NSTA 67TH NATIONAL CONFERENCE ON SCIENCE EDUCATION

CHAMPIONS FOR SCIENCE EDUCATION

ST. LOUIS

MISSOURI | APRIL 11-14, 2019

www.nsta.org/stlouis

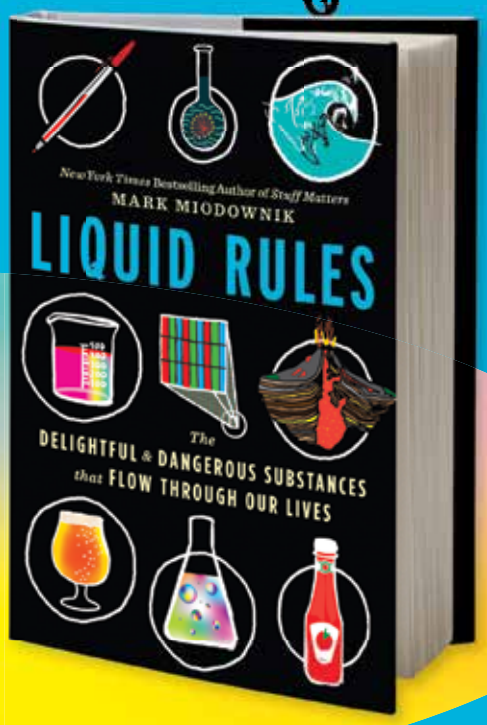
#NSTA19

75th NSTA ANNIVERSARY

New from the *New York Times* Best-selling Author of *Stuff Matters*

LIQUID RULES

Mark Miodownik



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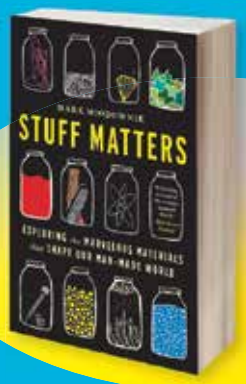

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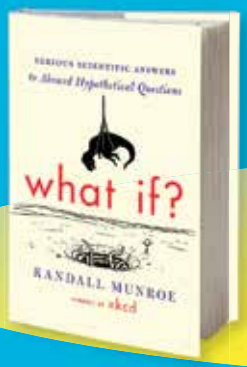

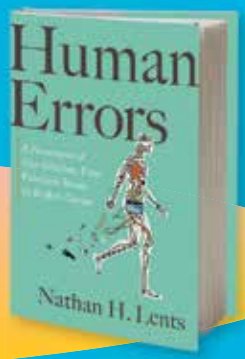

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Table of Contents

NSTA 67th National Conference on Science Education

Champions for Science Education

St. Louis, Missouri • April 11–14, 2019

Wed., April 10–Sun., April 14

Sponsors and Contributors to the St. Louis Conference 4
St. Louis Program Committee 4
President and Committee Welcomes 5

Registration, Travel, and Hotels

Meeting Location and Times 6
Express Check-In 6
Purchasing Ticketed Events 6
Transportation Discount Link 6
NSTA Shuttle Schedule 8
Conference Hotels 10
First-Timer Conference Attendees' Orientation 10
St. Louis Map/Housing Bureau 11

Conference Resources

NSTA Exhibits 12
NSTA 75th Birthday Celebration and Special Announcement . . . 12
Presenters and Presiders Check-In 12
NSTA Teacher's Lounge 12
Wi-Fi at America's Center 12
NSTA Community Hub 12
NSTA Conference App 12, 35
NSTA Store 12
Explore St. Louis Visitor Information 12

Conference Resources, cont.

