA Forum

Friday, March 16
B102, GWCC



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)

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

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 (See Vol. 2 for details)

10:00 AM–12 Noon Featured Presentation and Panel: *Spare Parts*: Reinventing Engineering Education for the 21st Century
(Speaker: Faridodin “Fred” Lajvardi)

12:30–2:30 PM Community Connections Share-a-Thon

Saturday, March 17 (See Vol. 3 for details)

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

NSTA Professional Learning Institutes

Wednesday, March 14

9:00 AM–4:00 PM

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

With paradigm shifts in STEM education policy, district level administrators and instructional leaders often face challenges in providing professional learning, aligning curriculum, and implementing new science standards. NSTA understands your needs and has developed this PLI especially for you. Share solutions with your peers and walk away with tangible resources, tools, and ideas from leading NSTA authors and experts. Participants receive a copy of *Introducing Teachers and Administrators to the NGSS: A Professional Development Facilitators Guide*.

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 learn-

ing, 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 Uni-
versity, Chicago

Level: Grades K–12

Science Focus: GEN

Location: Grand Ballroom C, Omni

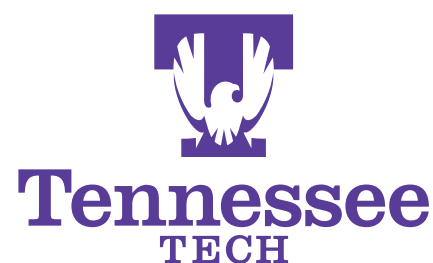
“Powerful leaders are those who have the courage to take the step and embark on the journey” as stated by Blankstein & Noguera in their book *Courageous Leadership for District-Wide Success*. The persistence of achievement gaps by race, class, and gender continue to challenge our educational system. 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.



Join RESET

AN AEOP EFFORT



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

IT STARTS HERE.

HANDS-ON EXPERIENCE | SELF DISCOVERY | REAL-LIFE RESEARCH | EXPERT MENTORSHIP



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)

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

For the majority of short courses, except for SC-4, it is recommended that you take a shuttle to the Westin Peachtree Plaza (roughly 10 blocks from the Convention Center). Please check the shuttle schedule on page 11 for times. Shuttles will depart from the entrance of Georgia World Congress Center's Building B.

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** (@krajcik-joe; 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/2rgRnrf.

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), ColdRegions 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** (@BPSSciencHolly; 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 Observa-

tion 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.



—Photo courtesy of Heidi Roop/U.S. Ice Drilling Program Office

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



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** (runyonc@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 (mdr0303@gmail.com), R.B. Stall High School, North Charleston, SC

Science Focus: ESS1.A, ESS1.B, ESS2.A, ETS1, PS2.A, PS4.A, CCC2, CCC3, CCC4, SEP

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.

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

Donna Joy Barrett-Williams (@donnascience; williamsd17@fultonschools.org), **Angela Hope Ergle** (@ergle_angela; ergle@fultonschools.org), **Amy Kilbride** (kilbride@fultonschools.org), **Chanel Johnson** (johnsondc@fultonschools.org), and **Nyasha Okor**, Fulton County Schools, Atlanta, GA

Nicole Lynn Ford (@STEMSLC; fordnl@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-

ing model that includes Science Ambassadors, Curriculum Writers, and Learning Architects—each with an important role in helping teachers understand the needed shifts in science instruction to realize the goals in the K–12 Science Framework. We are in a non-NGSS state that is focusing on phenomena-based 3-D instruction.

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!

3D 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.



SC-12: Elementary GLOBE Short Course Training

P L E A S E J O I N U S F O R O U R

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

NSTA National
Science
Teachers
Association



F-4: STEM-Themed Guided Tour at Zoo Atlanta

—Photo courtesy of Zoo Atlanta

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.

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

F-2: CANCELED

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 Waggenger, 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.



Botanical Garden Self-Guided Tours

—Photo courtesy of Atlanta Botanical Garden

Watershed Activities at Dunwoody Nature Center **\$40**

T-3 Thursday, March 15 12:30–5:00 PM

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 **\$30**

T-4 Thursday, March 15 6:00–9:30 PM

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.

NSTA wishes to thank Fernbank Science Center for providing

complimentary admission and planetarium show tickets for trip participants.

From Appalachia to Asteroids: Exploring a Billion Years of Georgia History **\$62**

F-1 Friday, March 16 8:00 AM–5:00 PM

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.

From Gardens to Granite: GSU Perimeter College Native Garden and Arabia Mountain **\$47**

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/pcnativegarden/>) 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— Stone Mountain **\$47**

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 wonder how CDC scientists merge old-fashioned detective work with high-tech science to crack the cases of mysterious 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

NSTA/CAEP SPA Auditor/Reviewer Meeting

By Invitation Only

Cypress, Omni..... 9:00 AM–12 Noon

Science Education for Students with Disabilities Preconference Meeting

By Registration Through SEDS

Birch, Omni..... 9:00 AM–4:00 PM

NSELA Leadership Summit Lunch

By Invitation Only

Augusta E-G, Westin 11:30 AM–1:30 PM

SCST Board Meeting

By Invitation Only

Beechnut, Omni..... 2:00–5:00 PM

Science Education for Students with Disabilities (SESD) Board Meeting

Birch, Omni..... 4:00–6:00 PM

Fun Lab

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

NSTA 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 Blrm. E/Gr. 6, Omni 12:30–2:30 PM

Informal Science Education Committee Meeting

Grand Blrm. 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 Blrm. E/Gr. 4, Omni 12:30–2:30 PM

NGSS Advisory Board Meeting

Grand Blrm. E/Gr. 8, Omni 12:30–2:30 PM

NSTA Reports Advisory Board Meeting

Grand Blrm. E/Gr. 5, Omni 12:30–2:30 PM

Preservice Teacher Preparation Committee Meeting

Grand Blrm. E/Gr. 9, Omni 12:30–2:30 PM

Professional Development in Science Education Committee Meeting

Grand Blrm. E/Gr. 10, Omni 12:30–2:30 PM

Research in Science Teaching Committee Meeting

Grand Blrm. E/Gr. 11, Omni..... 12:30–2:30 PM

Science & Children Advisory Board Meeting

Grand Blrm. E/Gr. 1, Omni 12:30–2:30 PM

Conference Program • Meetings and Social Functions

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
By Invitation Only. Visit amsek16.org.
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 Recognitions 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

Int'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

Int'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

Int'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
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Saturday, March 17

9:30–11:30 AM	Professional Development and Resources for Science Teachers	Magnolia, Omni CNN
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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

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

Friday, March 16

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

Association of Science-Technology Centers (ASTC)

President: Anthony Rock

Thursday, March 15

8:00–9:00 AM	Engaging Students Through the Design Process	A312, GWCC
12:30–1:30 PM	Making STEM Connections in the Classroom Setting	C205, GWCC
2:00–3:00 PM	STEM Starts Early “Get a Taste of PASTE”	A313, GWCC

Friday, March 16

3:30–4:30 PM	Designing the World: Engineering Design through a Historical Lens	A312, GWCC
5:00–6:00 PM	Immersing Students and Teachers in Science Field Research: Developing Collaborations Between Informal Educators, Formal Educators, and Research Scientists	A304, GWCC

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
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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

Conference Program • Affiliate Sessions

Council of State Science Supervisors (CSSS), continued

Saturday, March 17

12:30–2:30 PM	Three-Dimensional Instructional Lessons	Dogwood B, Omni CNN
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National Association for Research In Science Teaching (NARST)

President: Barbara A. Crawford

Friday, March 16

8:00–9:00 AM	Using Agriculture as a Context for Teaching Genetics in Elementary Classrooms: Insights from UnICORN (Understanding Inheritance in CORN)	Maple C, South Tower, Omni CNN
11:00 AM–12 Noon	Participatory Action Research Using Annotated Videos to Promote to Promote Reflective STEM Practice Presented at NARST 90th International Conference	Spruce, South Tower, Omni CNN
12:30–1:30 PM	Understanding Crosscutting Concepts in 3-D Science Learning: Strategies for Designing Lessons and Assessments	Grand Blrm. C, Omni CNN
2:00–2:30 PM	Biology Alternative Conceptions and Your Students	Maple C, South Tower, Omni CNN
2:30–3:00 PM	Uncovering Secondary Students' Alternative Conceptions in Biology	Maple C, South Tower, Omni CNN
3:30–4:30 PM	I AM STEM: Transforming the Face of STEM One Community at a Time	A301, GWCC

Saturday, March 17

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

National Middle Level Science Teachers Association (NMLSTA)

Co-Presidents: Terri Hebert and Mary Lou Lipscomb

Thursday, March 15

5:00–6:30 PM	NMLSTA Board Meeting By Invitation Only	Beechnut, Omni CNN
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Friday, March 16

10:15 AM–4:30 PM	Meet Me in the Middle Day See page 51, as well as Vol. 2	Rooms A311–314, A411/412b, GWCC
12 Noon–12:30 PM	NMLSTA Membership and Board Meeting By Invitation Only	A314, GWCC

National Science Education Leadership Association (NSELA)

President: Bob Sotak

Tuesday, March 13

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

7:00–7:45 AM	NSELA Leadership Summit Breakfast By Invitation Only, visit www.NSELA.org	Augusta E-G, Westin
7:00 AM–6:00 PM	NSELA Leadership Summit By Registration Through NSELA	Augusta B-D, Westin
11:30 AM–1:30 PM	NSELA Leadership Summit Lunch, <i>by Invitation Only</i> By Invitation Only	Augusta E-G, Westin
6:00–9:00 PM	NSELA and CSSS Joint Reception By Invitation Only	Peachtree Room and Terrace, Westin

Thursday, March 15

7:00–10:00 AM	NSELA Membership Breakfast By Invitation Only, visit www.NSELA.org	Chastain F/G, Westin
12:30–1:30 PM	Enhancing Student Learning Through the Use of Formative Assessment Strategies in Teacher Professional Development	B309, GWCC
12:30–1:30 PM	NSELA's Tools for Leaders	Magnolia, Omni CNN
2:00–3:00 PM	NSELA's Technology Tools for Leaders	Magnolia, Omni CNN
3:30–4:30 PM	Connecting Informal Science Venues with K–12 Education	Magnolia, Omni CNN

Friday, March 16

8:00–9:00 AM	Teaching a Culturally Responsive Pedagogy	Magnolia, Omni CNN
9:30–10:30 AM	Close Reading and Science Texts: What Curriculum Leaders Need to Know	Magnolia, Omni CNN
11:00 AM–12 Noon	The Delaware NGSS Teacher Leader Program	Magnolia, Omni CNN
12:30–1:30 PM	Leadership Strategies Using NGSS as a Foundation to Ensure Each Student Has a STEM Future	Magnolia, Omni CNN
2:00–3:00 PM	Developing a Successful STEM Ecosystem: A Large Urban District's Journey to STEM Achievement	Magnolia, Omni CNN
3:30–4:30 PM	Developing and Exploring a Culture of STEM	Magnolia, Omni CNN

Conference Program • Affiliate Sessions

Society for College Science Teachers (SCST)

President: Tarren Shaw

Wednesday, March 14

2:00–5:00 PM	SCST Board Meeting, <i>by Invitation Only</i>	Beechnut, Omni CNN
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Thursday, March 15

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

Friday, March 16

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

Three Dimensions of the Next Generation Science Standards (NGSS)

Science and Engineering Practices	Crosscutting Concepts
SEP1 Asking Questions and Defining Problems SEP2 Developing and Using Models SEP3 Planning and Carrying Out Investigations SEP4 Analyzing and Interpreting Data SEP5 Using Mathematics and Computational Thinking SEP6 Constructing Explanations and Designing Solutions SEP7 Engaging in Argument from Evidence SEP8 Obtaining, Evaluating, and Communicating Information	CCC1 Patterns CCC2 Cause and Effect: Mechanism and Explanation CCC3 Scale, Proportion, and Quantity CCC4 Systems and System Models CCC5 Energy and Matter: Flows, Cycles, and Conservation CCC6 Structure and Function CCC7 Stability and Change

Disciplinary Core Ideas

Disciplinary Core Ideas in Physical Science	Disciplinary Core Ideas in Life Science	Disciplinary Core Ideas in Earth and Space Science	Disciplinary Core Ideas in Engineering, Technology, and the Application of Science
PS1: Matter and Its Interactions PS1.A: Structure and Properties of Matter PS1.B: Chemical Reactions PS1.C: Nuclear Processes PS2: Motion and Stability: Forces and Interactions PS2.A: Forces and Motion PS2.B: Types of Interactions PS2.C: Stability and Instability in Physical Systems PS3: Energy PS3.A: Definitions of Energy PS3.B: Conservation of Energy and Energy Transfer PS3.C: Relationship Between Energy and Forces PS3.D: Energy in Chemical Processes and Everyday Life PS4: Waves and Their Applications in Technologies for Information Transfer PS4.A: Wave Properties PS4.B: Electromagnetic Radiation PS4.C: Information Technologies and Instrumentation	LS1: From Molecules to Organisms: Structures and Processes LS1.A: Structure and Function LS1.B: Growth and Development of Organisms LS1.C: Organization for Matter and Energy Flow in Organisms LS1.D: Information Processing LS2: Ecosystems: Interactions, Energy, and Dynamics LS2.A: Interdependent Relationships in Ecosystems LS2.B: Cycles of Matter and Energy Transfer in Ecosystems LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS2.D: Social Interactions and Group Behavior LS3: Heredity: Inheritance and Variation of Traits LS3.A: Inheritance of Traits LS3.B: Variation of Traits LS4: Biological Evolution: Unity and Diversity LS4.A: Evidence of Common Ancestry and Diversity LS4.B: Natural Selection LS4.C: Adaptation LS4.D: Biodiversity and Humans	ESS1: Earth's Place in the Universe ESS1.A: The Universe and Its Stars ESS1.B: Earth and the Solar System ESS1.C: The History of Planet Earth ESS2: Earth's Systems ESS2.A: Earth Materials and Systems ESS2.B: Plate Tectonics and Large-Scale System Interactions ESS2.C: The Roles of Water in Earth's Surface Processes ESS2.D: Weather and Climate ESS2.E: Biogeology ESS3: Earth and Human Activity ESS3.A: Natural Resources ESS3.B: Natural Hazards ESS3.C: Human Impacts on Earth Systems ESS3.D: Global Climate Change	ETS1: Engineering Design ETS1.A: Defining and Delimiting an Engineering Problem ETS1.B: Developing Possible Solutions ETS1.C: Optimizing the Design Solution ETS2: Links Among Engineering, Technology, Science, and Society ETS2.A: Interdependence of Science, Engineering, and Technology ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World

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NSTA National
Science
Teachers
Association

7:00–7:45 AM Networking Opportunity

NSELA Leadership Summit Breakfast

(By Invitation Only)

Augusta E–G, Westin

7:00 AM–6:00 PM Meeting

NSELA Leadership Summit

(By Preregistration Through NSELA)

Augusta B–D, Westin

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.

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 attendees 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.

9:00 AM–12 Noon Meeting

NSTA/CAEP SPA Auditor/Reviewer Meeting

(By Invitation Only)

Cypress, Omni

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

Science Area

A science area category is associated with each session. These categories are abbreviated 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.

Focusing On Evidence of 3-D Learning



Imagining Science as the Foundation for STEM



Comprehending the Role of Literacy in Science



Reflecting On Access for All Students

The following icons will be used throughout this program.



NSTA Press® Sessions



Sessions highlighting STEM learning experiences that occur in out-of-school environments.

9:00 AM–4:00 PM Meeting

Science Education for Students with Disabilities Preconference Meeting

(By Preregistration Through SEDS)

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 Shippensburg 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 Link- ing 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 Lit- eracy 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.

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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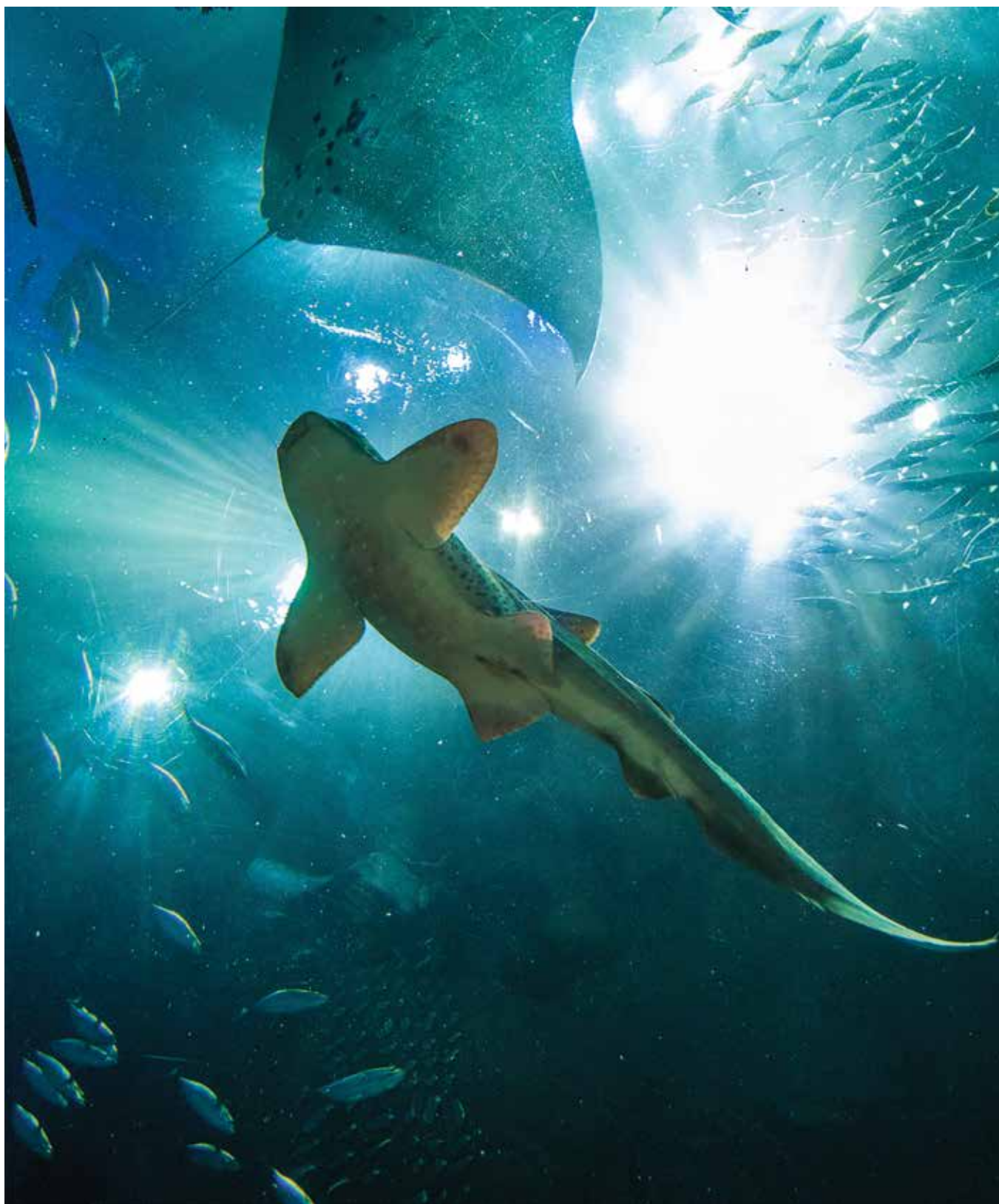
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The Georgia Aquarium in Atlanta houses more than a hundred thousand animals and represents several thousand species, residing in 10 million U.S. gallons of marine and salt water!