Graduate-Level Credit Opportunity 12
Special Offers 13
Online Session Evaluations/Tracking Professional Development . . 13
Floor Plans 14
Future Conferences 22
Call for Sessions for Boston 2020 22

Conference Program

Conference Highlights 24
Featured Speakers 26
Conference Strands 28
Short Courses 30
Educational Trips 32
Three Dimensions of *NGSS* 34
Meetings and Social Functions 36

Wednesday Events/Sessions 40
Thursday Events/Sessions 42
Friday Events/Sessions 79
Saturday Events/Sessions 117
Sunday Events/Sessions 145

Exhibitors 151

Table of Contents

Wed., April 10

Special Evening Session with Sean M. Carroll: The Many Worlds of Quantum Mechanics
Wednesday Event Grid

Thu., April 11

Keynote Presentation: Astronaut Scott Kelly
Teacher Researcher Day
Community Connections: Early Childhood Learning
Featured Presentation: Joseph David and Tiffany Besse
HHMI Movie Night
Thursday Event Grid

Fri., April 12

Elementary Extravaganza
Meet Me in the Middle Day
NGSS@NSTA Forum
Robert H. Carleton Lecture: Cary Sneider
Featured Presentation: Paul Andersen
Linking Literacy Panel Discussion and Reception
AGU-NESTA Sponsored Lecture: Theresa Damiani
Featured Presentation: Leslie Cook, Kevin Krasnow, and Joe Petrick.
Meet and Greet with the Presidents and Board/Council
Community Connections: Visual Storytelling
NSTA Teacher Awards Gala (M-1)
Friday Event Grid

Sat., April 13

NGSS@NSTA Share-a-Thon
High School Share-a-Thon: Set Your Sights Higher!
The Fred Kavli Keynote: Nalini M. Nadkarni
Linking Literacy Author Book Signing
Featured Presentation: Michael Weiss
Mary C. McCurdy Lecture: Linda Froschauer
Paul F-Brandwein Lecture: Peter Raven
Featured Presentation: Kiana Frank
NSTA/ASE Honors Exchange Lecture: Mary Whitehouse
Community Connections Share-a-Thon
Saturday Event Grid

Sun., April 14

Sunday Event Grid

Exhibitors

Exhibitor List

—Photo courtesy of Gregg Goldman/© St. Louis Convention & Visitors Commission

Presenters, key information, and complete session descriptions on the Conference App:

Visit *www.nsta.org/conferenceapp*

National Science Teachers Association

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

NSTA Affiliates

Association for Multicultural Science Education (AMSE)
Association for Science Teacher Education (ASTE)
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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.

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.

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.

Thank You!

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

Contributors

American Geophysical Union
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Missouri Botanical Garden
The National Earth Science Teachers Association
Shaw Nature Reserve

St. Louis Program Committee

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St. Louis, MO

President's Welcome

Welcome to St. Louis! It is absolutely wonderful to join each of you for the National Conference on Science Education where NSTA is celebrating our 75th anniversary. The theme for this event is *Champions for Science Education*—and every single attendee, exhibitor, speaker, and presenter is a champion! This conference has so many exciting and engaging opportunities to offer. We are fortunate to have Astronaut Scott Kelly speak about his year in space and remind all of us that The Sky is Not the Limit! Speakers on topics of place-based learning, equity opportunities and impacts in science education, *NGSS,* and creating cross-curricular connections highlight the four strands developed by the conference planning team: The Confluence of Equity and Education—Phenomena: Gateway to Learning—Jazzing Up Science with Cross-Curricular Connections—and Three-Dimensional Grand Slam.

There are so many more highlights from share-a-thons, to level-specific events, to NSTA Press® sessions, to featured presenters… that everyone is sure to find something to meet their needs and goals! I encourage each of you to advocate for the importance of science education at school, district, state, and national levels as you champion your own learning by participating in keynote presentations, selected strand sessions, exhibit hall displays, and sessions, as well as taking advantage of networking with colleagues.

Again, a special thank-you to the conference planning committee for developing all of these topics and opportunities that provide professional experiences and development. May you have an outstanding experience with your colleagues and fellow NSTA members as you learn, promote, and advocate for not only the importance of science but also that of science education. And remember that no matter where you teach or what school you return to, in terms of science education and creating a desire to learn in our students, that "We are the champions, my friends."

Christine Anne Royce
2018–2019 NSTA President

Welcome to St. Louis: *Champions for Science Education*

Welcome, Champions of Science Education! The science educators of St. Louis and the entire state of Missouri welcome you to the 2019 NSTA National Conference on Science Education. An exciting menu of events, activities, workshops, speakers, and learning opportunities awaits you!

The conference theme: *Champions for Science Education* is a tribute to you—science educators of all types from the classroom to the museum to the garden, anyone who contributes to the scientific curiosities of our students. The St. Louis Conference Committee has put together a spectacular program to truly reflect NSTA's emphasis on ways we can help each other grow and learn with our students. Our committee agrees that our most exciting connections, ideas, and inspirations have come at least in part from an NSTA conference experience. The energy that exists at this annual conference is unmatched.

The committee members have worked hard to provide sessions that will highlight emerging issues, build advocacy, link resources to your needs, and provide you with inspiration to reach your students in new and exciting ways. All of this and more are offered in the following four strands during this conference:

- *Three-Dimensional Grand Slam*—learn new ways to teach science in the way that it really happens—three-dimensionally.
- *Phenomena: Gateway to Learning*—learn how to use phenomena, particularly those that occur in your own communities, to engage students in new ways.
- *Jazzing Up Science with Cross-Curricular Connections*—break away from those curricular silos!
- *Confluence of Equity and Education*—learn how to make sure that science is accessible to all students.

One emphasis connecting this year's conference strands is a focus on Place-Based Learning. Engaging students in learning that is connected to your community and makes an impact on your community is at the heart of what science education should be. Consider taking advantage of the place-based sessions and keynote while you are here. And while we are talking about place-based, consider taking advantage of our place! Take some time to catch a St. Louis Cardinals game, go visit The Arch and its grounds along the mighty Mississippi, or visit our museums or award-winning zoo.

However you become inspired during this conference, we thank you for being an incredible part of creating the curiosity, passion, and problem-solving skills of our future leaders. You are truly a champion of science education.

2019 St. Louis Conference Committee Leaders
Mike Szydlowski, Eric Hadley, and Christina Hughes

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Registration, Travel, and Hotels

Meeting Location and Times

The conference co-headquarters hotels are Hyatt Regency St. Louis at the Arch and Marriott St. Louis Grand. Conference registration, Express Check-in, the exhibits, and the NSTA Store will be located at America's Center. Most sessions will be held at America's Center as well as the Hyatt and Marriott. The on-site short courses will be held at Embassy Suites by Hilton St. Louis Downtown *(SC-9 includes a portion of the course at Gateway Arch park).*

The conference will begin with concurrent sessions on Thursday, April 11, at 8:00 AM and end on Sunday, April 14, at 12 Noon. However, on Wednesday evening, April 10, Penguin Random House is sponsoring a "*Special Evening Session with Sean M. Carroll*," from 6:00 to 8:00 PM.

Express Check-In

Registration is required for participation in all conference activities and the exhibits. Express Check-In, Attendee Services, and the NSTA Store are located in Exhibit Hall 3 of America's Center. Proceed to Express Check-In to print your official badge and secure conference materials. Express Check-In and Attendee Services will be open the following hours:

Wed., April 10	5:00–8:00 PM
Thu., April 11	7:00 AM–6:00 PM
Fri., April 12	7:00 AM–5:00 PM
Sat., April 13	7:00 AM–4:30 PM
Sun., April 14	7:30 AM–12 Noon

If you misplace your badge, present your personal ID at Attendee Services and you will be issued a replacement. Only one replacement badge will be issued.

Purchasing Ticketed Events

The St. Louis 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, at NSTA Attendee Services. See the Conference Program section (starting on page 30) for details. Note that some events may have required advance registration.

NSTA Shuttle

Shuttle service will be provided to the majority of official NSTA hotels that are not within walking distance of America's Center. See page 8 for Shuttle Schedule.

Transportation Discounts

Visit *www.nsta.org/stlouistravel* for details.

Help us with your feedback...and get a chance for a free Apple iPad mini 4

We're giving you one more reason to evaluate conference sessions.

When you evaluate a session, you get entered into a drawing for a chance to win an Apple iPad mini 4 Wi-Fi tablet *courtesy of the NSTA Conference Department.*

To evaluate a session via the conference app, first click **My Planner** and log in with your e-mail address and password. Once logged in, click **Home** and then select **Session & Workshop Listings** to find the session you wish to evaluate. Once you have pulled up the session listing, then click the **Rate** icon to evaluate the session. When finished evaluating the session, click the **Save** button.