Thursday, March 15

	Featured Speakers/Sessions	Special Sessions	Special Events/Sessions
8:00 AM			
9:00 AM		First-Timers' Session 8:00–9:00 AM B102, GWCC	Teacher Researcher Day 8:30 AM–4:30 PM International Ballroom F, Omni
10:00 AM	General Session 9:15–10:30 AM Thomas B. Murphy Bldg., GWCC Speaker: Ron Clark		
11:00 AM	Ron Clark's book signing 11:00 AM–12:15 PM Booth #603 in Exhibit Hall <i>* books will be available for purchase at the booth while supplies last.</i>		
12 Noon			
1:00 PM			
2:00 PM	Mary C. McCurdy Lecture 2:00–3:00 PM B309, GWCC Speaker: Carla Zembal-Saul		
3:00 PM			
4:00 PM	Featured Presentation 3:30–4:30 PM B309, GWCC Speaker: Cynthia Greenleaf	Community Connections Featured Forum: Exploring Strategies for Culture- Inclusive Student Engagement 3:30–4:30 PM A312, GWCC Speaker: Eric Jolly	
5:00 PM			
6:00 PM			Special Session <i>Introducing OK Go Sandbox,</i> <i>hosted by Google</i> 6:00–7:00 PM Sidney Marcus Auditorium, GWCC
7:00 PM			
8:00 PM			
9:00 PM	NGSS Live Chat 8:30–10:00 PM Dogwood A, Omni Presenters: Ted Willard, Tricia Shelton, and others Join live or via Twitter using #NGSSchat		
10:00 PM			

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 (@gawoodhodes; 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

Madelene 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

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NGSS

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Focusing On Evidence of 3-D Learning



Imagining Science as the Foundation for STEM



Comprehending the Role of Literacy in Science



Reflecting On Access for All Students

The following icons will be used throughout this program.



NSTA Press® Sessions



Sessions highlighting STEM learning experiences that occur in out-of-school environments.

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** (@corytforbes; 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 (@drcampbe; 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 (flanagaj@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; susantate@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

Science Focus: ESS1, ESS2.A, ESS2.B, ESS2.D, ESS3.B, ESS3.C, ETS2.B, PS1.A, PS1.B, PS2, PS3.B, PS3.D, PS4.B, PS4.C, CCC1, CCC2, CCC4, CCC5, CCC7, SEP2, SEP4, SEP5, SEP7, SEP8

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*.

Sensing Science Through Modeling Matter for Kindergarten Students

(Kindergarten)

A401, GWCC

Science Focus: ESS2.D, PS1, CCC6, SEP2, SEP4, SEP5

Carolyn Staudt (@cjstaudt; cstaudt@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.

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@fuhsd.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*.

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@bxscsm.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@moorheadschoools.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.

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 (clnunn@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.

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 (jaquilar@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.

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.

Turn your classroom into a CreositySpace!

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Peg@CreositySpace.com / 508.740.5906

**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.

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.

INF 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 (alowrynews1@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.

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 Shartzner (donna.shartzner@breck.kyschools.us), Breckinridge County Middle School, Harned, KY

Emily McKernan (theponyplace@gmail.com), Brushton-Moira Central School, Brushton, 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!

INF 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@ncc.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 (miskathyfuller@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, Mansfield

Carol Steingart, Coast Encounters, LLC, Wells, ME
President: 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.

3D 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.

INF 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

Science Focus: ETS1.B, ETS2.B, LS2.C, PS3.B, SEP1, SEP2, SEP3, SEP4, SEP6, SEP8

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

Science Focus: ESS1.B, ESS3.C, ETS1, PS2.A, PS3.C, CCC1, CCC2, CCC4, CCC6, CCC7, SEP1, SEP2, SEP3, SEP4, SEP6, SEP8

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; judydps23@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.

Implementing Three-Dimensional Teaching and Learning



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 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

Science Focus: LS1, LS4.A, LS4.B, LS4.C, LS4.D, CCC4

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.



— Courtesy of Jennifer Williams and Mary Ellen Hamner

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.

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

Science Focus: ESS2.D, ESS3.C, ESS3.D, SEP4, SEP5, SEP7

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. Vist 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)

B301, GWCC

Science Focus: GEN

Sponsor: Delta Education/School Specialty Science

Mary Anne Feller, Sts. Peter and Paul Catholic School, Haubstadt, IN

Deborah Vannatter, University of Evansville, IN

Pushing to do hands-on science but need to up your students' use of informational texts? Seamlessly blend hands-on experiences and reading strategies using leveled readers and science notebooks with Delta Education's new ScienceFLEX modules. Leave with readers, equipment, and a lesson you can try with your students next week.

Identifying Energy Transfers in Motors and Generators

(Grades 6–8)

B302, GWCC

Science Focus: PS2, PS3

Sponsor: Delta Education/School Specialty Science—FOSS

Jessica Penchos, The Lawrence Hall of Science, University of California, Berkeley

Dissect a motor, identify its components, and make claims about the phenomenon of energy transfer in the new FOSS Next Generation Electromagnetic Force Course for middle school. Compare the motor components to those of a generator and consider sustainability of energy sources. Identify connections to the three dimensions of NGSS.

Go on a Cell Quest! Teaching Cell Structure Through Gaming

(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

Your quest, should you choose to accept it, is to explore cell structure in 3D with new CPO Science Link Cell Quest! Go on a cell structure and function adventure using cutting-edge Augmented Reality, then use your knowledge to complete a quest in one of eight different cell types.

Essential Materials for Easy NGSS Lessons

(Grades 6–8)

B304, GWCC

Science Focus: ESS, LS, PS

Sponsor: Ward's Science

Patty Muscatello, VWR Science Education, Rochester, NY

Great NGSS lessons don't have to be costly or complicated. Learn how to save time, money—and your sanity—while

teaching real-world STEM skills and covering core life, Earth, and physical science curriculum topics. Play the role of biomedical engineer, architect, chemist, and more—and win product giveaways.

NGSS Waves: Making an Abstract Concept Visible!

(Grades 6–8)

B305, GWCC

Science Focus: PS4.A, PS4.B, CCC6, SEP3, SEP4, SEP7, SEP8

Sponsor: Lab-Aids, Inc.

Lisa Kelp, Lab-Aids, Inc., Ronkonkoma, NY

Experience two exemplary NGSS-focused activities from SEPUP that build up to Waves and Their Applications in Technologies for Information Transfer (MS-PS4-2). Anchored in the context of health issues around various types and levels of wave exposure, these activities model seamless integration of the three dimensions, ELA, and math standards. We will explore the relationship between visible light frequency and energy through the use of a phosphorescent material and use light boxes to explore reflection and refraction.

How Do Species Coexist? Niche Partitioning with HHMI BioInteractive

(Grades 9–12)

B308, GWCC

Science Focus: LS2.A, LS2.B, LS2.C, CCC1, CCC2, CCC5, CCC7

Sponsor: HHMI BioInteractive

Scott Sowell (scottpsowell@gmail.com), Darnell-Cookman School of the Medical Arts, Jacksonville, FL

Amy Fassler (fasslera@marshfieldschools.org), Marshfield High School, Marshfield, WI

Using new resources from HHMI BioInteractive, we will show you how to use observations on feeding habits and DNA meta-barcoding to create a model of niche partitioning for large herbivores on the African savannah. Participants are encouraged to bring a laptop/tablet.

Are Increased Incidences of Infection the Result of Climate Change?

(Grades 9–College)

B310, GWCC

Science Focus: ESS3, LS

Sponsor: Bio-Rad Laboratories

Tamica Stubbs, Bio-Rad Laboratories, Hercules, CA

Why does climate change matter to me? There have been increased reports of infections with symptoms such as gastroenteritis, bloody stools, fever, and dark blisters. Find out which suspected microbes are associated with this increase and why they may be more common as the average temperature on Earth increases.

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 Bio-Molecular 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 (amplifyscience@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

Science Focus: ESS1.A, ESS2.B, ESS2.D

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.

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

Science Focus: LS1.A, LS1.C, LS1.D, LS2.B, LS2.C, LS2.D, LS3.B, LS4.C, CCC, SEP

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 (rclary@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

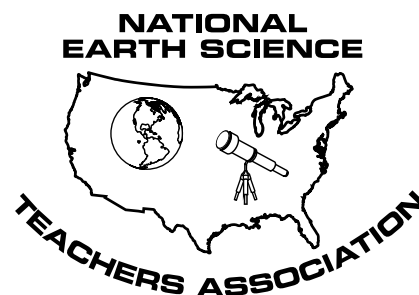
Science Focus: GEN, NGSS

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.

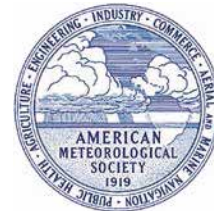
Sidney Marcus Auditorium, Georgia World Congress Center

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:



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



—Courtesy of Mike Weiss

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.

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.

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.

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 painting skills! Artistic? Our favorite design will win a free kit.

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

Science Focus: LS1.A, LS1.C, CCC4, CCC5, CCC6, SEP2, SEP3, SEP4, SEP5

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.

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)

Sponsored by

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Educational
Innovations
www.teacherinnovations.com

NSTA National
Science
Teachers
Association

Attend for a chance
to win a variety of
incredible door prizes!



#NSTA18

www.nsta.org/Atlanta

9:30–11:00 AM Presentation**Teacher Researcher Day Session: You CAN Do Classroom Research: The Teacher Researcher**

(General) *International Ballroom F, Omni*
 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.

Evaluate Sessions Online!

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! (See page 17 for details.)

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 demonstra-

tions, 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 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** (jan.huff@vai.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

Science Focus: PS1.A, PS1.B, PS2, PS3.A, PS3.B, PS3.C, CCC, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6, SEP7

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 Hedeon (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.

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

Science Focus: LS1.A, LS1.B, LS3, LS4.B, CCC6, SEP1, SEP2, SEP6, SEP7, SEP8

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

Science Focus: ETS2, LS1.A, LS3.B, LS4.B, LS4.C, CCC2, CCC3, CCC4, CCC6, CCC7, SEP1, SEP2, SEP3, SEP4, SEP5, SEP7, SEP8

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@nlcphs.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.



—Courtesy of Mike Weiss

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 (mhinchliffe@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.

INF 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.

FLINN Workshops

Hands-On Science to Motivate and Educate



All Flinn workshops • Room B203 • Georgia World Congress Center

Thursday, March 15

8:00 a.m. – 9:30 a.m.
10:00 a.m. – 11:30 a.m.
12:00 p.m. – 1:30 p.m.
2:00 p.m. – 3:30 p.m.
4:00 p.m. – 5:30 p.m.

Positively Engaging Demos & Labs for Chemistry from Flinn Scientific
Flinn Favorite Biology Activities and Games
Year-Round Solutions for Success in AP* Chemistry from Flinn Scientific
Project-Based Design STEM Engineering by WhiteBox Learning
Exploring Biology through Dissection with Flinn Scientific

Friday, March 16

8:00 a.m. – 9:30 a.m.
10:00 a.m. – 11:30 a.m.
12:00 p.m. – 1:30 p.m.
2:00 p.m. – 3:30 p.m.
4:00 p.m. – 5:30 p.m.

Fantastic Physical Science Phenomena from Flinn Scientific
Support Your Students in Their Scientific Journey with Flinn's Digital Resources
Dynamic Demonstrations from Flinn Scientific
Green Chemistry Experiments for General and Advanced Placement* Chemistry
Flipping AP* Biology with FlinnPREP™

Saturday, March 17

8:00 a.m. – 9:30 a.m.
10:00 a.m. – 11:30 a.m.
12:00 p.m. – 1:30 p.m.
2:00 p.m. – 3:30 p.m.

Flinn Favorite Biology Activities & Games
Project-Based Design STEM Engineering by WhiteBox Learning
Award-Winning STEM Enrichment Program for Grades 4-8 from Flinn Scientific
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

Science Focus: LS1.A, LS1.D, LS2.A, LS2.D, LS3, LS4.A, LS4.C, LS4.D, CCC2, CCC4, CCC6, SEP

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; mr.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.

11:00 AM–6:00 PM Exhibits

Hall B2, GWCC

Did you know that NSTA offers exclusive exhibit hall hours today from 11:00 AM to 12:30 PM? During these hours there are no teacher sessions scheduled and it's a perfect time to visit the exhibits and discover all the products and services leading science education companies and organizations have to offer. You'll discover something new and exciting in the world of science teaching. Some exhibitors will offer materials for sale.

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, Rosharon, TX

Erik Benton, CPO Science/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 mathematic 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

Science Focus: ESS2.C, ETS1.A, ETS1.B, CCC3, CCC4, SEP2, SEP3, SEP4, SEP6, SEP7

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

Science Focus: LS1.A, LS3, LS4.B, LS4.C, CCC1, CCC2, CCC6, CCC7, SEP4, SEP6

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

Tim Herman (herman@msoe.edu), MSOE Center for Bio-Molecular Modeling, Milwaukee, WI

ENGAGE students in investigating enzyme structure/function using multiple modeling strategies. EXPLORE and EXPLAIN catabolism, anabolism, and competitive/noncompetitive inhibition with hands-on/minds-on instructional materials. ELABORATE on insecticide inhibition at an enzyme active site resulting in unintended consequences. EVALUATE student learning with an enzyme molecular story. Handouts!

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) *A410, GWCC*
Science Focus: ESS2.B, ESS2.C, ESS2.D, CCC4, CCC2, SEP2, SEP7

Stephanie Harmon (@StephHarmon41; *sharmon8564@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) *C202, GWCC*
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 successfully integrate design thinking without compromising life science content.

Pop Culture and Comics: Making STEM Accessible for At-Risk Learners

(Grades 6–12) *C207, GWCC*
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) *C211, GWCC*
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) *C301, GWCC*

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) *International Ballroom E, Omni*

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) *International Ballroom F/Group 1, Omni*

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) *International Ballroom F/Group 4, Omni*

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 (chrisebry.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.



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7TH ANNUAL

STEM

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

Forum & Expo

HOSTED BY NSTA

Philadelphia, Pennsylvania

July 11–13, 2018

#STEMforum

This dynamic event brings together educators and organizations who are actively implementing STEM programs in their schools or districts.

Come prepared to learn tactics that work, build your professional learning network, connect with effective outreach programs and partnerships, discover new resources, and build a strong curriculum.

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

NSTA National Science Teachers Association



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** (kmadden4@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 (phyllishpennock@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 (tjshaw@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.



—Courtesy of Mike Weiss

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, Elsie 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 (rentfrola@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!

12:30–1:30 PM Hands-On Workshops



STEM Escapes: Bringing the Escape Room to the Classroom!

(Grades 6–8)

A301, GWCC

Science Focus: GEN, CCC

Eva Cwynar (@evacwynar; 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)

A311, GWCC

Science Focus: GEN, NGSS

Teresa Eliopoulos (@T_Eliopoulos; telopoulos@achieve.org), Achieve, Inc., Washington, DC

President: Ted Willard (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)

A314, GWCC

Science Focus: LS2.C, LS4.D, CCC7

Tara Langus (tlangus5@nevada.unr.edu), University of Nevada, Reno

David Crowther (@Dtcrowther; crowther@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)

A315, GWCC

Science Focus: ETS2, LS1.D, LS2.D, LS3, LS4.A, LS4.C, LS4.D, PS1.B, CCC1, CCC2, CCC3, CCC4, CCC6, SEP1, SEP2, SEP3, SEP4, SEP5, SEP7

Beth Guzzetta (@bethguzzetta; bguzzetta@allendalecolumbia.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)

A316, GWCC

Science Focus: LS1, LS4, CCC1, SEP4

Mary Whaley (mwhaley@mbayaq.org) and **Beth Callaghan** (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.

INF Connecting the Classroom to the Field with Focused Field Trips

(Grades P–5)

A402, GWCC

Science Focus: INF, NGSS

Jenny Flowers (jflowers@fieldmuseum.org) and **Kyla Cook** (kcook@fieldmuseum.org), The Field Museum, Chicago, IL

Sarah Wehlage (swehlage@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.

INF Bird Enthusiasts Engineer Mindful Science

(Grades K–5)

A403, GWCC

Science Focus: LS, INF

Virginia Frissell (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)

A404, GWCC

Science Focus: ETS2.A, ETS2.B, SEP1, SEP2, SEP8

Becky Busby (@buzzbee4me; bbusby@liberty.k12.ga.us), Frank Long Elementary School, Hinesville, GA

Katrina Roddenberry (@KRoddenberry9; katrinaroddenberry@yahoo.com), 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; krsciencelady@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.

INF 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.

3D 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 be 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 DePetrìs (@carriedepetrìs; carrie.depetrìs@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

Mizrap Bulunuz (mbulunuz@gmail.com), Uludag University, Bursa, Turkey

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.

INF Achieving 3-D Learning Through Hands-On Activities: Lessons from Science Olympiad

(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)

(General)

Spruce, South Tower, Omni

Science Focus: GEN, NGSS

LaMoine Motz (llmotz@comcast.net), 1988–1989 NSTA President, and The Motz Consulting Group, White Lake, MI
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

(Grades 7–College)

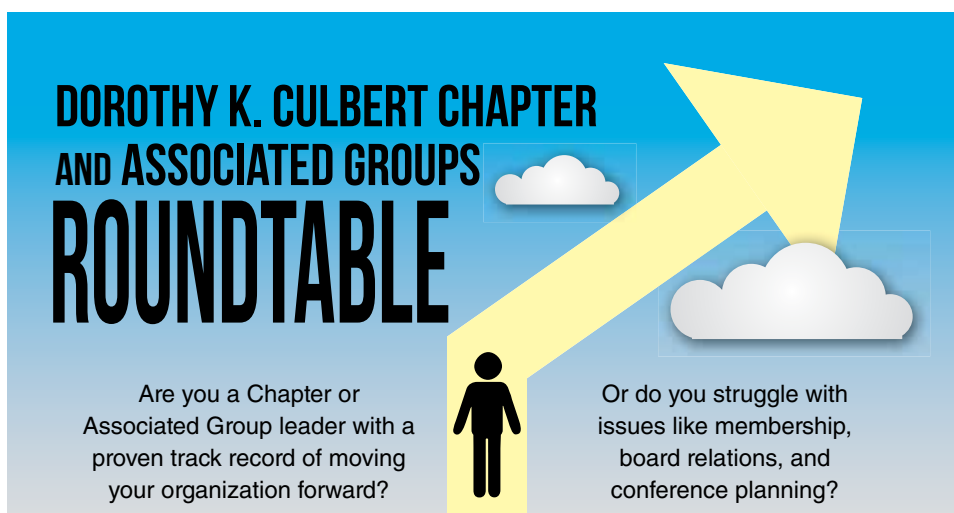
B209, GWCC

Science Focus: ETS2.A, LS3, LS4.A, LS4.B, LS4.D, CCC1, SEP

Sponsor: miniPCR

Ezequiel Alvarez-Saavedra (zeke@minipcr.com), mini-PCR, 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

NSTA National
Science
Teachers
Association

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

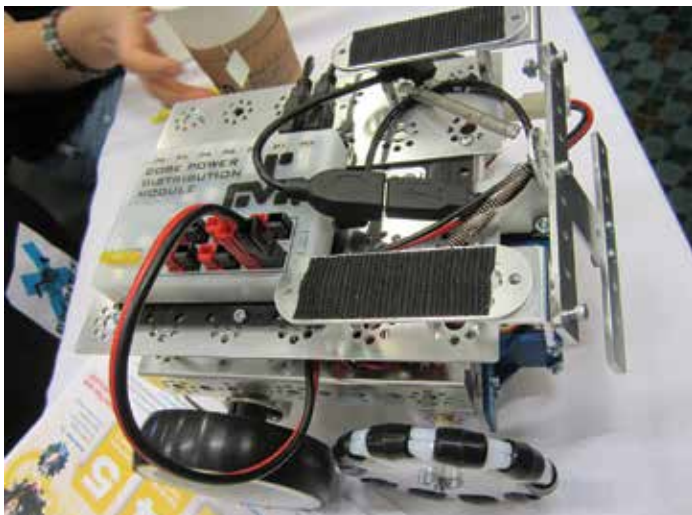
(Grades 9–12) *B216, GWCC*

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

Science Focus: LS1.C, LS2.B, PS3.D

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@mgd.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 (@rippy77; rippy77@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.