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

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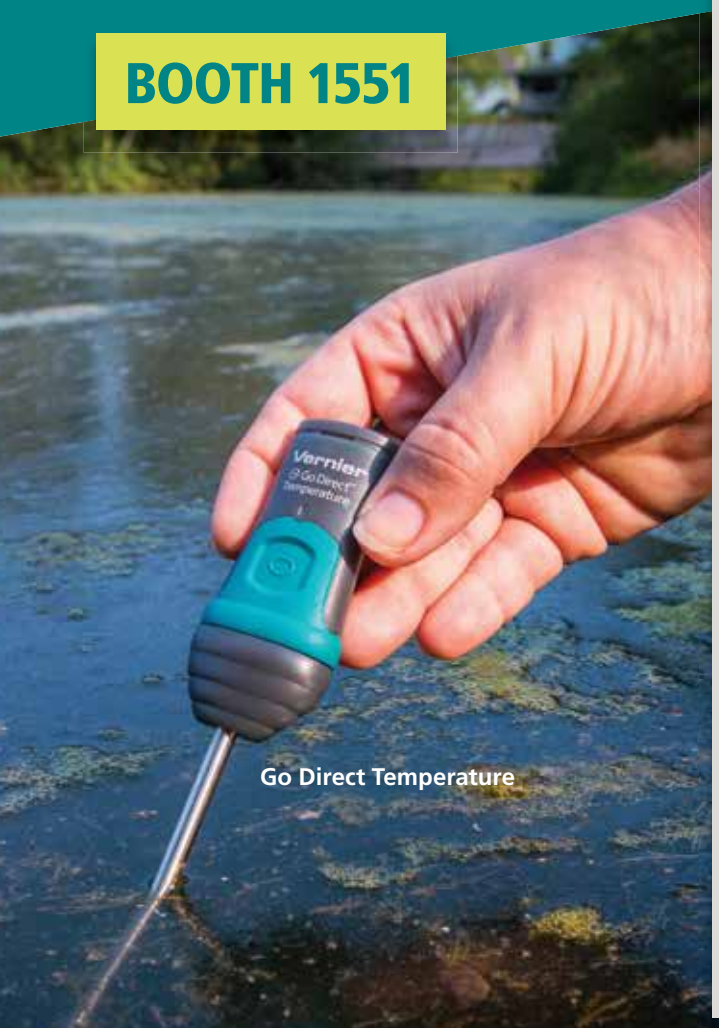

Go Direct Temperature

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Join us for collaborative, hands-on training opportunities with classroom-ready experiments—all led by former science educators with years of experience.

Thursday, April 11

	ROOM 121	ROOM 122
8:00–9:30 am	Common Biology Experiments Using the Latest Technology	DIY Data-Logging with Arduino™
10:00–11:30 am	Quick and Easy Biology and Chemistry Experiments Using the Latest Technology	Quick and Easy Experiments Using the Latest Technology
12:00–1:30 pm	Let's Get Physical: Human Physiology Experiments	Integrating Data-Logging STEM Tools Into the Middle School Classroom
2:00–3:30 pm	Simple Enzyme Inquiry Activities for AP Biology	Investigate Physics Using Sensors
4:00–5:30 pm	Common Chemistry Experiments Using the Latest Technology	Robots, Coding, and Science: A Complete STEM Experience

Friday, April 12

	ROOM 121	ROOM 122
8:00–9:30 am	Gas Laws in a Jiffy	Integrating Data-Logging STEM Tools Into the Elementary Classroom
10:00–11:30 am	Connect and Collect: Photosynthesis in Minutes	Physics Experiments Using Guided Inquiry
12:00–1:30 pm	Challenging AP Chemistry Topics Made Easier	One Cart, Dozens of Mechanics Experiments
2:00–3:30 pm	Explore Changing Environments	Physics Smörgåsbord of Sensor Experiments
4:00–5:30 pm	Simple Water Quality Testing In and Outside the Classroom	Pivot Interactives: Interactive Video Learning for Physics, Chemistry, Earth Science, and Biology

Saturday, April 13

	ROOM 121	ROOM 122
8:00–9:30 am	Common Chemistry Experiments Using the Latest Technology	Robots, Coding, and Science: A Complete STEM Experience
10:00–11:30 pm	Forensic Chemistry: Poisoned Wine and Mystery Powders	Investigate Physics Using Sensors
12:00–1:30 pm	Common Biology Experiments Using the Latest Technology	Integrating Data-Logging STEM Tools into the Middle School Classroom
2:00–3:30 pm	Catch the Wave(length): Spectroscopy Visualized	Explore Motion with Vernier Video Physics™ for iOS

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National Science Teachers Association

Shuttle Service to America's Center

Shuttle service is provided between America's Center 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	**Boarding Location**
City Place Hotel	At Hyatt Regency at the Arch
Drury Plaza Hotel at the Arch	At Hyatt Regency at the Arch
Hilton Downtown at the Arch	At Hyatt Regency at the Arch
Hyatt Regency at the Arch – Co HQ	Curbside on 4th St.
ROUTE 2	**Boarding Location**
Hilton Downtown at the Ballpark	Curbside on S. Broadway
ROUTE 3	**Boarding Location**
Union Station Hotel	Curbside on Market St.
The Westin	Curbside on Clark Ave.

Walk Hotels

The hotels listed below are within walking distance of America's Center.

Embassy Suites by Hilton Downtown • Drury Inn & Suites Convention Center • Four Seasons Hotel • Hampton Inn Downtown at the Arch Holiday Inn Downtown Convention Center • HoteLumiere • Magnolia Hotel • Marriott Grand – Co HQ

All hotel shuttles board on Convention Plaza at America's Center.

Hours of Shuttle Operation

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

Wednesday, April 10		
Professional Learning Institutes Shuttle between Route Hotels and Marriott Grand	Every 30 minutes:	7:00 – 11:00 AM
	(No shuttle service:	*11:00 AM – 3:30 PM)*
Conference Shuttle between America's Center and Route Hotels	Off-Peak:	3:30 – 9:00 PM *
Thursday, April 11		
Conference Shuttle between Route Hotels and America's Center	Peak:	6:30 – 10:30 AM
	(No shuttle service:	*10:30 AM – 4:00 PM)*
Conference Shuttle between America's Center and Route Hotels	Peak:	4:00 – 8:00 PM
Meeting Express shuttle between America's Center and Hyatt Regency at the Arch	Off-peak:	10:30 AM – 4:00 PM ◆
HHMI Movie Night at America's Center 6:00-8:30pm Shuttle between Route Hotels and America's Center	Off-peak:	8:00 – 9:30 PM *
Friday, April 12		
Conference Shuttle between Route Hotels and America's Center	Peak:	6:30 – 10:30 AM
	(No shuttle service:	*10:30 AM – 3:00 PM)*
Conference Shuttle between America's Center and Route Hotels	Peak:	3:00 – 7:00 PM *
Meeting Express shuttle between America's Center and Hyatt Regency at the Arch	Off-peak:	10:30 AM – 3:00 PM ◆
Saturday, April 13		
Conference Shuttle between Route Hotels and America's Center	Peak:	6:30 – 10:30 AM
	(No shuttle service:	*10:30 AM – 3:00 PM)*
Conference Shuttle between America's Center and Route Hotels	Peak:	3:00 – 7:00 PM *
Meeting Express shuttle between America's Center and Hyatt Regency at the Arch	Off-peak:	10:30 AM – 3:00 PM ◆
Sunday, April 14		
Conference Shuttle between Route Hotels and America's Center	Off-Peak:	7:30 AM –12:30 PM *

*** This is the time the last shuttle from America's Center departs for Route Hotels. Last shuttle from hotels depart one-hour prior.**

◆ This is the time the last Meeting Express shuttle from Hyatt Regency at the Arch departs for America's Center.