—Courtesy of Mike Weiss

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

Science Focus: ETS1.B, ETS1.C, LS1.B, LS2.C, CCC2, CCC7, SEP2, SEP6, SEP7, SEP8

Alexandra Laing (@missalaing; alexandra.laing@palm-beachschools.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

Science Focus: ESS, LS4.A, LS4.B, LS4.C, CCC1, CCC2, SEP1, SEP3, SEP4, SEP6, SEP7, SEP8

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@uchoe.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

(College)

Hickory, Omni

Science Focus: GEN

Kerry Cheesman (kcheesma@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 (rclary@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

President: **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 (@fljmenendez; 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 (@peadams11; 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; susangermanscienceteacher@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@mediacommbb.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.

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.



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; deborah-kravchuk@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; tinkerbello611@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!



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 (cctai59@gmail.com) and **Karin Keith** (keith-kj@etsu.edu), East Tennessee State University, Johnson City
Diana O'Neal (@DOnealdiana; oneald@wcde.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 (farlandsmith@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** (timothy@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; jrmeadows@tntech.edu), 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 (ruudruth61@gmail.com), Cleveland State University, Cleveland, OH

Juliana Texley (@JulianaTexley; texlej@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** (xz1981@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.

3D 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.

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.

Using Tiny Homes to Connect with STEM

(Grades 6–12)

B402, GWCC

Science Focus: ETS, CCC3, CCC6, SEP

Heidi Bjerke (@hbjjerke; hbjjerke@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.

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.

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.

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!

INF 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** (@staffdevjinkie; 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 (llmotz@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

Science Focus: ESS3.C, LS2.A, SEP3, SEP4, SEP5, SEP8

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: PS1

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

Science Focus: ESS2.A, ESS2.B, ESS2.E, ESS3.D, LS2.B, LS2.C, LS4.A, LS4.B, CCC2, CCC3, CCC7, SEP5, SEP6, SEP7

Sponsor: HHMI BioInteractive

Samantha Johnson (smjohnson@slzsd.org), Arroyo High School, San Lorenzo, CA

James Clark (jclark@slzsd.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 (roh1@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

NSTA National
Science
Teachers
Association

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; ginaleso@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 (dfrench@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.

INF Teacher Researcher Day Session: Summer STEM Unstitute 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.

2:30–5:30 PM Meeting

AMSE Board of Directors Meeting

(By Invitation Only)

Sycamore, Omni

For more information, please visit amsek16.org.

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

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 (@BPSSciencePam; ppelletier@bostonpublicschools.org) and **Holly Rosa** (@BPSSciHolly; hrosa@bostonpublicschools.org), Boston (MA) Public Schools

For description, see page 58.

3:15–3:45 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 Illinois 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](https://twitter.com/RPDPSci); carrollk@rpd.net), Southern Nevada Regional Professional Development Program, North Las Vegas

Cindy Kern ([@cindylkern](https://twitter.com/cindylkern); [@QUeST-LC](https://twitter.com/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](https://twitter.com/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



3:30–4:30 PM Featured Presentation

Reframing Reading as an Inquiry Practice of Science

(General)

B309, GWCC

Science Focus: GEN



Cynthia Greenleaf (cgreenl@wested.org), Co-Director, Strategic Literacy Initiative/WestEd, Oakland, CA

Presider: Mary Ellen Manning, Strand Leader, NSTA Atlanta National Conference, and Tallassee High School, Tallassee, AL

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*.*

3:30–4:30 PM Community Connections

Featured Forum

INF Exploring Strategies for Culture-Inclusive Student Engagement

(Informal)

A312, GWCC

Science Focus: GEN



Eric Jolly, President and Chief Executive Officer, The Saint Paul & Minnesota Community Foundations, Saint Paul

Presider: Ben Dworken, Educational Equity at FHI 360, New York, NY

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).*



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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 (sjthomas1@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

Science Focus: ESS1.B, LS4.C, CCC4, CCC7, SEP1, SEP2

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.

INF 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; lig27@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

Science Focus: LS1.A, LS3, LS4.A, LS4.B, LS4.C, CCC1, CCC2, CCC6, , SEP1, SEP3, SEP4, SEP7

Bruce Nash (@DNALC; nash@cshl.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@fuhsd.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 (gabriele1114@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!

INF NSELA-Sponsored Session: Connecting Informal Science Venues with K–12 Education

(Grades K–12)

Magnolia, Omni

Science Focus: INF

Kevin Niemi (kjniemi@wisc.edu), University of Wisconsin–Madison

Ken Brandt (brandt@uncp.edu), Robeson Planetarium and Science Center, Lumberton, NC

We will share ideas and specific partnerships that support and strengthen the connections between K–12 educators and informal STEM learning centers like planetariums and science centers.

Science and Literacy Messages from Michigan: Building Capacity of K–12 Teachers with Key Literacy Practices to Deepen Conceptual Understanding in Science

(Grades K–12)

Oak, South Tower/Main Lobby Level, Omni

Science Focus: GEN, SEP8

Mary Starr (@starrscience; mary@starrscience.com), Michigan Mathematics and Science Centers Network, Plymouth

Jessica Ashley (@joy_everyday; jessica.ashley@oakland.k12.mi.us), Oakland Schools, Waterford, MI

Using examples from our professional learning facilitation, we share multiple ways we support K–12 teachers as they embed literacy tools in their science teaching.

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 (@kristyakidd; 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 (@judysweeney1; judytsweeney@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 (*kmbhrsh1109@gmail.com*), Penn State, University Park, PA

Deana Washell and **Colleen McCracken** (*cmm5116@gmail.com*), Easterly Parkway Elementary School, State College, PA

Megan Germ (*mcg19@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@dekabsschoolsga.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

Science Focus: ESS1.B, ESS1.C, ESS2.A, ESS3.B, ESS3.C, CCC1, CCC2, CCC3, SEP2, SEP3, SEP4, SEP6

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@astrocity.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@rocket-mail.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)

B216, GWCC

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)

B306, GWCC

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)

B315, GWCC

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)

B316, GWCC

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.

4:00–4:30 PM Presentations

Leveraging Partnerships to Support Urban STEM Education

(Grades P–12)

A304, GWCC

Science Focus: GEN, SEP8

Melanie Johnson (@MAJ_AP; mljohnson@atlanta.k12.ga.us) and **Margul Woolfolk** (@retha_woolfolk; mwoolfolk@atlanta.k12.ga.us), M. Agnes Jones Elementary School, Atlanta, GA

Implementing successful STEM Education in an urban elementary school can be a daunting task. There are many barriers, including funding, perceptions of who “can and should do STEM,” and expertise. Learn how to use partnerships to overcome these barriers.

Mixtures and Solutions: The Effectiveness of the 5E Model Undergirded with Reciprocal Teaching in Diverse Settings

(Grades 4–6)

A401, GWCC

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)

A408, GWCC

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)

C211, GWCC

Science Focus: PS3.A, PS3.B, CCC5

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

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

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*.

NSTA National Science Teachers Association

The Power of Images: Curating Positive Images of People Doing (Real) Science for Middle Grades

(Grades 6–8)

C213, GWCC

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)

C301, GWCC

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)

Dogwood B, Omni

Science Focus: GEN, NGSS

Kailey Rhodes (@movablefeist; 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)

Grand Ballroom C, Omni

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)

Hickory, Omni

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)

Juniper, Omni

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.

INF Science for Service Learning Success

(Grades K–12)

Walnut, Omni

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

Science Focus: LS1, LS3, LS4.A, LS4.D, CCC2, CCC4, CCC6, CCC7, SEP2, SEP6

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 helps 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.

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, SEP1, SEP2, SEP3, SEP6, SEP8

Sponsor: HHMI BioInteractive

Jessica Bean (jrbean@berkeley.edu), University of California Museum of Paleontology, Berkeley

Aleeza 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

Science Focus: LS1.C, PS1.A, PS1.B, CCC, SEP

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@legendslearning.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

Science Focus: LS2.A, LS2.C, CCC1, CCC2, CCC3, CCC7, SEP2, SEP4, SEP5

Sponsor: HHMI BioInteractive

Paul Strode (paul.strode@bvdsd.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

Sara Lacy (sara_lacy@terc.edu), TERC, Cambridge, MA

Cory Forbes (@corytforbes; cforbes3@unl.edu), University of Nebraska–Lincoln

Brian Reiser (@reiserbrianj; reiser@northwestern.edu), Northwestern University, Evanston, IL

Carolyn Staudt (@cjstaudt; cstaudt@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>.



NSTA Press® Session: Building the Science Department: Stories of Success

(Grades 9–12)

B405, GWCC

Science Focus: GEN, NGSS

Wayne Melville (wmelvill@lakeheadu.ca), Lakehead University, Thunder Bay, ON, Canada

Todd Campbell (@dtcampbe; todd.campbell@uconn.edu), University of Connecticut, Storrs Mansfield

Douglas Andrew Jones (dougyjones@gmail.com), Sir Winston Churchill Collegiate & Vocational Institute, Thunder Bay, ON, Canada

Shawn Devin (shawn.devin@tcdsb.org), Toronto (ON) Catholic District School Board, Canada

Discussion centers on our second book with NSTA Press based on the stories of success that teachers tell about their work in reforming teaching and learning.

Using Combined Text Genres to Influence Meaning Construction in Science

(Grades 6–12)

C206, GWCC

Science Focus: LS, CCC, SEP

Mesa Davis (@7thSciTchr; davis.mesa@mail.fcboe.org), J.C. Booth Middle School, Peachtree City, GA

Danise Fields (danise.fields@woodward.edu), Woodward Academy, College Park, GA

Discover new ways to use texts, including scientific articles, to shape classroom discussion and meaning construction. Access to primary research articles for life science provided.

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.



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.

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 ByersSmall (*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 Ramage (*jamie.ramage@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; *jamart9254@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

3D 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.

3D 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

Science Focus: LS1.A, LS3.A, CCC6

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!

Multimedia Tools for Supporting K–8 Instruction in the NGSS Science Practices

(Grades 1–8) A315, GWCC

Science Focus: GEN, SEP

Kevin Cherbow (cherbow@bc.edu) and **Katherine McNeill** (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)

A316, GWCC

Science Focus: ESS3.A, ETS2.B, PS3.B

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)

A402, GWCC

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)

A404, GWCC

Science Focus: LS2

Maia Binding (@SEPUP_UCB; 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)

A405, GWCC

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)

B103, GWCC

Science Focus: ETS1.B, INF

Marie Kowalski (@SheddLearning; mariekowalski1@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.

3D Start Big, Go Small...with Life Science Storylines

(Grades 3–8)

B401, GWCC

Science Focus: LS1, LS3, CCC3, CCC6, SEP2, SEP7

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)

C201, GWCC

Science Focus: LS

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)

C203, GWCC

Science Focus: LS, CCC, SEP

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@holynamempa.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@hvrds.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.

INF Connecting Chemistry to Your World Through ChemClub

(Grades 9–12)

C302, GWCC

Science Focus: PS, INF

Karen Kaleuati (@ACSCChemClubs; 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 (@tslowiak; slowiatj@chipfalls.org) and

Kari Skaar (skaarke@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 (sgutzler1@gsu.edu) and **Adani Pujada** (apujada1@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.

Science Instructional Coaches: The Who, What, Where, Why, and How of the Role

(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.

3D Molecular Designs LLC (Booth #731)

Thursday, Mar 15	8:00–9:30 AM	B403, GWCC	DNA Structure and Function with a Twist of Dynamic DNA (p. 95)
Thursday, Mar 15	12 Noon–1:30 PM	B403, GWCC	5 E'sy Ways to Investigate Enzymes! (p. 112)

AAAS Project 2061 (Booth #847)

Thursday, Mar 15	4:00–5:30 PM	B215, GWCC	Toward High School Biology: Introducing a New Middle School Curriculum Unit (p. 154)
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Activate Learning (Booth #743)

Thursday, Mar 15	8:00–9:00 AM	B214, GWCC	Engage ALL Students by Integrating Engineering, Science, and Daily Life (p. 92)
Thursday, Mar 15	9:30–10:30 AM	B214, GWCC	Literacy in the Context of Science in the Middle School Classroom (p. 99)
Thursday, Mar 15	11:00 AM–12 Noon	B214, GWCC	Implementing Project-Based Science: Storylines, Standards, and Student Work (p. 108)
Thursday, Mar 15	12:30–1:30 PM	B214, GWCC	Structuring Discussion to Be Equitable and Rigorous (p. 122)
Thursday, Mar 15	2:00–3:00 PM	B214, GWCC	Science Storylines and the Driving Question Board: Keeping NGSS Curricula Student Driven (p. 134)
Thursday, Mar 15	3:30–4:30 PM	B214, GWCC	Literacy in the Context of Science in the Elementary Classroom (p. 149)

AEOP (Booth #1815)

Thursday, Mar 15	8:00–9:30 AM	B313, GWCC	Putting the “E” in STEM: Engineering in the Middle School Science Classroom (p. 95)
Thursday, Mar 15	10:00–11:30 AM	B313, GWCC	STEM Challenge: Keeping Students Engaged with Problem Solving (p. 103)
Thursday, Mar 15	12 Noon–1:30 PM	B313, GWCC	Out-of-School STEM Enrichment: AEOP Program Design Collaboration (p. 112)
Thursday, Mar 15	2:00–3:30 PM	B313, GWCC	Speaking From Experience: AEOP Alumni Tell All! (p. 138)
Thursday, Mar 15	4:00–5:30 PM	B313, GWCC	On Your Mark: Get RESET! (p. 156)

Amplify (Booth #1723)

Thursday, Mar 15	8:00–9:30 AM	B404, GWCC	What’s So Phenomenal About Phenomena? (p. 95)
Thursday, Mar 15	10:00–11:30 AM	B404, GWCC	Harnessing Spider Silk: Phenomena and 3-D Instruction for Grades 6–8 (p. 104)
Thursday, Mar 15	12 Noon–1:30 PM	B404, GWCC	Integration in Amplify Science: Implementing an NGSS Approach to Cross-Disciplinary Teaching and Learning (p. 112)

ANATOMY IN CLAY® Learning System (Booth #1335)

Thursday, Mar 15	2:00–3:30 PM	B408, GWCC	Hands-On Anatomy: Body Building with Clay (p. 139)
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AquaPhoenix Scientific (Booth #631)

Thursday, Mar 15	2:00–3:30 PM	B406, GWCC	Ballistics: Recreating the <i>Sacco and Vanzetti</i> Case (p. 139)
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Arbor Scientific (Booth #935)

Thursday, Mar 15	4:00–5:30 PM	B403, GWCC	Blinded By the Light (p. 156)
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Index of Exhibitor Workshops

Bio-Rad Laboratories, Inc. (Booth #434)

Thursday, Mar 15	8:00–9:30 AM	B311, GWCC	Conserving the Panda Population Through Understanding Their Reproductive Endocrinology (p. 95)
Thursday, Mar 15	8:00–9:30 AM	B310, GWCC	Are Increased Incidences of Infection the Result of Climate Change? (p. 94)
Thursday, Mar 15	10:00–11:30 AM	B310, GWCC	Become a GMO Investigator (p. 103)
Thursday, Mar 15	10:30–11:30 AM	B311, GWCC	Investigate Photosynthesis and Cellular Respiration with Algae Beads (p. 105)
Thursday, Mar 15	2:00–3:30 PM	B310, GWCC	Barcoding Lionfishes' Last Meal: A Citizen Science Project for the Classroom (p. 137)
Thursday, Mar 15	2:00–3:30 PM	B311, GWCC	Fight World Hunger with Protein Biology and Designing Treatment Plans (p. 138)
Thursday, Mar 15	4:00–5:30 PM	B311, GWCC	Upgrade Your Genetics Class with Neurobiology and Chemotaxis (p. 156)
Thursday, Mar 15	4:00–5:30 PM	B310, GWCC	Explore Molecular Evolution Using Protein Electrophoresis (AP Big Ideas 1, 3, 4) (p. 155)

BIOZONE International, Ltd. (Booth #1427)

Thursday, Mar 15	10:00–11:30 AM	B406, GWCC	BIOZONE's New NGSS Series for High School (p. 104)
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Carolina Biological Supply Co. (Booth #607)

Thursday, Mar 15	10:00–11:30 AM	B201, GWCC	Shifting to the Five Innovations: Density Phenomena (p. 101)
Thursday, Mar 15	10:00–11:30 AM	B202, GWCC	Carolina's Young Scientist™ Dissections with Carolina's Perfect Solution® Specimens (p. 101)
Thursday, Mar 15	10:00–11:30 AM	B204, GWCC	Engineer Physical Science Excitement with a Carolina STEM Challenge® (p. 101)
Thursday, Mar 15	12 Noon–1:30 PM	B202, GWCC	Keep Calm and Chemistry On: Successful Lab Activities for the New Chemistry Teacher (p. 109)
Thursday, Mar 15	12 Noon–1:30 PM	B201, GWCC	Planning and Designing Investigations Using Balanced and Unbalanced Forces (p. 109)
Thursday, Mar 15	12 Noon–1:30 PM	B204, GWCC	Come to Your Senses: Physiology in Action (p. 110)
Thursday, Mar 15	2:00–3:30 PM	B202, GWCC	Strawberry Milkshakes: DNA and Lactose Intolerance (p. 135)
Thursday, Mar 15	2:00–3:30 PM	B201, GWCC	Smithsonian Engineering: Sending Coded Messages Using Sound (p. 135)
Thursday, Mar 15	2:00–3:30 PM	B204, GWCC	Introduction to Wisconsin Fast Plants® (p. 136)
Thursday, Mar 15	4:00–5:30 PM	B204, GWCC	Hands-On Science with Classroom Critters (p. 153)
Thursday, Mar 15	4:00–5:30 PM	B202, GWCC	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 153)
Thursday, Mar 15	4:00–5:30 PM	B201, GWCC	Plants, Bessbugs, and Squid: Build Understanding of Structure and Function (p. 153)

Celestion (Booth #903)

Thursday, Mar 15	12 Noon–1:30 PM	B217, GWCC	Teaching Solar Astronomy in the Classroom (p. 110)
Thursday, Mar 15	4:00–5:30 PM	B404, GWCC	BUGDORK! Using Insects to Engage Students and Inspire Learning (p. 156)

CPO Science/School Specialty Science (Booth #531)

Thursday, Mar 15	8:00–9:30 AM	B303, GWCC	Go on a Cell Quest! Teaching Cell Structure Through Gaming (p. 94)
Thursday, Mar 15	10:00–11:30 AM	B303, GWCC	Energy Quest: Where Cell Pathways ARE Fun and Games (p. 103)
Thursday, Mar 15	2:00–3:30 PM	B303, GWCC	Gamifying the Atom: Fun with Ions, Particles, Bonding, and Periodicity (p. 137)

Delta Education (Booth #531) and Frey Scientific (Booth #531)

Thursday, Mar 15	4:00–5:30 PM	B301, GWCC	Boosting the Makerspace Experience for Young Scientists! (p. 155)
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Delta Education/School Specialty Science (Booth #531)

Thursday, Mar 15	8:00–9:30 AM	B301, GWCC	Making the Most of Hands-On with Leveled Reading and Notebooking (p. 94)
Thursday, Mar 15	10:00–11:30 AM	B301, GWCC	How to Argue in the Elementary Science Class (p. 102)
Thursday, Mar 15	12 Noon–1:30 PM	B301, GWCC	Embedding Practices and Crosscutting Concepts into Hands-On Science (p. 111)
Thursday, Mar 15	2:00–3:30 PM	B301, GWCC	Guiding Students Through Informational Text to Support Hands-On (p. 137)

Delta Education/School Specialty Science–FOSS (Booth #531)

Thursday, Mar 15	8:00–9:30 AM	B302, GWCC	Identifying Energy Transfers in Motors and Generators (p. 94)
Thursday, Mar 15	10:00–11:30 AM	B302, GWCC	Wave Properties and Information Technologies (p. 102)
Thursday, Mar 15	12 Noon–1:30 PM	B302, GWCC	Sense-Making Through Modeling, Argumentation, and Explanations in Grades K–5 (p. 111)
Thursday, Mar 15	2:00–3:30 PM	B302, GWCC	Ten Minutes to Improving Science Achievement (p. 137)
Thursday, Mar 15	4:00–5:30 PM	B302, GWCC	FOSS for All Students—Access and Equity (p. 155)

Edvotek (Booth #1514)

Thursday, Mar 15	8:00–9:00 AM	B306, GWCC	Martian Genetics: A DNA and Electrophoresis Exploration (p. 92)
Thursday, Mar 15	9:30–10:30 AM	B306, GWCC	Exploring STEAM with Transformation! (p. 99)
Thursday, Mar 15	11:00 AM–12 Noon	B306, GWCC	Left at the Scene of the Crime: Introduction to Forensic Science (p. 108)
Thursday, Mar 15	12:30–1:30 PM	B306, GWCC	What's in My Lunch: Using Biotechnology to Detect GMOs and Common Allergens (p. 122)
Thursday, Mar 15	2:00–3:00 PM	B306, GWCC	Cancer Investigators: Medical Diagnostics in Your Classroom (p. 135)
Thursday, Mar 15	3:30–4:30 PM	B306, GWCC	Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR (p. 150)

Flinn Scientific, Inc. (Booth #1022)

Thursday, Mar 15	8:00–9:30 AM	B203, GWCC	Positively Engaging Demos and Labs for Chemistry from Flinn Scientific (p. 93)
Thursday, Mar 15	10:00–11:30 AM	B203, GWCC	Flinn Favorite Biology Activities and Games (p. 101)
Thursday, Mar 15	12 Noon–1:30 PM	B203, GWCC	Year-Round Solutions for Success in AP Chemistry from Flinn Scientific (p. 110)
Thursday, Mar 15	4:00–5:30 PM	B203, GWCC	Exploring Biology Through Dissection from Flinn Scientific (p. 153)

Frey Scientific/School Specialty Science (Booth #531)

Thursday, Mar 15	12 Noon–1:30 PM	B303, GWCC	Solve the Mystery of STEM Using Forensic Science (p. 111)
Thursday, Mar 15	4:00–5:30 PM	B303, GWCC	Cubelets! Modular Robotics for K–12 (p. 155)

HHMI BioInteractive (Booth #323)

Thursday, Mar 15	8:00–9:30 AM	B308, GWCC	How Do Species Coexist? Niche Partitioning with HHMI BioInteractive (p. 94)
Thursday, Mar 15	10:00–11:30 AM	B308, GWCC	The Central Dogma, CRISPR, and Genetic Medicine (p. 103)
Thursday, Mar 15	12 Noon–1:30 PM	B308, GWCC	Making Evolutionary Connections Within an NGSS Storyline (p. 112)
Thursday, Mar 15	2:00–3:30 PM	B308, GWCC	Using HHMI Resources as Phenomena: The Earth/Life Science NGSS Crosswalk (p. 137)
Thursday, Mar 15	4:00–5:30 PM	B308, GWCC	Modeling Population Dynamics in Gorongosa National Park (p. 155)
Thursday, Mar 15	4:00–5:30 PM	B213, GWCC	Building Knowledge with BioInteractive and Understanding Global Change (p. 154)

Houghton Mifflin Harcourt (Booth #1110)

Thursday, Mar 15	2:00–3:30 PM	B314, GWCC	Soft Drinks, Subject Silos, Synergy, and Sweet Darwinian Diet Deliberations (p. 138)
Thursday, Mar 15	4:00–5:30 PM	B314, GWCC	NGSS Engineering and Self-Powered Vehicles (p. 156)

Knowles Teacher Initiative (Booth #1833)

Thursday, Mar 15	4:00–5:30 PM	B408, GWCC	Use Teacher-Created Frameworks to Integrate Engineering Design and Teach Science Content (p. 156)
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Lab-Aids, Inc. (Booth #723)

Thursday, Mar 15	8:00–9:30 AM	B305, GWCC	NGSS Waves: Making an Abstract Concept Visible! (p. 94)
Thursday, Mar 15	10:00–11:30 AM	B305, GWCC	NGSS Ecology: Modeling the Introduction of a New Species (p. 103)
Thursday, Mar 15	12 Noon–1:30 PM	B305, GWCC	Cliff Model (p. 111)
Thursday, Mar 15	2:00–3:30 PM	B305, GWCC	Chemical Batteries (p. 137)
Thursday, Mar 15	4:00–5:30 PM	B305, GWCC	NGSS Reproduction: Breeding Critters—More Traits (p. 155)

LaMotte Co. (Booth #815)

Thursday, Mar 15	2:00–3:30 PM	B218, GWCC	Stream Ecology: Slimy Leaves for Healthy Streams (p. 136)
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LearnEd Notebooks (Booth #544)

Thursday, Mar 15	2:00–3:30 PM	B403, GWCC	Science Notebooking: Finding What Works (p. 138)
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Learning Bits (Booth #1634)

Thursday, Mar 15	2:00–3:30 PM	B404, GWCC	A Great Resource to Implement NGSS Through the 5E Model (p. 138)
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Legends of Learning (Booths #1629 and #1729)

Thursday, Mar 15	4:00–5:30 PM	B217, GWCC	Legendary Game-Based Learning (p. 154)
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LEGO Education (Booth #1122)

Thursday, Mar 15	8:00–9:30 AM	B409, GWCC	Use Science, Coding, and Robotics in the Elementary Classroom to Solve Real-World Problems (p. 95)
Thursday, Mar 15	10:00–11:30 AM	B409, GWCC	Gears, Wheels, Axles, Levers, and Pulleys: How Do They Lay the Foundation for Robotics? (p. 104)
Thursday, Mar 15	1:00–2:30 PM	B409, GWCC	Integrating Robotics into Your Science Classroom (Grades 5+) (p. 125)
Thursday, Mar 15	3:00–4:30 PM	B409, GWCC	Explore Renewable Energy with Hands-On Activities (p. 142)

McGraw-Hill Education (Booth #635)

Thursday, Mar 15	2:00–3:30 PM	B213, GWCC	Integrating Engineering into the Grades 6–12 Classroom (p. 136)
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Measured Progress (Booth #432)

Thursday, Mar 15	12 Noon–1:30 PM	B218, GWCC	Unpacking the NGSS Through Instructional Practices (p. 111)
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Minecraft Education (Booth #1516)

Thursday, Mar 15	12 Noon–1:30 PM	B408, GWCC	How to Teach Science with Minecraft (p. 112)
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MiniOne Systems (Booth #1136)

Thursday, Mar 15	8:00–9:00 AM	B210, GWCC	Who Is Baby Whale's Father? DNA Fingerprinting Solves the Mystery! (p. 92)
Thursday, Mar 15	9:15–10:45 AM	B210, GWCC	Foodborne Outbreak Investigation Using Gel Electrophoresis (p. 99)
Thursday, Mar 15	11:00 AM–12:15 PM	B210, GWCC	A New Hands-On Clear and Reliable Way to Teach Restriction Digest Labs (p. 109)
Thursday, Mar 15	12:30–1:45 PM	B210, GWCC	Affordable Hands-On PCR Lab in One Class Period Is for Real (p. 123)
Thursday, Mar 15	2:00–3:00 PM	B210, GWCC	Personalized Genetics: Isolate and Amplify Your Own PTC Taste Gene (p. 134)
Thursday, Mar 15	3:30–4:30 PM	B210, GWCC	Determine the Genotype for PTC Taster and Non-Taster by Electrophoresis (p. 149)
Thursday, Mar 15	5:00–6:00 PM	B210, GWCC	DNA Forensics Solves the Murder of Dr. Ward (p. 163)

miniPCR (Booth #1235)

Thursday, Mar 15	8:00–9:00 AM	B209, GWCC	DNA Fingerprinting: Identifying Individuals Using Gel Electrophoresis (p. 92)
Thursday, Mar 15	9:30–10:30 AM	B209, GWCC	DNA Glow Lab: A New Way to Investigate DNA Structure (p. 99)
Thursday, Mar 15	11:00 AM–12 Noon	B209, GWCC	Are You a Night Owl? A Morning Lark? The Answer May Be in Your Genes (p. 108)
Thursday, Mar 15	12:30–1:30 PM	B209, GWCC	Solving a Forensics Mystery Through DNA Analysis: D1S80 VNTR Lab (p. 121)
Thursday, Mar 15	2:00–3:00 PM	B209, GWCC	Genes in Space STEM Contest: Your DNA Experiment in Space! (p. 134)
Thursday, Mar 15	3:15–3:45 PM	B209, GWCC	Lab in a Box: A Free Biotechnology Loaner Program from Genes in Space (p. 142)
Thursday, Mar 15	4:00–4:30 PM	B209, GWCC	LARP! Live Action Role Playing and the Biology Curriculum (p. 153)

Monsanto Co. (Booth #912)

Thursday, Mar 15	2:00–3:30 PM	B312, GWCC	GMOs—A Hot Topic in the Media, Classroom, and Around the Dinner Table: Panel Discussion and Presentation by Monsanto Company (p. 138)
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MSSOE Center for BioMolecular Modeling (Booth #729)

Thursday, Mar 15	10:00–11:30 AM	B403, GWCC	Going with the Flow of Genetic Information: Transcription and Translation (p. 104)
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PASCO scientific (Booth #909)

Thursday, Mar 15	8:00–9:00 AM	B316, GWCC	Use Free GIS to Launch Weather Units into the Stratosphere (p. 93)
Thursday, Mar 15	8:00–9:00 AM	B315, GWCC	What's in the Water? Colorimetry and Conductivity of Solutions (p. 93)
Thursday, Mar 15	9:30–10:30 AM	B315, GWCC	pH: Hands-On Strategies to Tackle Misconceptions (p. 100)
Thursday, Mar 15	9:30–10:30 AM	B316, GWCC	Hands-On: Exploring Enzymes the NGSS Way (p. 100)
Thursday, Mar 15	11:00 AM–12 Noon	B316, GWCC	Crash Barrier: How to Design a STEM Engineering Challenge (p. 108)
Thursday, Mar 15	11:00 AM–12 Noon	B315, GWCC	Stoichiometry: Tools and Strategies that Make It Easier to Teach (p. 108)
Thursday, Mar 15	12:30–1:30 PM	B315, GWCC	Use Data to Slay Misconceptions about Photosynthesis and Respiration (p. 122)
Thursday, Mar 15	12:30–1:30 PM	B316, GWCC	155 Essential Interactive Equations and Simulations for Physics (p. 122)
Thursday, Mar 15	2:00–3:00 PM	B316, GWCC	Made Easy: How to Untangle Electric Circuits (p. 135)
Thursday, Mar 15	2:00–3:00 PM	B315, GWCC	Subscripts and Coefficients Made Easy! (p. 135)
Thursday, Mar 15	3:30–4:30 PM	B315, GWCC	Evaporative Cooling: Visualizing Matter so It Makes Sense! (p. 150)
Thursday, Mar 15	3:30–4:30 PM	B316, GWCC	Hands-On: Teach Speed and Velocity with Motion Graphs (p. 150)

PBS LearningMedia /WGBH (Booth #1132)

Thursday, Mar 15	2:00–3:30 PM	B217, GWCC	Big Data in the Classroom: Teaching About Earth with Authentic Data for Elementary Grades (p. 136)
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Pearson Education (Booth #222)

Thursday, Mar 15	8:00–9:00 AM	B216, GWCC	Take Your Students on a Quest! (p. 92)
Thursday, Mar 15	9:30–10:30 AM	B216, GWCC	Make Any Classroom a Makerspace (p. 99)
Thursday, Mar 15	11:00 AM–12 Noon	B216, GWCC	Cultivating a Culture of Argumentation in Your Classroom (p. 108)
Thursday, Mar 15	12:30–1:30 PM	B216, GWCC	Climate Change and Beyond: The Understanding Global Change (UGC) Conceptual Framework (p. 122)
Thursday, Mar 15	2:00–3:00 PM	B216, GWCC	Make Any Classroom a Makerspace (p. 135)
Thursday, Mar 15	3:30–4:30 PM	B216, GWCC	Get Your Chemistry in Gear: Problem-Based Learning in Your Chemistry Classroom (p. 150)

Perimeter Institute for Theoretical Physics (Booth #1050)

Thursday, Mar 15	12 Noon–1:30 PM	B215, GWCC	What's New in Physics? (p. 110)
Thursday, Mar 15	2:00–3:30 PM	B215, GWCC	How Do Scientists Think? (p. 136)

Index of Exhibitor Workshops

PlayMada Games (Booth #1037)

Thursday, Mar 15	4:00–5:30 PM	B218, GWCC	Engaging Students with Chemistry Games (p. 154)
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SAE International (Booth #1034)

Thursday, Mar 15	8:00–9:30 AM	B217, GWCC	Linking Literature and STEM in the Primary Classroom (p. 93)
Thursday, Mar 15	10:00–11:30 AM	B217, GWCC	Hands-On STEM in the Upper Elementary Classroom (p. 102)

Simulation Curriculum (Booth #1247)

Thursday, Mar 15	8:00–9:30 AM	B408, GWCC	Earth and Space Science for the Modern, Interactive Classroom (p. 95)
Thursday, Mar 15	10:00–11:30 AM	B408, GWCC	Plate Tectonics Made Easy (p. 104)

Texas Instruments (Booth #223)

Thursday, Mar 15	8:00–9:30 AM	B213, GWCC	Using Maggots, Flies, and Flesh to Solve a Mystery! (p. 93)
Thursday, Mar 15	10:00–11:30 AM	B213, GWCC	Save a Nickle and Learn to Trickle! (p. 102)
Thursday, Mar 15	12 Noon–1:30 PM	B213, GWCC	Are You Moody? (p. 110)

Vaccine Education Center at Children's Hospital of Philadelphia (Booth #343)

Thursday, Mar 15	10:00–11:30 AM	B407, GWCC	Of Mice and Men: Engaging HS Students in Biomedical Science (p. 104)
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Van Andel Education Institute (Booth #1529)

Thursday, Mar 15	10:00–11:30 AM	B215, GWCC	Stop Creating Lesson Plans: Start Creating Learning Experiences (p. 102)
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Vernier Software & Technology (Booth #523)

Thursday, Mar 15	8:00–9:30 AM	B207, GWCC	Integrating Chromebook with Vernier Technology (p. 93)
Thursday, Mar 15	8:00–9:30 AM	B208, GWCC	Integrating iPad with Vernier Technology (p. 93)
Thursday, Mar 15	10:00–11:30 AM	B208, GWCC	Physics with Vernier Using Chromebook (p. 102)
Thursday, Mar 15	10:00–11:30 AM	B207, GWCC	Biology with Vernier (p. 101)
Thursday, Mar 15	12 Noon–1:30 PM	B207, GWCC	Chemistry with Vernier Using Chromebook (p. 110)
Thursday, Mar 15	12 Noon–1:30 PM	B208, GWCC	Elementary Science with Vernier (p. 110)
Thursday, Mar 15	2:00–3:30 PM	B208, GWCC	Middle School Science with Vernier Using Chromebook (p. 136)
Thursday, Mar 15	2:00–3:30 PM	B207, GWCC	Environmental Science with Vernier (p. 136)
Thursday, Mar 15	4:00–5:30 PM	B207, GWCC	Chemistry with Vernier (p. 154)
Thursday, Mar 15	4:00–5:30 PM	B208, GWCC	STEM/Engineering Activities Using Vernier Sensors with Arduino (p. 154)

Ward's Science (Booth #1323)

Thursday, Mar 15	8:00–9:30 AM	B304, GWCC	Essential Materials for Easy NGSS Lessons (p. 94)
Thursday, Mar 15	10:00–11:30 AM	B304, GWCC	Be Phenomenal in Physical Science and NGSS (p. 103)
Thursday, Mar 15	12 Noon–1:30 PM	B304, GWCC	Georgia On My Brain: Hands-On Neuroscience Labs (p. 111)
Thursday, Mar 15	2:00–3:30 PM	B304, GWCC	Grants in 3D: Define, Design, and Deliver (p. 137)
Thursday, Mar 15	4:00–5:30 PM	B304, GWCC	Get on the Fast Track to Engineering (p. 155)

Wavefunction, Inc. (Booth #133)

Thursday, Mar 15	10:00–11:30 AM	B218, GWCC	Teaching Effectively with 3D Visualization at the Molecular Level (p. 102)
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WhiteBox Learning, a Flinn Scientific company (Booth #1622)

Thursday, Mar 15	2:00–3:30 PM	B203, GWCC	New Standards: Project-Based STEM Engineering by WhiteBox Learning (p. 135)
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Earth and Space Science: Thursday

8:00–8:30 AM	6–8	A407, GWCC	Intentionally and Passionately Putting STEM in Earth Science (p. 81)
8:00–8:30 AM	C	C206, GWCC	Water in Society: Making Water Issues Matter to Undergraduate Students (p. 82)
8:00–9:00 AM	K	A401, GWCC	Sensing Science Through Modeling Matter for Kindergarten Students (p. 84)
8:00–9:00 AM	10–12	A412a, GWCC	Engaging Students in Earth Science, ETS, and CCSS Through an Innovative, Multidisciplinary Approach (p. 84)
8:00–9:00 AM	6–8	B101, GWCC	National Stem Cell Foundation Scholars Share-a-Thon (p. 88)
8:00–9:00 AM	9–12	B316, GWCC	Use Free GIS to Launch Weather Units into the Stratosphere (p. 93)
8:00–9:00 AM	1–12	A410, GWCC	Stellarium: Bringing the Universe to YOUR Classroom (p. 84)
8:00–9:00 AM	7–C	A305, GWCC	Our Dynamic Climate and the Energy Budget (p. 86)
8:00–9:00 AM	P–2	A403, GWCC	Geology Rocks (p. 87)
8:00–9:00 AM	G	B103, GWCC	NMEA Session: Whale of a Tale Share-a-Thon (p. 88)
8:00–9:00 AM	8–12	A316, GWCC	Planning and Carrying Out Erosion and Deposition Investigations (p. 87)
8:00–9:00 AM	7–12	Spruce, S. Tower, Omni at CNN	ASTE-Sponsored Session: The Myth of the Scientific Method—Dispelling It Through Inquiry that Doesn't Fit the Mold (p. 90)
8:00–9:00 AM	8–12	A302, GWCC	A Unique Ice Core Investigation That Integrates the Three Dimensions of NGSS and STEM (p. 83)
8:00–9:00 AM	K–12	Grand Blrm. B, Omni at CNN	3-2-1 Satellite Liftoff with NASA's Beginning Engineering Science and Technology (p. 90)
8:00–9:30 AM	9–C	B310, GWCC	Are Increased Incidences of Infection the Result of Climate Change? (p. 94)
8:00–9:30 AM	7–C	B208, GWCC	Integrating iPad with Vernier Technology (p. 93)
8:00–9:30 AM	6–8	B304, GWCC	Essential Materials for Easy NGSS Lessons (p. 94)
8:00–9:30 AM	5–12	B408, GWCC	Earth and Space Science for the Modern, Interactive Classroom (p. 95)
8:00–9:30 AM	K–5	B409, GWCC	Use Science, Coding, and Robotics in the Elementary Classroom to Solve Real-World Problems (p. 95)
8:30–9:00 AM	C	Hickory, Omni at CNN	SCST-Sponsored Session: Successful 3-D Learning in Online Science Courses: Incorporating Core Ideas, Crosscutting Concepts, and Science Practices in Laboratory Application Assignments (p. 96)
10:00–11:30 AM	6–12	B213, GWCC	Save a Nickle and Learn to Trickle! (p. 102)
10:00–11:30 AM	5–12	B408, GWCC	Plate Tectonics Made Easy (p. 104)
11:00 AM–12 Noon	5–8	Int'l Blrm. F/Group 4, Omni at CNN	Teacher Researcher Day Session: An Immersive Science Experience for Middle School Science (p. 106)
12 Noon–1:30 PM	4–C	B217, GWCC	Teaching Solar Astronomy in the Classroom (p. 110)
12 Noon–1:30 PM	6–8	B305, GWCC	Cliff Model (p. 111)
12:30–1:30 PM	6–12	Dogwood A, GWCC	Empowering Students to Build Resilient Schools with STEM (p. 116)
12:30–1:00 PM	6–12	A410, GWCC	Argumentation and Modeling in Earth Science Using Free Online Modules (p. 113)
12:30–1:00 PM	P–2	Int'l Blrm. F/Group 4, Omni at CNN	Teacher Researcher Day Session: Using Found Objects to Introduce STEM Concepts to Little Ones (p. 113)
12:30–1:30 PM	K–C	A412a, GWCC	A Year of Education on the Space Station (p. 114)
12:30–1:30 PM	4–C	B103, GWCC	NMEA Session: The Ocean and Climate Change by the Numbers (p. 115)
12:30–1:30 PM	P–12	B102, GWCC	NESTA and NSTA Aerospace Education Advisory Board Space Science Share-a-Thon (p. 119)
12:30–1:30 PM	5–10	B401, GWCC	The Copper Conundrum: Using Claim, Evidence, and Reasoning as Evidence of Three-Dimensional Learning (p. 119)
1:00–1:30 PM	3–8	Int'l Blrm. F/Group 1, Omni at CNN	Teacher Researcher Day Session: Learning Through the Earth SySTEM (p. 124)
2:00–2:30 PM	6–12	C211, GWCC	The Trial of the <i>Archaeopteryx</i> Fossil: A Journey in Earth Science Student-Centered Learning (p. 125)
2:00–2:30 PM	G	Redwood, S. Tower, Omni at CNN	ASTE-Sponsored Session: Embedding Sustainability in ALL Classrooms: Best Practices that Honor Limited Instructional Time (p. 126)
2:00–2:30 PM	3–8	Int'l Blrm. F/Group 2, Omni at CNN	Teacher Researcher Day Session: The Use of Makerspace to Develop Environmental Understanding (p. 126)
2:00–3:00 PM	9–C	B103, GWCC	Bridge DATA Activity: Ghostbusting the Chesapeake (p. 129)
2:00–3:00 PM	9–12	A408, GWCC	Driving Our Future: Electric Vehicles (EV) (p. 128)