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Conference Workshop Schedule

THURSDAY, APRIL 11TH - AMERICA'S CENTER, ROOM 125

8-9AM
Introducing Your Students to Gene Editing with CRISPR

12:30-1:30PM
Sweet Science: Exploring Complex Mixtures with Biotechnology

9:30-10:30AM
Forensics: Left at the Scene of the Crime

2-3PM
Exploring STEAM with Transformation

11-12PM
Transform Your Class into a Neuroscience Laboratory

3:30-4:30PM
Cancer Investigators: Medical Diagnostics in Your Classroom

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NSTA Conference Hotels—Numbers correspond to map on facing page.

1. City Place St Louis Hotel
   200 N. 4th St.
   844-808-0295

2. Drury Inn & Suites Convention Center
   711 N. Broadway
   314-231-8100

3. Drury Plaza Hotel at The Arch
   2 S. 4th St.
   314-231-3003

4. Embassy Suites by Hilton St. Louis Downtown
   610 N. 7th St.
   314-269-5900

5. Four Seasons Hotel St. Louis
   999 N. 2nd St.
   314-881-5800

6. Hampton Inn Downtown (at the Gateway Arch)
   333 Washington Ave.
   314-621-7900

7. Hilton at the Ballpark
   1 S. Broadway
   314-421-1776

8. Hilton St. Louis Downtown at The Arch
   400 Olive St.
   314-436-0002

9. Holiday Inn Convention Center
   811 N. 9th St.
   314-421-4000

10. Hotel Saint Louis, Autograph Collection
    705 Olive St.
    314-241-4300

11. HoteLumière
    999 N. 2nd St.
    314-881-7777

12. **Hyatt Regency St. Louis at The Arch**
    (Co-Headquarters Hotel)
    315 Chestnut St.
    314-655-1234

13. Magnolia Hotel
    421 N. 8th St.
    314-436-9000

14. **Marriott St. Louis Grand**
    (Co-Headquarters Hotel)
    800 Washington Ave.
    314-621-9600

15. St. Louis Union Station Hotel, Curio Collection by Hilton
    1820 Market St.
    314-621-5262

16. The Westin St. Louis
    811 Spruce St.
    314-621-2000

First NSTA Conference?

First-Timer Conference Attendees' Orientation

Thursday, April 11, 8:00–9:00 AM

Majestic D, Marriott St. Louis Grand

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.

www.nsta.org/stlouis

NSTA National Science Teachers Association

If you have questions or concerns regarding your housing, then please stop by the Orchid.Events counter at Plaza Lobby outside of Exhibit Hall 3 in America's Center 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–4:30 PM

Or contact Orchid.Events (during business hours) Monday through Friday, 8:00 AM–7:00 PM (DST) Central Time at 877-352-6710 (toll-free) or 801-505-4611, or e-mail *help@orchid.events*. Available Monday through Friday, 8:00 AM–7:00 PM (DST) Central Time. After hours and on Saturday, call 801-915-7382.

Conference Resources

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 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 page 35).

Lead Retrieval. Lead retrieval, a paperless tracking system, allows exhibitors to send information to you while the conference is still fresh in your mind.

Exhibit Hall Hours. Located in Halls 3–5 of America's Center, exhibits will be open for viewing during the following hours:

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

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.

Presenters and Presiders Check-In

If you are presenting or presiding at a session, then please check in at the Presenters/Presiders area at Attendee Services.

NSTA Teacher's Lounge

Relax in the **NSTA Teacher's Lounge** with a game of Jumbo Jenga or Supersized Connect 4 with your friends—located in Hall 3 at the NSTA Store entrance.

NSTA 75th Birthday Celebration and Special Announcement

Join us as we celebrate 75 years of support to science teaching and learning, and hear a special announcement about exciting changes to come! The celebration starts Thursday at 10:45 AM at the Exhibits entrance (Halls 4/5), and the Exhibit Hall will open at 11:00 AM, immediately following the celebration.

Wi-Fi at America's Center

NSTA is pleased to announce that St. Louis conference attendees will have access to a robust Wi-Fi service, available in the common areas and meeting rooms of America's Center. However, this Wi-Fi is ***not*** accessible in the Exhibit Hall.