2:00–3:00 PM	4–9	A412a, GWCC	Engaging All Learners in an Authentic STEM Investigation with GLOBE (p. 128)
2:00–3:00 PM	9–12	A302, GWCC	“Why Should We Care?” Encouraging Students’ Interest in Their Watershed through an Integrated STEM Unit (p. 130)
2:00–3:00 PM	5–9	A305, GWCC	AMP UP Your Earth Science Curriculum with Integrated Practices (p. 130)
2:00–3:00 PM	5–9	B405, GWCC	NSTA Press® Session: <i>Once Upon an Earth Science Book</i> (p. 132)
2:00–3:00 PM	P–3	A403, GWCC	Let’s Get Wet: Water and Weather (p. 131)
2:00–3:00 PM	1–C	B102, GWCC	NESTA Shares: Connecting Culture and Earth Science (p. 131)
2:00–3:00 PM	7–12	B209, GWCC	Genes in Space STEM Contest: Your DNA Experiment in Space! (p. 134)
2:00–3:30 PM	4–C	B218, GWCC	Stream Ecology: Slimy Leaves for Healthy Streams (p. 136)
2:00–3:30 PM	K–5	B217, GWCC	Big Data in the Classroom: Teaching About Earth with Authentic Data for Elementary Grades (p. 136)
2:00–3:30 PM	6–12	B308, GWCC	Using HHMI Resources as Phenomena: The Earth/Life Science NGSS Crosswalk (p. 137)
3:00–6:00 PM	5–12	Chastain D, Westin	SC-2: Climate Change Misinformation: Sort Fact from Fiction with Ice Core Science (p. 142)
3:15–3:45 PM	7–12	B209, GWCC	Lab in a Box: A Free Biotechnology Loaner Program from Genes in Space (p. 142)
3:30–4:00 PM	K–5	A408, GWCC	Exploration and Discovery Through Maps: Teaching Science with Technology (p. 142)
3:30–4:00 PM	6–8	C211, GWCC	Exploring Collaborative Scientific Argumentation Through Teacher Guidance in Science Classrooms (p. 142)
3:30–4:30 PM	6–12	A302, GWCC	Soil: A Nonrenewable Resource? (p. 147)
3:30–4:30 PM	6–12	A410, GWCC	Educating the Next Generation of Climate Change Activists Through Problem-Based Learning and Role-Play (p. 146)
3:30–4:30 PM	6–12	B211, GWCC	Earth Match: Making Earth Science Culturally Relevant (p. 148)
3:30–4:30 PM	6–C	A412a, GWCC	NASA Astrobiology: The Search for Life Beyond Earth (p. 146)
3:30–4:30 PM	6–9	A403, GWCC	Brainstorming Solutions to Global Water Issues (p. 148)
3:30–4:30 PM	1–12	B103, GWCC	NMEA Session: Ocean Guardian School Program: Encouraging All Children to Explore Their Natural Surroundings to Form a Personal Connection to the Ocean (p. 146)
3:30–4:30 PM	3–C	C205, GWCC	JetStream: An Online School for Weather (p. 149)
4:00–5:30 PM	6–12	B213, GWCC	Building Knowledge with BioInteractive and Understanding Global Change (p. 154)
4:00–5:30 PM	3–8	B217, GWCC	Legendary Game-Based Learning (p. 154)
5:00–6:00 PM	4–C	A412a, GWCC	NASA’s Eyes on the Solar System: Bringing the Planets to Your Classroom (p. 159)
5:00–6:00 PM	5–8	A304, GWCC	SEPUP and NGSS: Rewriting Your Middle School Curriculum (p. 158)
5:00–6:00 PM	K–5	A408, GWCC	Using Models to Support STEM Learning in Grades K–5: Examples and Insights from NSF’s DRK–12 Program (p. 158)
5:00–6:00 PM	3–8	A316, GWCC	Hot or Not? Transferring Heat Efficiently to Provide Clean Energy (p. 162)
5:00–6:00 PM	6–8	A410, GWCC	Weather and Climate: Use a Free Web-Based Graphing Tool to Analyze and Interpret Local and National Climate Data for Patterns or Change (p. 158)
5:00–6:00 PM	6–12	A302, GWCC	Exploring the Wanderers: A Trip Through the Solar System (p. 161)
5:00–6:00 PM	6–12	A305, GWCC	Environmental Heroes—From Field Research to Environmental Advocacy (p. 161)
5:30–6:00 PM	C	Magnolia, Omni at CNN	Increasing Student Engagement Through Inquiry-Based Teaching Methods and Exploration of Climate Change Science in an Undergraduate Biology Laboratory Course (p. 164)

Engineering, Technology, and the Application of Science: Thursday

8:00–8:30 AM	6–8	A407, GWCC	Intentionally and Passionately Putting STEM in Earth Science (p. 81)
8:00–9:00 AM	5–12	Int’l Blrm. E, Omni at CNN	Reaching ALL of Your Students in Your iPad 1:1 Classroom (p. 85)
8:00–9:00 AM	K–5	A405, GWCC	Creating Culturally Responsive STEAM Lessons to Solve Real-World Problems (p. 87)
8:00–9:00 AM	K–6	A404, GWCC	Connecting Makerspaces to the NGSS and CCSS (p. 87)
8:00–9:00 AM	8–C	B210, GWCC	Who Is Baby Whale’s Father? DNA Fingerprinting Solves the Mystery! (p. 92)

Schedule at a Glance Engineering, Technology, and the Application of Science

8:00–9:00 AM	3–11	C201, GWCC	Get Creative! Develop Students' Science and Engineering Practices, Inspired by Birds (p. 89)
8:00–9:00 AM	10–12	A412a, GWCC	Engaging Students in Earth Science, ETS, and CCSS Through an Innovative, Multidisciplinary Approach (p. 84)
8:00–9:00 AM	4–8	A315, GWCC	Middle School Students as Designers, Makers, and Creators (p. 87)
8:00–9:00 AM	3–5	C203, GWCC	The Engineering of <i>The Lorax</i> (p. 89)
8:00–9:00 AM	K–12	Grand Blrm. B, Omni at CNN	3-2-1 Satellite Liftoff with NASA's Beginning Engineering Science and Technology (p. 90)
8:00–9:00 AM	8–12	A302, GWCC	A Unique Ice Core Investigation That Integrates the Three Dimensions of NGSS and STEM (p. 83)
8:00–9:00 AM	8–12	B214, GWCC	Engage ALL Students by Integrating Engineering, Science, and Daily Life (p. 92)
8:00–9:30 AM	7–C	B208, GWCC	Integrating iPad with Vernier Technology (p. 93)
8:00–9:30 AM	K–5	B409, GWCC	Use Science, Coding, and Robotics in the Elementary Classroom to Solve Real-World Problems (p. 95)
8:00–9:30 AM	3–C	B207, GWCC	Integrating Chromebook with Vernier Technology (p. 93)
8:00–9:30 AM	6–9	B313, GWCC	Putting the "E" in STEM: Engineering in the Middle School Science Classroom (p. 95)
8:30–9:00 AM	5–8	A407, GWCC	STEMing-Up Life Science (p. 96)
9:15–10:45 AM	10–C	B210, GWCC	Foodborne Outbreak Investigation Using Gel Electrophoresis (p. 99)
9:30–10:30 AM	K–12	B216, GWCC	Make Any Classroom a Makerspace (p. 99)
10:00–11:30 AM	7–C	B207, GWCC	Biology with Vernier (p. 101)
10:00–11:30 AM	4–8	B217, GWCC	Hands-On STEM in the Upper Elementary Classroom (p. 102)
10:00–11:30 AM	P–8	B409, GWCC	Gears, Wheels, Axles, Levers, and Pulleys: How Do They Lay the Foundation for Robotics? (p. 104)
10:00–11:30 AM	6–12	B213, GWCC	Save a Nickle and Learn to Trickle! (p. 102)
10:00–11:30 AM	9–C	B407, GWCC	Of Mice and Men: Engaging HS Students in Biomedical Science (p. 104)
10:00–11:30 AM	9–C	B403, GWCC	Going with the Flow of Genetic Information: Transcription and Translation (p. 104)
10:00–11:30 AM	3–C	B208, GWCC	Physics with Vernier Using Chromebook (p. 102)
11:00AM–12:15 PM	10–C	B210, GWCC	A New Hands-On Clear and Reliable Way to Teach Restriction Digest Labs (p. 109)
11:00AM–12 Noon	7–12	B316, GWCC	Crash Barrier: How to Design a STEM Engineering Challenge (p. 108)
12 Noon–1:30 PM	9–C	B208, GWCC	Elementary Science with Vernier (p. 110)
12 Noon–1:30 PM	6–8	B305, GWCC	Cliff Model (p. 111)
12 Noon–1:30 PM	6–12	B213, GWCC	Are You Moody? (p. 110)
12 Noon–1:30 PM	9–C	B207, GWCC	Chemistry with Vernier Using Chromebook (p. 110)
12:30–1:00 PM	6–12	C202, GWCC	Bring Content to Life with NGSS-Focused Design Challenges for Science Classroom (p. 113)
12:30–1:30 PM	7–C	B209, GWCC	Solving a Forensics Mystery Through DNA Analysis: D1S80VNTR Lab (p. 121)
12:30–1:30 PM	P–3	B212, GWCC	Engineering for the <i>Gingerbread Baby</i> (p. 119)
12:30–1:30 PM	9–12	B216, GWCC	Climate Change and Beyond: The Understanding Global Change (UGC) Conceptual Framework (p. 122)
12:30–1:30 PM	6–C	Int'l Blrm. A/B, Omni at CNN	On-the-Farm STEM Events: An Immersive Approach to Making Real-World STEM Connections (p. 120)
12:30–1:30 PM	K–5	A404, GWCC	Train Like an Astronaut with STEM (p. 118)
12:30–1:30 PM	4–8	A315, GWCC	Forensics Fun for All (p. 118)
12:30–1:30 PM	K–12	C205, GWCC	ASTC-Sponsored Session: Making STEM Connections in the Classroom Setting (p. 120)
12:30–1:30 PM	P–2	A303, GWCC	The Roots of Innovation: Engineering for Early Learners (p. 114)
12:30–1:45 PM	10–C	B210, GWCC	Affordable Hands-On PCR Lab in One Class Period Is for Real (p. 123)
1:00–1:30 PM	4–10	Int'l Blrm. E, Omni at CNN	DRONE-ing for STEM (p. 124)
1:00–2:30 PM	5–12	B409, GWCC	Integrating Robotics into Your Science Classroom (Grades 5+) (p. 125)
2:00–2:30 PM	3–8	C206, GWCC	PBL: Solving the Bee Problem (p. 125)
2:00–2:30 PM	G	Redwood, S. Tower, Omni at CNN	ASTE-Sponsored Session: Embedding Sustainability in ALL Classrooms: Best Practices that Honor Limited Instructional Time (p. 126)

Schedule at a Glance Engineering, Technology, and the Application of Science

2:00–3:00 PM	1–12	Int'l Blrm. A/B, Omni at CNN	Unboxing Knowledge to Think Inside the Box! (p. 133)
2:00–3:00 PM	9–C	B210, GWCC	Personalized Genetics: Isolate and Amplify Your Own PTC Taste Gene (p. 134)
2:00–3:00 PM	7–12	B209, GWCC	Genes in Space STEM Contest: Your DNA Experiment in Space! (p. 134)
2:00–3:00 PM	6–8	A314, GWCC	Exploring Insulators Through Engineering and Data Collection (p. 130)
2:00–3:00 PM	K–12	B216, GWCC	Make Any Classroom a Makerspace (p. 135)
2:00–3:00 PM	7–12	B316, GWCC	Made Easy: How to Untangle Electric Circuits (p. 135)
2:00–3:00 PM	6–12	B402, GWCC	Using Tiny Homes to Connect with STEM (p. 132)
2:00–3:00 PM	P–5	A405, GWCC	Engineering Design for All (p. 131)
2:00–3:00 PM	G	Int'l Blrm. C, Omni at CNN	Addressing Makerspace, STEM Lab, and Fab Lab Safety Hazards (p. 129)
2:00–3:00 PM	6–8	A314, GWCC	Exploring Insulators Through Engineering and Data Collection (p. 130)
2:00–3:30 PM	5–8	B208, GWCC	Middle School Science with Vernier Using Chromebook (p. 136)
2:00–3:30 PM	7–C	B207, GWCC	Environmental Science with Vernier (p. 136)
2:00–3:30 PM	6–12	B213, GWCC	Integrating Engineering into the Grades 6–12 Classroom (p. 136)
2:00–3:30 PM	5–C	B203, GWCC	New Standards: Project-Based STEM Engineering by WhiteBox Learning (p. 135)
3:00–4:30 PM	4–8	B409, GWCC	Explore Renewable Energy with Hands-On Activities (p. 142)
3:00–6:00 PM	5–12	Chastain D, Westin	SC-2: Climate Change Misinformation: Sort Fact from Fiction with Ice Core Science (p. 142)
3:30–4:00 PM	K–5	A408, GWCC	Exploration and Discovery Through Maps: Teaching Science with Technology (p. 142)
3:30–4:30 PM	K–8	A316, GWCC	Using Common Materials to Enhance STEM Learning for All (p. 148)
3:30–4:30 PM	8–C	B210, GWCC	Determine the Genotype for PTC Taster and Non-Taster by Electrophoresis (p. 149)
3:30–4:30 PM	K–5	A404, GWCC	Connected Content Storylines Spark Student Engineers to Create with Confidence (p. 148)
3:30–4:30 PM	7–12	B316, GWCC	Hands-On: Teach Speed and Velocity with Motion Graphs (p. 150)
3:30–4:30 PM	1–12	Int'l Blrm. E, Omni at CNN	Starting a Makerspace? Best Practices, STEM, and NGSS Integration, and Lessons Learned! (p. 147)
3:30–4:30 PM	6–9	A403, GWCC	Brainstorming Solutions to Global Water Issues (p. 148)
3:30–4:30 PM	3–5	C206, GWCC	Lots of Bots: Using Robots to Teach the NGSS in Elementary School (p. 149)
3:30–4:30 PM	3–6	A313, GWCC	Ticket, Please! Engineering Efficient Experiences (p. 147)
4:00–4:30 PM	K–12	Walnut, Omni at CNN	Science for Service Learning Success (p.)
4:00–5:30 PM	7–12	B208, GWCC	STEM/Engineering Activities Using Vernier Sensors with Arduino (p. 154)
4:00–5:30 PM	9–C	B207, GWCC	Chemistry with Vernier (p. 154)
4:00–5:30 PM	K–12	B303, GWCC	Cubelets! Modular Robotics for K–12 (p. 155)
4:00–5:30 PM	6–12	B408, GWCC	Use Teacher-Created Frameworks to Integrate Engineering Design and Teach Science Content (p. 156)
4:00–5:30 PM	K–12	B304, GWCC	Get on the Fast Track to Engineering (p. 155)
4:00–5:30 PM	1–5	B301, GWCC	Boosting the Makerspace Experience for Young Scientists! (p. 155)
4:00–5:30 PM	6–8	B314, GWCC	NGSS Engineering and Self-Powered Vehicles (p. 156)
5:00–5:30 PM	G	Redwood, Omni at CNN	Who Wants a Scientist? Scaling Impactful Programs Through University Partnerships (p. 158)
5:00–6:00 PM	6–8	A402, GWCC	Teaching Life Science Through STEM Integration: An Ecosystems Project (p. 162)
5:00–6:00 PM	3–8	A316, GWCC	Hot or Not? Transferring Heat Efficiently to Provide Clean Energy (p. 162)
5:00–6:00 PM	9–12	B103, GWCC	NMEA Session: A View from Above: Teaching Science with Unmanned Aerial Vehicles (p. 162)
5:00–6:00 PM	9–C	B210, GWCC	DNA Forensics Solves the Murder of Dr. Ward (p. 163)

Life Science: Thursday

8:00–8:30 AM	3–6	A408, GWCC	The Virtual Vet: Elementary Learners (Grades 3–5) as Scientists in a Serious Educational Game (p. 81)
8:00–8:30 AM	9–C	C202, GWCC	Touching Triton (p. 81)
8:00–9:00 AM	3–5	C203, GWCC	The Engineering of <i>The Lorax</i> (p. 89)

Schedule at a Glance Life Science

8:00–9:00 AM	5–10	Dogwood A, Omni at CNN	Virtual STEM Missions (p. 90)
8:00–9:00 AM	6–8	B101, GWCC	National Stem Cell Foundation Scholars Share-a-Thon (p. 88)
8:00–9:00 AM	9–12	B211, GWCC	Using Science Practices to Engage Students: Designing a High School Evolution Curriculum from a Feminist Perspective (p. 84)
8:00–9:00 AM	6–C	B209, GWCC	DNA Fingerprinting: Identifying Individuals Using Gel Electrophoresis (p. 92)
8:00–9:00 AM	3–11	C201, GWCC	Get Creative! Develop Students' Science and Engineering Practices, Inspired by Birds (p. 89)
8:00–9:00 AM	9–C	C204, GWCC	Medicine Without Evolution Is Like Engineering Without Physics (p. 85)
8:00–9:00 AM	7–12	Spruce, S. Tower, Omni at CNN	ASTE-Sponsored Session: The Myth of the Scientific Method—Dispelling It Through Inquiry that Doesn't Fit the Mold (p. 90)
8:00–9:00 AM	3–C	B309, GWCC	Magical Illusions and Scintillating Simulations for Science: It's Showtime! (p. 84)
8:00–9:00 AM	8–C	B210, GWCC	Who Is Baby Whale's Father? DNA Fingerprinting Solves the Mystery! (p. 92)
8:00–9:00 AM	6–C	B306, GWCC	Martian Genetics: A DNA and Electrophoresis Exploration (p. 92)
8:00–9:30 AM	K–5	B409, GWCC	Use Science, Coding, and Robotics in the Elementary Classroom to Solve Real-World Problems (p. 95)
8:00–9:30 AM	6–8	B304, GWCC	Essential Materials for Easy NGSS Lessons (p. 94)
8:00–9:30 AM	6–12	B303, GWCC	Go on a Cell Quest! Teaching Cell Structure Through Gaming (p. 94)
8:00–9:30 AM	9–C	B310, GWCC	Are Increased Incidences of Infection the Result of Climate Change? (p. 94)
8:00–9:30 AM	9–C	B311, GWCC	Conserving the Panda Population Through Understanding Their Reproductive Endocrinology (p. 95)
8:00–9:30 AM	9–12	B308, GWCC	How Do Species Coexist? Niche Partitioning with HHMI BioInteractive (p. 94)
8:00–9:30 AM	9–C	B403, GWCC	DNA Structure and Function with a Twist of Dynamic DNA (p. 95)
8:30–9:00 AM	7–C	C202, GWCC	Zoo Genetics Plus: A Free Curriculum for All (p. 96)
8:30–9:00 AM	5–8	A407, GWCC	STEMing-Up Life Science (p. 96)
9:15–10:45 AM	10–C	B210, GWCC	Foodborne Outbreak Investigation Using Gel Electrophoresis (p. 99)
9:30–10:30 AM	6–C	B306, GWCC	Exploring STEAM with Transformation! (p. 99)
9:30–10:30 AM	4–C	B209, GWCC	DNA Glow Lab: A New Way to Investigate DNA Structure (p. 99)
9:30–10:30 AM	9–12	B316, GWCC	Hands-On: Exploring Enzymes the NGSS Way (p. 100)
10:00–11:30 AM	6–8	B404, GWCC	Harnessing Spider Silk: Phenomena and 3-D Instruction for Grades 6–8 (p. 104)
10:00–11:30 AM	1–8	B202, GWCC	Carolina's Young Scientist™ Dissections with Carolina's Perfect Solution® Specimens (p. 101)
10:00–11:30 AM	6–8	B305, GWCC	NGSS Ecology: Modeling the Introduction of a New Species (p. 103)
10:00–11:30 AM	7–C	B207, GWCC	Biology with Vernier (p. 101)
10:00–11:30 AM	9–C	B403, GWCC	Going with the Flow of Genetic Information: Transcription and Translation (p. 104)
10:00–11:30 AM	9–C	B407, GWCC	Of Mice and Men: Engaging HS Students in Biomedical Science (p. 104)
10:00–11:30 AM	6–12	B303, GWCC	Energy Quest: Where Cell Pathways ARE Fun and Games (p. 103)
10:00–11:30 AM	9–C	B308, GWCC	The Central Dogma, CRISPR, and Genetic Medicine (p. 103)
10:00–11:30 AM	7–C	B203, GWCC	Flinn Favorite Biology Activities and Games (p. 101)
10:00–11:30 AM	9–C	B310, GWCC	Become a GMO Investigator (p. 103)
10:30–11:30 AM	9–C	B311, GWCC	Investigate Photosynthesis and Cellular Respiration with Algae Beads (p. 105)
11:00–11:30 AM	9–12	Int'l Blrm. F/Group 2, Omni at CNN	Teacher Researcher Day Session: Increasing Student Engagement with Science Practices: Teacher Inquiry Projects in Chicago Public School Science Classrooms Offer Insights (p. 106)
11:00 AM–12 Noon	7–C	B209, GWCC	Are You a Night Owl? A Morning Lark? The Answer May Be in Your Genes (p. 108)
11:00 AM–12 Noon	6–C	B306, GWCC	Left at the Scene of the Crime: Introduction to Forensic Science (p. 108)
11:00 AM–12:15 PM	10–C	B210, GWCC	A New Hands-On Clear and Reliable Way to Teach Restriction Digest Labs (p. 109)
12 Noon–1:30 PM	5–12	B304, GWCC	Georgia On My Brain: Hands-On Neuroscience Labs (p. 111)
12 Noon–1:30 PM	9–12	B308, GWCC	Making Evolutionary Connections Within an NGSS Storyline (p. 112)
12 Noon–1:30 PM	8–C	B403, GWCC	5 E'sy Ways to Investigate Enzymes! (p. 112)
12 Noon–1:30 PM	K–12	B204, GWCC	Come to Your Senses: Physiology in Action (p. 110)
12:30–1:00 PM	6–12	C202, GWCC	Bring Content to Life with NGSS-Focused Design Challenges for Science Classroom (p. 113)

12:30–1:00 PM	P–2	Int'l Blrm. F/Group 4, Omni at CNN	Teacher Researcher Day Session: Using Found Objects to Introduce STEM Concepts to Little Ones (p. 113)
12:30–1:30 PM	6–C	A314, GWCC	Exploring Biodiversity in One Cubic Foot (p. 118)
12:30–1:30 PM	7–C	B209, GWCC	Solving a Forensics Mystery Through DNA Analysis: D1S80VNTR Lab (p. 121)
12:30–1:30 PM	C	Hickory, Omni at CNN	SCST-Sponsored Session: How Are We Implementing Vision and Change in the College Science Classroom? (p. 116)
12:30–1:30 PM	K–8	A316, GWCC	NGSS-ifying Your Field Trip (p. 118)
12:30–1:30 PM	7–12	B211, GWCC	Teaching About the Intersections of Biology, History, Race, and Racism: Strategies, Curriculum Resources, and Research (p. 119)
12:30–1:30 PM	9–C	C203, GWCC	DIY Inquiry-Based Forensic Labs (p. 119)
12:30–1:30 PM	K–5	A403, GWCC	Bird Enthusiasts Engineer Mindful Science (p. 118)
12:30–1:30 PM	4–8	A315, GWCC	Forensics Fun for All (p. 118)
12:30–1:30 PM	6–12	B315, GWCC	Use Data to Slay Misconceptions about Photosynthesis and Respiration (p. 122)
12:30–1:30 PM	6–C	Int'l Blrm. A/B, Omni at CNN	On-the-Farm STEM Events: An Immersive Approach to Making Real-World STEM Connections (p. 120)
12:30–1:30 PM	9–C	B306, GWCC	What's in My Lunch: Using Biotechnology to Detect GMOs and Common Allergens (p. 122)
12:30–1:30 PM	9–12	B216, GWCC	Climate Change and Beyond: The Understanding Global Change (UGC) Conceptual Framework (p. 122)
12:30–1:45 PM	10–C	B210, GWCC	Affordable Hands-On PCR Lab in One Class Period Is for Real (p. 123)
1:00–1:30 PM	6–12	C202, GWCC	Activities to Help Put Some STEAM in Your Body System Projects (p. 124)
2:00–2:30 PM	6–12	C211, GWCC	The Trial of the <i>Archaeopteryx</i> Fossil: A Journey in Earth Science Student-Centered Learning (p. 125)
2:00–2:30 PM	3–8	C206, GWCC	PBL: Solving the Bee Problem (p. 125)
2:00–3:00 PM	6–8	C202, GWCC	Photosynthesis, NGSS Style! (p. 129)
2:00–3:00 PM	P–5	A303, GWCC	Blending Science and Language Arts (p. 128)
2:00–3:00 PM	9–12	C201, GWCC	Weaving Biotechnology Throughout Your Biology Curriculum (p. 132)
2:00–3:00 PM	K–8	A316, GWCC	Birding in Three Dimensions (p. 131)
2:00–3:00 PM	6–9	B401, GWCC	Modeling and the Three Dimensions of the NGSS in Middle School Genetics (p. 132)
2:00–3:00 PM	9–C	B210, GWCC	Personalized Genetics: Isolate and Amplify Your Own PTC Taste Gene (p. 134)
2:00–3:00 PM	9–C	B306, GWCC	Cancer Investigators: Medical Diagnostics in Your Classroom (p. 135)
2:00–3:00 PM	7–12	B209, GWCC	Genes in Space STEM Contest: Your DNA Experiment in Space! (p. 134)
2:00–3:30 PM	7–C	B207, GWCC	Environmental Science with Vernier (p. 136)
2:00–3:30 PM	9–C	B408, GWCC	Hands-On Anatomy: Body Building with Clay (p. 139)
2:00–3:30 PM	9–C	B310, GWCC	Barcoding Lionfishes' Last Meal: A Citizen Science Project for the Classroom (p. 137)
2:00–3:30 PM	9–C	B311, GWCC	Fight World Hunger with Protein Biology and Designing Treatment Plans (p. 138)
2:00–3:30 PM	7–12	B314, GWCC	Soft Drinks, Subject Silos, Synergy, and Sweet Darwinian Diet Deliberations (p. 138)
2:00–3:30 PM	6–12	B202, GWCC	Strawberry Milkshakes: DNA and Lactose Intolerance (p. 135)
2:00–3:30 PM	6–12	B308, GWCC	Using HHMI Resources as Phenomena: The Earth/Life Science NGSS Crosswalk (p. 137)
2:00–3:30 PM	K–12	B204, GWCC	Introduction to Wisconsin Fast Plants® (p. 136)
2:00–3:30 PM	4–C	B218, GWCC	Stream Ecology: Slimy Leaves for Healthy Streams (p. 136)
2:30–3:00 PM	7–C	Walnut, Omni at CNN	Quantitative and Qualitative Results of Modeling Instruction Workshops (p. 141)
2:30–3:00 PM	7	A407, GWCC	Using CER to Analyze Structure and Function in Plant Reproduction (p. 140)
3:15–3:45 PM	7–12	B209, GWCC	Lab in a Box: A Free Biotechnology Loaner Program from Genes in Space (p. 142)
3:30–4:00 PM	K–5	A408, GWCC	Exploration and Discovery Through Maps: Teaching Science with Technology (p. 142)
3:30–4:00 PM	6–8	C213, GWCC	Phenomenal Argumentation: A Collaborative Approach to Promote Argumentative Writing (p. 143)
3:30–4:30 PM	8–C	B210, GWCC	Determine the Genotype for PTC Taster and Non-Taster by Electrophoresis (p. 149)

3:30–4:30 PM	6–8	C201, GWCC	NGSS-Designed Assessments for a Middle School Ecosystems Unit (p. 148)
3:30–4:30 PM	9–C	B306, GWCC	Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR (p. 150)
3:30–4:30 PM	3–5	C206, GWCC	Lots of Bots: Using Robots to Teach the NGSS in Elementary School (p. 149)
3:30–4:30 PM	10–C	C204, GWCC	Sense in Molecules: Modeling Personalized Medicine (p. 146)
3:30–4:30 PM	6–12	A302, GWCC	Soil: A Nonrenewable Resource? (p. 147)
3:30–4:30 PM	K–12	C202, GWCC	Creating and Maintaining Kid-Friendly, Bird-Friendly Gardens (p. 146)
3:30–4:30 PM	7–12	A301, GWCC	ASTE-Sponsored Session: Phenomenal 3-D Science: Cystic Fibrosis (p. 147)
3:30–4:30 PM	6–C	A412a, GWCC	NASA Astrobiology: The Search for Life Beyond Earth (p. 146)
4:00–4:30 PM	P–6	A408, GWCC	Amphibians and Reptiles Rock: An Informal Science Education Project for Elementary-Age Students in Rural Alabama (p. 151)
4:00–4:30 PM	4–C	B209, GWCC	LARP! Live Action Role Playing and the Biology Curriculum (p. 153)
4:00–5:30 PM	6–8	B305, GWCC	NGSS Reproduction: Breeding Critters—More Traits (p. 155)
4:00–5:30 PM	K–5	B404, GWCC	BUGDORK! Using Insects to Engage Students and Inspire Learning (p. 156)
4:00–5:30 PM	9–C	B308, GWCC	Modeling Population Dynamics in Gorongosa National Park (p. 155)
4:00–5:30 PM	K–12	B204, GWCC	Hands-On Science with Classroom Critters (p. 153)
4:00–5:30 PM	3–8	B217, GWCC	Legendary Game-Based Learning (p. 154)
4:00–5:30 PM	6–12	B202, GWCC	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 153)
4:00–5:30 PM	6–8	B215, GWCC	Toward High School Biology: Introducing a New Middle School Curriculum Unit (p. 154)
4:00–5:30 PM	K–5	B201, GWCC	Plants, Bessbugs, and Squid: Build Understanding of Structure and Function (p. 153)
4:00–5:30 PM	7–C	B203, GWCC	Exploring Biology Through Dissection from Flinn Scientific (p. 153)
4:00–5:30 PM	9–C	B310, GWCC	Explore Molecular Evolution Using Protein Electrophoresis (AP Big Ideas 1, 3, 4) (p. 155)
4:00–5:30 PM	9–C	B311, GWCC	Upgrade Your Genetics Class with Neurobiology and Chemotaxis (p. 156)
5:00–5:30 PM	C	Magnolia, Omni at CNN	Student Engagement in Direct Instruction, Undergraduate Microbiology Laboratories (p. 158)
5:00–6:00 PM	8–9	C203, GWCC	How Big Was Megalodon? Hands-On Science Learning Using 3D-Printed Shark Teeth (p. 162)
5:00–6:00 PM	3–5	A313, GWCC	Step Up to Science: Using Step Books to Engage Students and Integrate Literacy (p. 161)
5:00–6:00 PM	9–12	A301, GWCC	Using Storylines to Support 3-D Learning: Why Don't Antibiotics Work Like They Used To? (p. 161)
5:00–6:00 PM	10–12	C201, GWCC	Anatomy Rocks! (p. 162)
5:00–6:00 PM	P–8	A314, GWCC	Everyday Natural Items: Studying Seeds as the Basis for STEM (p. 161)
5:00–6:00 PM	6–12	C206, GWCC	Using Combined Text Genres to Influence to Meaning Construction in Science (p. 159)
5:00–6:00 PM	5–8	A304, GWCC	SEPUP and NGSS: Rewriting Your Middle School Curriculum (p. 158)
5:00–6:00 PM	3–8	B401, GWCC	Start Big, Go Small...with Life Science Storylines (p. 162)
5:00–6:00 PM	9–C	B210, GWCC	DNA Forensics Solves the Murder of Dr. Ward (p. 163)
5:00–6:00 PM	6–12	A305, GWCC	Environmental Heroes—From Field Research to Environmental Advocacy (p. 161)
5:00–6:00 PM	6–9	A404, GWCC	Using Issues as a Context to Enhance Students' Three-Dimensional Learning (p. 162)
5:00–6:00 PM	6–8	A402, GWCC	Teaching Life Science Through STEM Integration: An Ecosystems Project (p. 162)
5:30–6:00 PM	C	Magnolia, Omni at CNN	Increasing Student Engagement Through Inquiry-Based Teaching Methods and Exploration of Climate Change Science in an Undergraduate Biology Laboratory Course (p. 164)

Physical Science: Thursday

8:00–9:00 AM	9–12	C301, Omni at CNN	Next Generation Chemistry (p. 85)
8:00–9:00 AM	K–5	B212, GWCC	Exploring the Science of Sound (p. 88)
8:00–9:00 AM	3–5	C203, GWCC	The Engineering of <i>The Lorax</i> (p. 89)
8:00–9:00 AM	8–C	B210, GWCC	Who Is Baby Whale’s Father? DNA Fingerprinting Solves the Mystery! (p. 92)
8:00–9:00 AM	K	A401, GWCC	Sensing Science Through Modeling Matter for Kindergarten Students (p. 84)
8:00–9:00 AM	3–12	C302, GWCC	Rocket into Physics (p. 89)
8:00–9:00 AM	3–C	B309, GWCC	Magical Illusions and Scintillating Simulations for Science: It’s Showtime! (p. 84)
8:00–9:00 AM	8–12	A302, GWCC	A Unique Ice Core Investigation That Integrates the Three Dimensions of NGSS and STEM (p. 83)
8:00–9:00 AM	K–12	Grand Blrm. B, Omni at CNN	3-2-1 Satellite Liftoff with NASA’s Beginning Engineering Science and Technology (p. 90)
8:00–9:00 AM	9–12	B315, GWCC	What’s in the Water? Colorimetry and Conductivity of Solutions (p. 93)
8:00–9:00 AM	8–12	B214, GWCC	Engage ALL Students by Integrating Engineering, Science, and Daily Life (p. 92)
8:00–9:30 AM	7–C	B208, GWCC	Integrating iPad with Vernier Technology (p. 93)
8:00–9:30 AM	6–8	B302, GWCC	Identifying Energy Transfers in Motors and Generators (p. 94)
8:00–9:30 AM	7–C	B203, GWCC	Positively Engaging Demos and Labs for Chemistry from Flinn Scientific (p. 93)
8:00–9:30 AM	3–C	B207, GWCC	Integrating Chromebook with Vernier Technology (p. 93)
8:00–9:30 AM	6–8	B304, GWCC	Essential Materials for Easy NGSS Lessons (p. 94)
8:00–9:30 AM	6–8	B305, GWCC	NGSS Waves: Making an Abstract Concept Visible! (p. 94)
9:15–10:45 AM	10–C	B210, GWCC	Foodborne Outbreak Investigation Using Gel Electrophoresis (p. 99)
9:30–10:30 AM	7–12	B315, GWCC	pH: Hands-On Strategies to Tackle Misconceptions (p. 100)
10:00–11:30 AM	P–8	B409, GWCC	Gears, Wheels, Axles, Levers, and Pulleys: How Do They Lay the Foundation for Robotics? (p. 104)
10:00–11:30 AM	6–8	B302, GWCC	Wave Properties and Information Technologies (p. 102)
10:00–11:30 AM	6–12	B204, GWCC	Engineer Physical Science Excitement with a Carolina STEM Challenge® (p. 101)
10:00–11:30 AM	3–C	B208, GWCC	Physics with Vernier Using Chromebook (p. 102)
10:00–11:30 AM	6–8	B201, GWCC	Shifting to the Five Innovations: Density Phenomena (p. 101)
10:00–11:30 AM	9–12	B304, GWCC	Be Phenomenal in Physical Science and NGSS (p. 103)
10:00–11:30 AM	8–C	B218, GWCC	Teaching Effectively with 3D Visualization at the Molecular Level (p. 102)
11:00 AM–12 Noon	9–12	B315, GWCC	Stoichiometry: Tools and Strategies that Make It Easier to Teach (p. 108)
11:00 AM–12 Noon	7–12	B316, GWCC	Crash Barrier: How to Design a STEM Engineering Challenge (p. 108)
11:00 AM–12 Noon	9–12	Int’l Blrm. F/Group 1, Omni at CNN	Teacher Researcher Day Session: From Cookbook to CER—Integrating the Claim-Evidence-Reasoning Model into the Chemistry Classroom (p. 106)
11:00 AM–12:15 PM	10–C	B210, GWCC	A New Hands-On Clear and Reliable Way to Teach Restriction Digest Labs (p. 109)
12 Noon–1:30 PM	9–C	B208, GWCC	Elementary Science with Vernier (p. 110)
12 Noon–1:30 PM	K–5	B201, GWCC	Planning and Designing Investigations Using Balanced and Unbalanced Forces (p. 109)
12 Noon–1:30 PM	6–12	B202, GWCC	Keep Calm and Chemistry On: Successful Lab Activities for the New Chemistry Teacher (p. 109)
12 Noon–1:30 PM	9–C	B207, GWCC	Chemistry with Vernier Using Chromebook (p. 110)
12 Noon–1:30 PM	9–C	B203, GWCC	Year-Round Solutions for Success in AP Chemistry from Flinn Scientific (p. 110)
12 Noon–1:30 PM	8–C	B403, GWCC	5 E’sy Ways to Investigate Enzymes! (p. 112)
12 Noon–1:30 PM	6–12	B213, GWCC	Are You Moody? (p. 110)
12 Noon–1:30 PM	10–C	B215, GWCC	What’s New in Physics? (p. 110)
12:30–1:00 PM	6–10	C301, GWCC	Bringing STEAM and Literacy to the Periodic Table (p. 113)
12:30–1:30 PM	6–12	B315, GWCC	Use Data to Slay Misconceptions about Photosynthesis and Respiration (p. 122)
12:30–1:30 PM	6–C	C302, GWCC	Using Modeling Activities in the High School Chemistry Class (p. 120)
12:30–1:30 PM	K–12	B214, GWCC	Structuring Discussion to Be Equitable and Rigorous (p. 122)
12:30–1:30 PM	9–12	B316, GWCC	155 Essential Interactive Equations and Simulations for Physics (p. 122)
12:30–1:30 PM	4–8	A315, GWCC	Forensics Fun for All (p. 118)
1:00–2:30 PM	5–12	B409, GWCC	Integrating Robotics into Your Science Classroom (Grades 5+) (p. 125)