Network: **NSTA_STL**
Password: **nsta2019**

NSTA Community Hub

Be sure to stop by the NSTA Community Hub, located in the Exhibit Hall at Booth #1068 at America's Center. While you're there, learn about how you can use social media to win cool prizes. Meet up with your peers in our Networking Lounge and exchange teaching ideas or session notes. The NSTA Community Hub will be open during exhibit hall hours.

NSTA Conference App

The NSTA Conference app provides all the tools necessary for a successful experience. Search sessions, exhibitors, and speakers to build a schedule of your favorites. Features include the ability to view session and workshop listings by time and presenter, as well as maps of America's Center, Hyatt, Marriott, Embassy Suites, and Exhibit Hall. Plus, you're able to find key information on conference resources, such as First Aid, AV rooms, and Business Services. Available for iPhone and Android devices, download from the respective app stores or visit *www.nsta.org/conferenceapp* for information.

NSTA Store

Visit us at the NSTA 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.

Explore St. Louis Visitor Information Center

Make sure you take advantage of the Visitor Information Center located at the southeast corner of America's Center at 7th and Washington. The friendly and informed volunteers are available to answer all of your questions about your visit to St. Louis. Pick up free brochures, maps, and up-to-date event information on St. Louis area attractions and restaurants or grab a copy of the Official St. Louis Visitors Guide. It will be open the following hours:

Wednesday	4:00–8:00 PM
Thursday	9:00 AM–6:00 PM
Friday	9:00 AM–5:00 PM
Saturday	9:00 AM–4:00 PM

Graduate-Level Credit Opportunity

St. Louis conference attendees can earn one or two graduate-level credits/units in professional development through Dominican University of California (*dominicancaonline.com*) course **EDUO 9036.** Participants must attend the conference, complete the required assignments, and pay a fee of $95 for one credit/unit or $190 for two credits/units. To learn more about the assignment requirements and registration, visit *bit.ly/2Dr4uKW* or stop by the Dominican University of California booth located in the Plaza Lobby of America's Center during the following hours:

Thursday	8:00 AM–4:00 PM
Friday	8:00 AM–4:00 PM
Saturday	8:00–11:00 AM

Register within three weeks of the conference ending date.

Special Offers for St. Louis conference registrants

Show your NSTA St. Louis Conference Badge and receive complimentary admission to the **Butterfly House** for a self-guided tour, *courtesy of the Missouri Botanical Garden*. Great care was taken in the design and engineering of the 8,000-square-foot glass conservatory garden to assure a natural and safe habitat for the butterflies. As many as 80 butterfly species and 150 tropical plant species are exhibited.

*The Butterfly House is located at Faust Park, 15193 Olive Blvd., Chesterfield, MO 63017 (a 40-minute drive from America's Center). The Butterfly Garden is open Tuesday–Sunday 10:00 AM to 4:00 PM (*closed Mondays) Last admission is at 3:30 PM. Visit* bit.ly/2yf2kud *for more information.*

Join **HHMI Tangled Bank Studios** on **Thursday, April 11, at 6:00 PM** in the Ferrara Theatre, America's Center, for a special screening of *INVENTING TOMORROW.*

Meet passionate teenage innovators from around the globe who are creating cutting-edge solutions for environmental threats—right in their own backyards. Join these young scientists as they compete in the Intel International Science and Engineering Fair (ISEF). The screening will be followed by a panel with the filmmakers and other special guests.

Dinner and drinks will start promptly at 6:00 PM, followed by the screening at 6:30 PM.

The event is free, but **tickets are required.** Visit *bit.ly/2GW4rJd* to reserve your seat.

Online Session Evaluations and Tracking Professional Development

All attendees can evaluate sessions online while simultaneously tracking their professional development certification.

Help NSTA's **GREEN** efforts by completing session evaluations online **April 10–25, 2019,** 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 Attendee Services Area. **And this year, we're giving away an Apple iPad mini 4 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 using our online browser, attendees should follow these steps:

- Go to the designated conference site link.
- Click on the "**Attend**" tab, navigate to the "**Attendee Service Center Login**."
- Login: E-mail; Password:
- Select the **Session Evaluations** tab.
- Find the Session that you have attended, then click on the **Start** button.
- Follow the step-by-step process.
- Repeat for each session to evaluate.