Schedule at a Glance Physical Science

2:00–2:30 PM	P–2	Int'l Blrm. F/Group 1, Omni at CNN	Teacher Researcher Day Session: Properties of Matter for Young Learners (p. 126)
2:00–3:00 PM	P–8	A301, GWCC	Forces and Motion (PS2): An Integrated K–8 Hands-On Approach Supporting the NGSS and CCSS ELA (p. 130)
2:00–3:00 PM	9–12	C301, GWCC	Electrolysis of Potassium Iodide: A Chemistry Demo That Illustrates and Unites Multiple Concepts (p. 129)
2:00–3:00 PM	6–12	B315, GWCC	Subscripts and Coefficients Made Easy! (p. 135)
2:00–3:00 PM	P–3	A403, GWCC	Let's Get Wet: Water and Weather (p. 131)
2:00–3:00 PM	9–C	B210, GWCC	Personalized Genetics: Isolate and Amplify Your Own PTC Taste Gene (p. 134)
2:00–3:00 PM	4–10	C205, GWCC	Coasting Through Physics: Bring the Thrill of Roller Coasters to Your Classroom! (p. 132)
2:00–3:00 PM	7–12	B316, GWCC	Made Easy: How to Untangle Electric Circuits (p. 135)
2:00–3:30 PM	7–12	B314, GWCC	Soft Drinks, Subject Silos, Synergy, and Sweet Darwinian Diet Deliberations (p. 138)
2:00–3:30 PM	K–5	B201, GWCC	Smithsonian Engineering: Sending Coded Messages Using Sound (p. 135)
2:00–3:30 PM	6–8	B305, GWCC	Chemical Batteries (p. 137)
2:00–3:30 PM	8–12	B406, GWCC	Ballistics: Recreating the <i>Sacco and Vanzetti</i> Case (p. 139)
2:00–3:30 PM	5–8	B208, GWCC	Middle School Science with Vernier Using Chromebook (p. 136)
2:30–3:00 PM	7–C	Walnut, Omni at CNN	Quantitative and Qualitative Results of Modeling Instruction Workshops (p. 141)
3:00–4:30 PM	4–8	B409, GWCC	Explore Renewable Energy with Hands-On Activities (p. 142)
3:30–4:00 PM	K–12	C301, GWCC	Spark Students' Curiosity with Chemistry! (p. 143)
3:30–4:30 PM	3–12	B405, GWCC	NSTA Press® Session: Phenomenon-Based Learning: Fun, Hands-On, and Cooperative Learning of Both Science and Language Arts (p. 148)
3:30–4:30 PM	3–5	C206, GWCC	Lots of Bots: Using Robots to Teach the NGSS in Elementary School (p. 149)
3:30–4:30 PM	9–12	C212, GWCC	Deflategate: Critical Thinking and the Ideal Gas Law (p. 149)
3:30–4:30 PM	7–12	B315, GWCC	Evaporative Cooling: Visualizing Matter so It Makes Sense! (p. 150)
3:30–4:30 PM	6–C	C302, GWCC	Incorporating Inquiry and Argumentation in Middle School and High School Physics Classrooms (p. 149)
3:30–4:30 PM	K–5	A404, GWCC	Connected Content Storylines Spark Student Engineers to Create with Confidence (p. 148)
3:30–4:30 PM	7–12	B316, GWCC	Hands-On: Teach Speed and Velocity with Motion Graphs (p. 150)
3:30–4:30 PM	9–12	B216, GWCC	Get Your Chemistry in Gear: Problem-Based Learning in Your Chemistry Classroom (p. 150)
4:00–4:30 PM	6–8	C211, GWCC	Middle School Adventures with NGSS (p. 151)
4:00–5:30 PM	3–8	B217, GWCC	Legendary Game-Based Learning (p. 154)
4:00–4:30 PM	6–C	C301, GWCC	Identifying Epistemic Games to Assist in Improving Students' Chemistry Reasoning (p. 152)
4:00–5:30 PM	7–12	B208, GWCC	STEM/Engineering Activities Using Vernier Sensors with Arduino (p. 154)
4:00–5:30 PM	9–C	B207, GWCC	Chemistry with Vernier (p. 154)
4:00–5:30 PM	1–12	B403, GWCC	Blinded By the Light (p. 156)
4:00–5:30 PM	6–8	B314, GWCC	NGSS Engineering and Self-Powered Vehicles (p. 156)
4:00–5:30 PM	7–12	B218, GWCC	Engaging Students with Chemistry Games (p. 154)
5:00–6:00 PM	K–12	Dogwood B, Omni at CNN	Closing the Loop: Developing NGSS-Focused Performance Assessments (p. 160)
5:00–6:00 PM	6–8	C301, GWCC	Illuminating Evidence of 3-D Learning (p. 160)
5:00–6:00 PM	5–8	A304, GWCC	SEPUP and NGSS: Rewriting Your Middle School Curriculum (p. 158)
5:00–6:00 PM	9–12	C302, GWCC	Connecting Chemistry to Your World Through ChemClub (p. 163)
5:00–6:00 PM	9–C	A311, GWCC	Modeling Forces with Newton's Third Law First (p. 161)
5:00–6:00 PM	1–5	A312, GWCC	Can You Hear Me, Now? An Elementary Storyline Approach to 3-D Learning (p. 161)
5:00–6:00 PM	3–8	A316, GWCC	Hot or Not? Transferring Heat Efficiently to Provide Clean Energy (p. 162)
5:00–6:00 PM	K–5	A408, GWCC	Using Models to Support STEM Learning in Grades K–5: Examples and Insights from NSF's DRK–12 Program (p. 158)
5:00–6:00 PM	9–C	B210, GWCC	DNA Forensics Solves the Murder of Dr. Ward (p. 163)

General Science Education: Thursday

8:00–8:30 AM	C	Hickory, Omni at CNN	SCST-Sponsored Session: Building a Community in an Online Science Course (p. 82)
8:00–8:30 AM	7–12	C213, GWCC	Mathematical Thinking as a Sense-Making Practice for Refining Student Models of Real-World Phenomena (p. 82)
8:00–8:30 AM	3–C	Walnut, Omni at CNN	Read, Write, Publish! Help Your Science Students Become Authors (p. 82)
8:00–8:30 AM	K–12	Birch, Omni at CNN	Experimental Design in the K–12 Classroom: Reimagining Cookbook Lessons by Integrating Them with NGSS (p. 82)
8:00–8:30 AM	K–12	Dogwood B, Omni at CNN	Explaining Phenomena or Designing Solutions to Problems? The Relationship of Science and Engineering in the NGSS (p. 82)
8:00 - 9:00 AM	K-8	B216, GWCC	Take Your Students on a Quest! (p. 92)
8:00–9:00 AM	G	Int'l Blrm. A/B, Omni at CNN	Bringing 3-D Learning to Life with 360 Spherical Photography (p. 90)
8:00–9:00 AM	3–10	Oak, S. Tower, Omni at CNN	Literacy and Hands-On Science Through Model Building (p. 90)
8:00–9:00 AM	K–12	B402, GWCC	Career-Connected Learning and NGSS: Tools and Strategies for Students, Teachers, and Administrators (p. 85)
8:00–9:00 AM	6–12	C207, GWCC	Breaking Down Barriers with Community-Based Phenomena (p. 85)
8:00–9:00 AM	6–10	C210, GWCC	Read-Aloud with Rigor: Deepening Middle Schoolers' Science Content Knowledge Through Literacy (Grades 6–8) (p. 89)
8:00–9:00 AM	6–C	Int'l Blrm. D, Omni at CNN	Concept Maps as Tools for Differentiation and Evaluating Student Growth (p. 90)
8:00–9:00 AM	5–12	Cottonwood A/B, Omni at CNN	Yellowstone Science for Educators: Bring the Science of Yellowstone into Your Classroom (p. 89)
8:00–9:00 AM	5–8	C209, GWCC	Using the NGSS in an Equity-Oriented Way for Science Learning and Identity Formation (p. 89)
8:00–9:00 AM	P–3	A402, GWCC	Integrative STEM (iSTEM) for Little Learners (p. 87)
8:00–9:00 AM	6–8	C205, GWCC	Data-Driven and Paper-Free Math and Science Integration (p. 89)
8:00–9:00 AM	K–C	Int'l Blrm. C, Omni at CNN	CSSS-Sponsored Session: Georgia's Science Ambassador Program (p. 85)
8:00–9:00 AM	K–5	B401, GWCC	Get Inspired with a Phenomena Walk (p. 89)
8:00–9:00 AM	K–12	Juniper, Omni at CNN	AMSE-Sponsored Session: A Framework for Equity and Inclusion: Culturally Relevant Pedagogy in the Science Classroom (p. 86)
8:00–9:00 AM	2–5	A312, GWCC	ASTC-Sponsored Session: Engaging Students Through the Design Process (p. 87)
8:00–9:00 AM	P–C	B102, GWCC	Is This Your First NSTA Conference? First-Timer Conference Attendees' Orientation (p. 84)
8:00–9:00 AM	4–12	A301, GWCC	Closing the Literacy Gap with Technology: Helping At-Risk Students (p. 83)
8:00–9:00 AM	8–12	A303, GWCC	Yager Scholar Kristin Rademaker: Teaching Through Phenomena (p. 84)
8:00–9:00 AM	1–C	B405, GWCC	NSTA Press® Session: Unlocking the Vision of the NGSS in the Classroom: Implications for K–12 Teachers (p. 85)
8:00–9:00 AM	K–12	A304, GWCC	<i>Discover the NGSS: An Interactive Exploration of the Next Generation Science Standards</i> (p. 84)
8:00–9:30 AM	3–5	B301, GWCC	Making the Most of Hands-On with Leveled Reading and Notebooking (p. 94)
8:00–9:30 AM	P–8	B404, GWCC	What's So Phenomenal About Phenomena? (p. 95)
8:00–9:30 AM	K–3	B217, GWCC	Linking Literature and STEM in the Primary Classroom (p. 93)
8:00–9:30 AM	6–12	B213, GWCC	Using Maggots, Flies, and Flesh to Solve a Mystery! (p. 93)
8:30–9:00 AM	P–12	Walnut, Omni at CNN	Sharing the Language of Science Through a Blended 5E and 5R Model (p. 96)
8:30–9:00 AM	K–12	Dogwood B, Omni at CNN	How to Use the Crosscutting Concepts to Launch Rich NGSS Instruction (p. 96)
8:30–9:00 AM	7–12	C213, GWCC	Reading with Strategic Questions (p. 96)
8:30–9:30 AM	G	Int'l Blrm. F, Omni at CNN	Teacher Researcher Day Session: Poster Session for Teachers and Teacher Educators Inquiring into Science Learning and Teaching (p. 98)
9:15–10:30 AM	G	Thomas B. Murphy Blrm., GWCC	General Session: Teaching Through Adversity: Facing Challenges and Making a Difference (p. 98)
9:30–10:30 AM	5–8	B214, GWCC	Literacy in the Context of Science in the Middle School Classroom (p. 99)
9:30–10:30 AM	4–C	B103, GWCC	NMEA Session: Using Authentic Ocean Data to Meet the NGSS (p. 99)
9:30–11:00 AM	G	Int'l Blrm. F, Omni at CNN	Teacher Researcher Day Session: You CAN Do Classroom Research: The Teacher Researcher (p. 101)
10:00–11:30 AM	6–9	B313, GWCC	STEM Challenge: Keeping Students Engaged with Problem Solving (p. 103)

Schedule at a Glance General Science Education

10:00–11:30 AM	3–5	B301, GWCC	How to Argue in the Elementary Science Class (p. 102)
10:00–11:30 AM	K–12	B215, GWCC	Stop Creating Lesson Plans: Start Creating Learning Experiences (p. 102)
10:00–11:30 AM	9–10	B406, GWCC	BIOZONE's New NGSS Series for High School (p. 104)
11:00 AM–12 Noon	P–3, C	Int'l Blrm. F/Group 3, Omni at CNN	Teacher Researcher Day Session: Young Children as Scientists (p. 106)
11:00 AM–12 Noon	6–8	B214, GWCC	Implementing Project-Based Science: Storylines, Standards, and Student Work (p. 108)
11:00 AM–12 Noon	K–12	B216, GWCC	Cultivating a Culture of Argumentation in Your Classroom (p. 108)
11:30 AM–12 Noon	9–12	Int'l Blrm. F/Group 2, Omni at CNN	Teacher Researcher Day Session: Promoting Student Access and Equity: Building Pedagogical Capacity Through Teacher Inquiry Projects in Chicago Public Schools High School Science Classrooms (p. 109)
12 Noon–12:30 PM	G	Int'l Blrm. F, Omni at CNN	Teacher Researcher Day Session: Come Be a Part of the Science Inquiry Group Network (p. 109)
12 Noon–1:30 PM	K–12	B408, GWCC	How to Teach Science with Minecraft (p. 112)
12 Noon–1:30 PM	6–12	B303, GWCC	Solve the Mystery of STEM Using Forensic Science (p. 111)
12 Noon–1:30 PM	K–12	B313, GWCC	Out-of-School STEM Enrichment: AEOP Program Design Collaboration (p. 112)
12 Noon–1:30 PM	6–8	B404, GWCC	Integration in Amplify Science: Implementing an NGSS Approach to Cross-Disciplinary Teaching and Learning (p. 112)
12 Noon–1:30 PM	K–5	B302, GWCC	Sense-Making Through Modeling, Argumentation, and Explanations in Grades K–5 (p. 111)
12 Noon–1:30 PM	3–5	B301, GWCC	Embedding Practices and Crosscutting Concepts into Hands-On Science (p. 111)
12 Noon–1:30 PM	K–12	B218, GWCC	Unpacking the NGSS Through Instructional Practices (p. 111)
12:30–1:00 PM	6–8	C211, GWCC	Designing Professional Development for K–12 Integrated STEM Education (p. 113)
12:30–1:00 PM	3–8	Int'l Blrm. F/Group 1, Omni at CNN	Teacher Researcher Day Session: GLOBE "Placed" Within Community (p. 113)
12:30–1:00 PM	5–12	Int'l Blrm. E, Omni at CNN	Big "S" Little "t" Little "e" Little "m", STEM: Using the TEM to Make Science Happen in Schools (p. 113)
12:30–1:00 PM	6–12	C207, GWCC	Pop Culture and Comics: Making STEM Accessible for At-Risk Learners (p. 113)
12:30–1:30 PM	G	A302, GWCC	NSTA Press® Session: <i>Creating a STEM Culture for Teaching and Learning</i> (p. 114)
12:30–1:30 PM	6–C	A312, GWCC	NGSS-ifying Career and Technical Education Courses (p. 114)
12:30–1:30 PM	K–5	A405, GWCC	Reading, Writing, Speaking, Listening in Three-Dimensional Learning (p. 119)
12:30–1:30 PM	7–12	C206, GWCC	Tools and Resources to Meet the Needs of English Language Learners in the Science Classroom (p. 116)
12:30–1:30 PM	K–12	B309, GWCC	NSELA-Sponsored Session: Enhancing Student Learning Through the Use of Formative Assessment Strategies in Teacher Professional Development (p. 115)
12:30–1:30 PM	K–12	Walnut, Omni at CNN	Student-Led Learning (p. 117)
12:30–1:30 PM	G	Redwood, S. Tower, Omni at CNN	The Statistical Education of Teachers (SET): An American Statistical Association Document to Support K–12 Teachers (p. 117)
12:30–1:30 PM	G	Int'l Blrm. F/Group 2, Omni at CNN	Teacher Researcher Day Session: Assessment, NGSS, Flipped Classrooms, and More (p. 117)
12:30–1:30 PM	4–8	A407, GWCC	Bringing the Outside In: Enhancing Interdisciplinary Instruction Through Agriculture (p. 114)
12:30–1:30 PM	6–8	C204, GWCC	Instructionally Supportive Assessment Tasks and Classroom-Based Strategies for Promoting 3-D Learning (p. 116)
12:30–1:30 PM	G	Int'l Blrm. F/Group 3, Omni at CNN	Teacher Researcher Day Session: Science Methods and NGSS: Helping Preservice Teachers Grasp the 3-D Approach (p. 117)
12:30–1:30 PM	7–12	C213, GWCC	The Science of Learning (p. 116)
12:30–1:30 PM	4–12	Oak, S. Tower, Omni at CNN	Teaching Science in the Age of Alternative Facts and Fake News: Critical Literacy Skills for the New Era (p. 117)
12:30–1:30 PM	P–6	A408, GWCC	How to Write Stories That Support Your Science Standards (p. 114)
12:30–1:30 PM	10–12	Juniper, Omni at CNN	AMSE-Sponsored Session: Opening the Gateway to Success Using Case Studies to Help Implement Science Concepts for Diverse Learners (p. 117)
12:30–1:30 PM	G	Magnolia, Omni at CNN	NSELA-Sponsored Session: NSELA's Tools for Leaders (p. 117)
12:30–1:30 PM	6–12	A304, GWCC	Do You Need a New Science Lab? (p. 114)
12:30–1:30 PM	6–C	Grand Blrm. C, Omni at CNN	Using Memes, Puns, Jokes, and Comics in the Science Classroom (p. 116)
12:30–1:30 PM	6–8	A301, GWCC	STEM Escapes: Bringing the Escape Room to the Classroom! (p. 118)

12:30–1:30 PM	K–12	Grand Blrm. B, Omni at CNN	Achieving 3-D Learning Through Hands-on Activities: Lessons from Science Olympiad (p. 120)
12:30–1:30 PM	6–12	C210, GWCC	Learning By Doing: Simulation and PBLs (p. 120)
12:30–1:30 PM	G	Birch, Omni at CNN	Finding Your Voice Without Shouting: Successful Strategies for Getting Yourself Heard (p. 116)
12:30–1:30 PM	K–C	Spruce, S. Tower, Omni at CNN	Planning and Designing Safe and Sustainable Science Facilities That Meet the NGSS (Science Facilities: 101) (p. 121)
12:30–1:30 PM	K–C	Grand Blrm. A, Omni at CNN	Tinkering in the Classroom: Building Interest in STEM (p. 120)
12:30–1:30 PM	6–8	C201, GWCC	AMP-IT-UP: An NSF Math-Science Partnership to Cultivate the Next Generation of STEM Innovators (p. 119)
12:30–1:30 PM	1–5	B405, GWCC	NSTA Press® Session: <i>Notable Notebooks in Your Classroom</i> (p. 116)
12:30–1:30 PM	K–12	B101, GWCC	Georgia Science Innovation Exposition Share-a-Thon (p. 114)
12:30–1:30 PM	6–12	C209, GWCC	Keeping 3-D in Focus: Integrating Crosscutting Concepts into Everyday Instruction (p. 120)
12:30–1:30 PM	K–12	A311, GWCC	Strategies for Districts to Implement NGSS or Other 3-D Performance Expectations (p. 118)
12:30–1:30 PM	K–12	Dogwood B, Omni at CNN	Equity-Centered NGSS Storylining: A Practical Guide to the Planning of Phenomena-Centered Science Learning (p. 120)
12:30–2:30 PM	K–12	Int'l Blrm. D, Omni at CNN	CSSS-Sponsored Session: Three-Dimensional Science Lessons (p. 124)
1:00–1:30 PM	6–12	C207, GWCC	Science Is for Everyone! (p. 124)
1:00–1:30 PM	P–2	Int'l Blrm. F/Group 4, Omni at CNN	Teacher Researcher Day Session: Teaching Measurement to Young Children (p. 124)
1:00–1:30 PM	5–8	C211, GWCC	Leveraging GLOBE Resources to Implement Middle Grades Science and Mathematics Standards (p. 124)
1:30–2:00 PM	G	Int'l Blrm. F, Omni at CNN	Teacher Researcher Day Session: Want to Present Next Year? (p. 125)
2:00–2:30 PM	G	Int'l Blrm. F/Group 3, Omni at CNN	Teacher Researcher Day Session: Teacher Research and Teacher Evaluation? (p. 126)
2:00–2:30 PM	C	Hickory, Omni at CNN	SCST-Sponsored Session: Value-Added International Science Programs: Adding Research, Presentation, and Service Components to Undergraduate Field Courses Abroad (p. 125)
2:00–2:30 PM	10-11	Grand Blrm. C, Omni at CNN	Authentic Assessment in Action: Using Personal Meaning Maps to Determine the Impact of an Enrichment Activity in the Secondary Classroom (p. 125)
2:00–3:00 PM	K–12	Grand Blrm. A, Omni at CNN	STEM: A Defining Situation! (p. 133)
2:00–3:00 PM	K–C	Spruce, S. Tower, Omni at CNN	Planning and Designing Safe and Sustainable Science Facilities That Meet the NGSS (Science Facilities: 102) (p. 134)
2:00–3:00 PM	K–2	A404, GWCC	STEM Lessons for the Primary Classroom (p. 131)
2:00–3:00 PM	G	C204, GWCC	Science at the Dollar Store: 2018 Version! (p. 129)
2:00–3:00 PM	P–4	A402, GWCC	<i>Stellaluna</i> : Exploring Three Dimensions and Interdisciplinary Opportunities (p. 128)
2:00–3:00 PM	K–12	B101, GWCC	Award-Winning Share-a-Thon: Featuring NSTA Distinguished Teachers (p. 128)
2:00–3:00 PM	K–5	C203, GWCC	Elementary Teachers: Teaching 3-Dimensional Science with Confidence (p. 132)
2:00–3:00 PM	P–12	A312, GWCC	Designing 3-D Curriculum Through Coaching, Collaboration, and Community (p. 128)
2:00–3:00 PM	6–12	C209, GWCC	Intersection of Understanding by Design Framework and NGSS (p. 132)
2:00–3:00 PM	6–12	C210, GWCC	Canned Data?! Not in The House of STEM! (p. 132)
2:00–3:00 PM	K–5	A410, GWCC	Improve Science and Language Arts Instruction Through Notebooking? We “Shell” Do Just That! (p. 131)
2:00–3:00 PM	G	Dogwood B, Omni at CNN	Improving 3-D Learning in Your Classroom: Building Assessment Tasks That Work (p. 133)
2:00–3:00 PM	3–8	A315, GWCC	Using Discrepant Events to Jump-Start Inquiry (p. 131)
2:00–3:00 PM	C	A304, GWCC	Using the NSTA Learning Center as an Online Textbook (p. 128)
2:00–3:00 PM	3–5	A311, GWCC	NSTA Press® Session: <i>EUREKA! Grade 3–5 Science Activities and Stories</i> (p. 130)
2:00–3:00 PM	6–12	C212, GWCC	Using the NGSS to Plan a Unit of Instruction (p. 132)
2:00–3:00 PM	5–12	Grand Blrm. B, Omni at CNN	TEAM Science: Amelia and Friends! (p. 133)

Schedule at a Glance General Science Education

2:00–3:00 PM	P–5	B309, GWCC	Mary C. McCurdy Lecture: Cultivating Every Child’s Curiosity in the Natural World (p. 126)
2:00–3:00 PM	K–12	B214, GWCC	Science Storylines and the Driving Question Board: Keeping NGSS Curricula Student Driven (p. 134)
2:00–3:00 PM	6–8	B211, GWCC	Girls Rock STEM: Creating a STEM Day for Middle School Girls (p. 129)
2:00–3:00 PM	P–3	A313, GWCC	ASTC-Sponsored Session: STEM Starts Early “Get a Taste of PASTE” (p. 130)
2:00–3:00 PM	5–C	Juniper, Omni at CNN	AMSE-Sponsored Session: Trustworthy Science Teaching: Six Tenets for Cultivating a Healthy Productive Science Classroom for All (p. 130)
2:00–3:00 PM	4–9	B212, GWCC	Helping Students Navigate Scientific Literacy: Teaching Students to Read, Speak, and Write Science (p. 131)
2:00–3:00 PM	G	Magnolia, Omni at CNN	NSELA-Sponsored Session: NSELA’s Technology Tools for Leaders (p. 130)
2:00–3:00 PM	3–12	Dogwood A, Omni at CNN	NSTA Press® Session: Creative Writing in Science (p. 129)
2:00–3:00 PM	G	Int’l Blrm. F/Group 4, Omni at CNN	Teacher Researcher Day Session: Conducting Action Research That WORKS! (p. 129)
2:00–3:30 PM	6–10	B404, GWCC	A Great Resource to Implement NGSS Through the 5E Model (p. 138)
2:00–3:30 PM	4–10	B215, GWCC	How Do Scientists Think? (p. 136)
2:00–3:30 PM	K–C	B312, GWCC	GMOs—A Hot Topic in the Media, Classroom, and Around the Dinner Table: Panel Discussion and Presentation by Monsanto Company (p. 138)
2:00–3:30 PM	K–C	B313, GWCC	Speaking From Experience: AEOP Alumni Tell All! (p. 138)
2:00–3:30 PM	5–10	B403, GWCC	Science Notebooking: Finding What Works (p. 138)
2:00–3:30 PM	G	B304, GWCC	Grants in 3D: Define, Design, and Deliver (p. 137)
2:00–3:30 PM	3–5	B301, GWCC	Guiding Students Through Informational Text to Support Hands-On (p. 137)
2:00–3:30 PM	3–8	B302, GWCC	Ten Minutes to Improving Science Achievement (p. 137)
2:30–3:00 PM	6–12	C206, GWCC	Phenomenon-Based Teaching in a Mastery-Based School (p. 140)
2:30–3:00 PM	6–12	C207, GWCC	Tips, Tricks, and Tribulations of Bringing the NGSS into Your Science Classroom (p. 140)
2:30–3:00 PM	6–12	C213, GWCC	Science in the One-to-One Classroom (p. 140)
2:30–3:00 PM	9–12	Grand Blrm. C, Omni at CNN	Narrowing the Gap Through Communication (p. 140)
2:30–3:00 PM	6–12	C211, GWCC	Using Science to Teach Math and History: Historical Source Documents as Anchor for Content (p. 140)
2:30–3:00 PM	G	Int’l Blrm. F/Group 1, Omni at CNN	Teacher Researcher Day Session: Using Reflective Practice for Professional Learning in a STEM Classroom (p. 140)
2:30–3:00 PM	P–5	Int’l Blrm. F/Group 2, Omni at CNN	Teacher Researcher Day Session: Building Knowledge and Academic Vocabulary with Text Sets (p. 140)
2:30–3:00 PM	3–8	Int’l Blrm. F/Group 3, Omni at CNN	Teacher Researcher Day Session: Summer STEM Unstitute for Grades 3–8: Relating Physical Activity to Science (p. 141)
2:30–3:00 PM	C	Hickory, Omni at CNN	SCST-Sponsored Session: Keeping Students on Track During Multi-Week Investigations: Some Solutions and Their Impact (p. 140)
2:30–3:00 PM	6–C	Redwood, S. Tower, Omni at CNN	ASTE-Sponsored Session: STEM Partnerships in Science Ed: Challenges, Collaborations, and Lessons from the Inside (p. 141)
3:00–6:00 PM	5–12	Chastain C, Westin	SC-1: If You Can Think It, You Can Model It (p. 142)
3:00–6:00 PM	K–12	Chastain H, Westin	SC-3: Meaning Making in Science: How Disciplinary Literacy Supports the Development of Scientific Understanding (p. 142)
3:30–4:00 PM	9–12	Grand Blrm. C, Omni at CNN	How Motivated Are Your Students? (p. 143)
3:30–4:00 PM	K–5	A401, GWCC	3-D Learning Through Interdisciplinary Teaching in Elementary School (p. 142)
3:30–4:00 PM	6–C	Dogwood B, Omni at CNN	A Lesson Framework for the Next Generation (p. 143)
3:30–4:00 PM	C	Hickory, Omni at CNN	SCST-Sponsored Session: The Benefits and Drawbacks of Using the Popular Press in Your Classroom (p. 143)
3:30–4:00 PM	5–12	Juniper, Omni at CNN	Access for All: Using Universal Design for Learning to Increase Access for Students (p. 143)
3:30–4:30 PM	6–12	C210, GWCC	Using the 5E Instructional Model to Teach Life Science: An Immersive Learner Experience (p. 87)
3:30–4:30 PM	K–5	A405, GWCC	Full STEM Ahead: Starting Small with STEM in Your Classroom (p. 148)
3:30–4:30 PM	P–3	A402, GWCC	Using Science to Support Early Literacy Essential Practices (p. 148)

3:30–4:30 PM	P–12	Dogwood A, Omni at CNN	Harnessing STEAM Power: The Effects and Impact of Meaningful Integration (p. 149)
3:30–4:30 PM	6–12	C209, GWCC	Group Learning Routines to Promote Access in an Inquiry-Based Science Classroom Through Equitable Discussion (p. 149)
3:30–4:30 PM	1–8	A314, GWCC	Critical Thinking Through CCCs (p. 147)
3:30–4:30 PM	6–12	B212, GWCC	Pedagogical Practices in Literacy to Enhance Inquiry-Based Instruction (p. 146)
3:30–4:30 PM	G	A312, GWCC	Community Connections Featured Forum: Exploring Strategies for Culture-Inclusive Student Engagement (p. 144)
3:30–4:30 PM	G	B309, GWCC	Featured Presentation: Reframing Reading as an Inquiry Practice of Science (p. 144)
3:30–4:30 PM	K–5	B214, GWCC	Literacy in the Context of Science in the Elementary Classroom (p. 149)
3:30–4:30 PM	K–12	A303, GWCC	How to Implement STEM and NGSS into Your Classroom Through the Use of NSTA Competitions (p. 146)
3:30–4:30 PM	K–12	Oak, S. Tower, Omni at CNN	Science and Literacy Messages from Michigan: Building Capacity of K–12 Teachers with Key Literacy Practices to Deepen Conceptual Understanding in Science (p. 147)
3:30–4:30 PM	K–8	A407, GWCC	Creating and Using a Makerspace to Differentiate Instruction, Enabling All K–8 Students to Understand the Impact of STEM and the Essential Integration of All STEM Disciplines (p. 146)
3:30–4:30 PM	P–12	Birch, Omni at CNN	Yes, You Can! Tips and Tricks for Presenting at an NSTA Conference (p. 147)
4:00–4:30 PM	P–12	Dogwood B, Omni at CNN	Stop Nodding Along and Start Understanding the NGSS (p. 152)
4:00–4:30 PM	4–6	A401, GWCC	Mixtures and Solutions: The Effectiveness of the 5E Model Undergirded with Reciprocal Teaching in Diverse Settings (p. 150)
4:00–4:30 PM	6–8	C213, GWCC	The Power of Images: Curating Positive Images of People Doing (Real) Science for Middle Grades (p. 152)
4:00–4:30 PM	C	Hickory, Omni at CNN	SCST-Sponsored Session: Join Us for Appy Hour (p. 152)
4:00–4:30 PM	6–C	Juniper, Omni at CNN	Integrating Discussions About Race and Gender into the Science Classroom (p. 152)
4:00–4:30 PM	8–10	Grand Blrm. C, Omni at CNN	Use Brain-Based Strategies to Create Routines that Help All Students Learn (p. 152)
4:00–4:30 PM	P–12	A304, GWCC	Leveraging Partnerships to Support Urban STEM Education (p. 150)
4:00–5:30 PM	K–8	B302, GWCC	FOSS for All Students—Access and Equity (p. 155)
4:00–5:30 PM	6–12	B313, GWCC	On Your Mark: Get RESET! (p. 156)
5:00–5:30 PM	K–5, C	Juniper, Omni at CNN	Science, Literacy, and the Bilingual Learner (p. 157)
5:00–5:30 PM	3–6	A401, GWCC	The Intersection of 5Es Instruction and the Claims, Evidence, and Reasoning Framework: A Hands-On Approach Supporting the NGSS in Upper Elementary Classrooms (p. 157)
5:00–5:30 PM	K–8	A407, GWCC	A Science Symposium Will Skyrocket Science Literacy and Transform the Classroom Culture! (p. 157)
5:00–5:30 PM	6–8	C211, GWCC	Integrating Nanotechnology into the Middle School Classroom (p. 157)
5:00–6:00 PM	P–12	Dogwood A, Omni at CNN	CSSS-Sponsored Session: Leadership in Science Education: Addressing Equity and Access (p. 160)
5:00–6:00 PM	K–12	Birch, Omni at CNN	Assessment FOR Learning in STEM and Beyond: A Professional Learning Model (p. 160)
5:00–6:00 PM	1–9	Spruce, S. Tower, Omni at CNN	Supporting ELLs in Collaborative Sense-Making in Science (p. 163)
5:00–6:00 PM	1–8	A315, GWCC	Multimedia Tools for Supporting K–8 Instruction in the NGSS Science Practices (p. 161)
5:00–6:00 PM	6–12	C210, GWCC	Obtaining, Evaluating, and Communicating Information: Tools for Teachers and Students (p. 163)
5:00–6:00 PM	6–C	Walnut, Omni at CNN	Standards-Based Grading Strategies and Solutions (p. 160)
5:00–6:00 PM	C	Hickory, Omni at CNN	Catch Them Early! Establishing NSTA Student Chapters for Preservice Teachers (p. 160)
5:00–6:00 PM	7–C	C212, GWCC	Large K Equilibrium (p. 163)
5:00–6:00 PM	K–5	A405, GWCC	Developing Scientifically Literate Students with STEM-Manities! (p. 162)

Schedule at a Glance General Science Education

5:00–6:00 PM	6–12	C207, GWCC	Chief Science Officers: Giving Students a Voice in STEM Education (p. 159)
5:00–6:00 PM	6–12	C213, GWCC	Strategies for Equitable Access to Science for English Language Learners (p. 159)
5:00–6:00 PM	9–12	B211, GWCC	Using Digital Science Notebooks to Reach Diverse Learners (p. 159)
5:00–6:00 PM	K–4	C205, GWCC	Activating Creative Thinking and Problem Solving Through STEM Activities and Lessons for Primary-Age Students (p. 163)
5:00–6:00 PM	9–12	B405, GWCC	NSTA Press® Session: <i>Building the Science Department: Stories of Success</i> (p. 159)
5:30–6:00 PM	7–12	C211, GWCC	Strategies for Teaching in a Block Schedule (p. 164)
5:30–6:00 PM	G	Redwood, Omni at CNN	Science Instructional Coaches: The Who, What, Where, Why, and How of the Role (p. 164)
5:30–6:00 PM	2–6	A401, GWCC	Collaborative Conversation in the Classroom (p. 184)

Informal Science Education: Thursday

8:00–9:00 AM	3–11	C201, GWCC	Get Creative! Develop Students' Science and Engineering Practices, Inspired by Birds (p. 89)
8:00–9:00 AM	G	B103, GWCC	NMEA Session: Whale of a Tale Share-a-Thon (p. 88)
8:00–9:00 AM	2–5	A312, GWCC	ASTC-Sponsored Session: Engaging Students Through the Design Process (p. 87)
11:00AM–12 Noon	P–3, C	Int'l Blrm. F/Group 3, Omni at CNN	Teacher Researcher Day Session: Young Children as Scientists (p. 106)
12 Noon–1:30 PM	K–12	B408, GWCC	How to Teach Science with Minecraft (p. 112)
12:30–1:30 PM	P–12	B102, GWCC	NESTA and NSTA Aerospace Education Advisory Board Space Science Share-a-Thon (p. 119)
12:30–1:30 PM	K–12	Grand Blrm. B, Omni at CNN	Achieving 3-D Learning Through Hands-on Activities: Lessons from Science Olympiad (p. 120)
12:30–1:30 PM	P–5	A402, GWCC	Connecting the Classroom to the Field with Focused Field Trips (p. 118)
12:30–1:30 PM	K–5	A403, GWCC	Bird Enthusiasts Engineer Mindful Science (p. 118)
2:00–3:00 PM	1–12	Int'l Blrm. A/B, Omni at CNN	Unboxing Knowledge to Think Inside the Box! (p. 133)
2:00–3:00 PM	9–12	A408, GWCC	Driving Our Future: Electric Vehicles (EV) (p. 128)
2:30–3:00 PM	3–8	Int'l Blrm. F/Group 3, Omni at CNN	Teacher Researcher Day Session: Summer STEM Unstitute for Grades 3–8: Relating Physical Activity to Science (p. 141)
3:30–4:30 PM	K–12	Magnolia, Omni at CNN	NSELA-Sponsored Session: Connecting Informal Science Venues with K–12 Education (p. 147)
3:30–4:30 PM	1–12	B103, GWCC	NMEA Session: Ocean Guardian School Program: Encouraging All Children to Explore Their Natural Surroundings to Form a Personal Connection to the Ocean (p. 146)
3:30–4:30 PM	3–C	C205, GWCC	JetStream: An Online School for Weather (p. 149)
4:00–4:30 PM	K–12	Walnut, Omni at CNN	Science for Service Learning Success (p. 152)
4:00–4:30 PM	P–6	A408, GWCC	Amphibians and Reptiles Rock: An Informal Science Education Project for Elementary-Age Students in Rural Alabama (p. 151)
4:00–5:30 PM	6–12	B213, GWCC	Building Knowledge with BioInteractive and Understanding Global Change (p. 154)
5:00–6:00 PM	9–12	C302, GWCC	Connecting Chemistry to Your World Through ChemClub (p. 163)
5:00–6:00 PM	P–8	A314, GWCC	Everyday Natural Items: Studying Seeds as the Basis for STEM (p. 161)
5:00–6:00 PM	9–12	B103, GWCC	NMEA Session: A View from Above: Teaching Science with Unmanned Aerial Vehicles (p. 162)



—Courtesy of Mike Weiss

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Day	Time	Room Number B207	Room Number B208
THURSDAY 3/15	8:00–9:30 a.m.	Integrating Chromebook™ with Vernier Technology	Integrating iPad® with Vernier Technology
	10:00–11:30	Biology with Vernier	Physics with Vernier Using Chromebook
	12:00–1:30 p.m.	Chemistry with Vernier Using Chromebook	Elementary Science with Vernier
	2:00–3:30	Environmental Science with Vernier	Middle School Science with Vernier Using Chromebook
	4:00–5:30	Chemistry with Vernier	STEM/Engineering Activities using Vernier Sensors with Arduino™
FRIDAY 3/16	8:00–9:30 a.m.	Water Quality with Vernier	Advanced Physics with Vernier
	10:00–11:30	Chemistry with Vernier	Explore Motion with Vernier Video Physics™ for iOS
	12:00–1:30 p.m.	Biology with Vernier Using Chromebook	Inquiry Physics Experiments from Vernier—No Lab Setup Required!
	2:00–3:30	AP Chemistry with Vernier	Physics with Vernier
	4:00–5:30	Biology with Vernier	Renewable Energy with KidWind and Vernier
SATURDAY 3/17	8:00–9:30 a.m.	Biology with Vernier Using Chromebook	Wind and Solar Energy Basics with Vernier
	10:00–11:30	Integrating Chromebook with Vernier Technology	Physics with Vernier Using Chromebook
	12:00–1:30 p.m.	Chemistry with Vernier Using Chromebook	Middle School with Vernier
	2:00–3:30	Human Physiology with Vernier	Introductory Engineering-Design Projects with Vernier

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