On or before **May 7, 2019,** attendees will be e-mailed instructions for accessing their respective transcripts. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.

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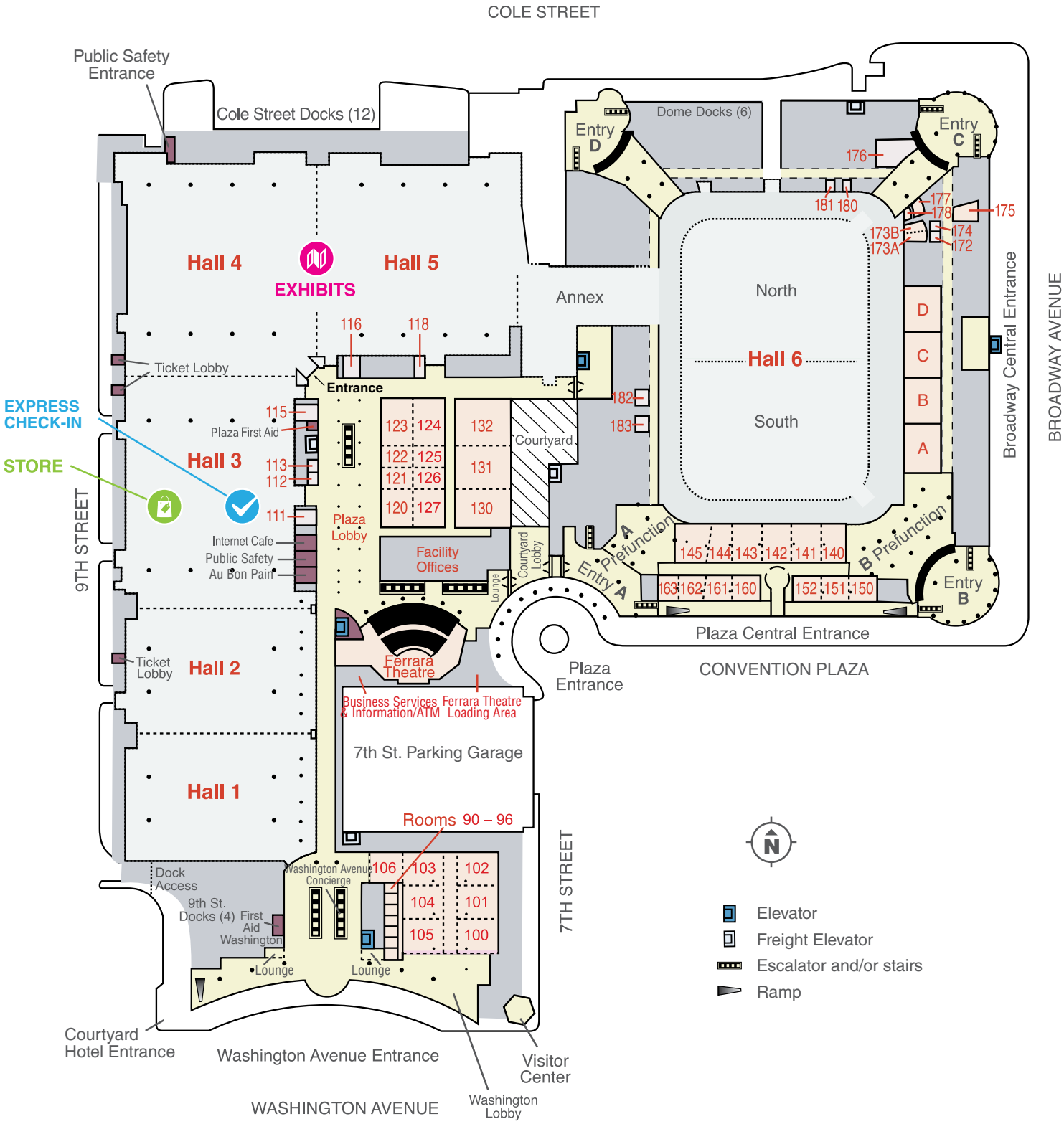

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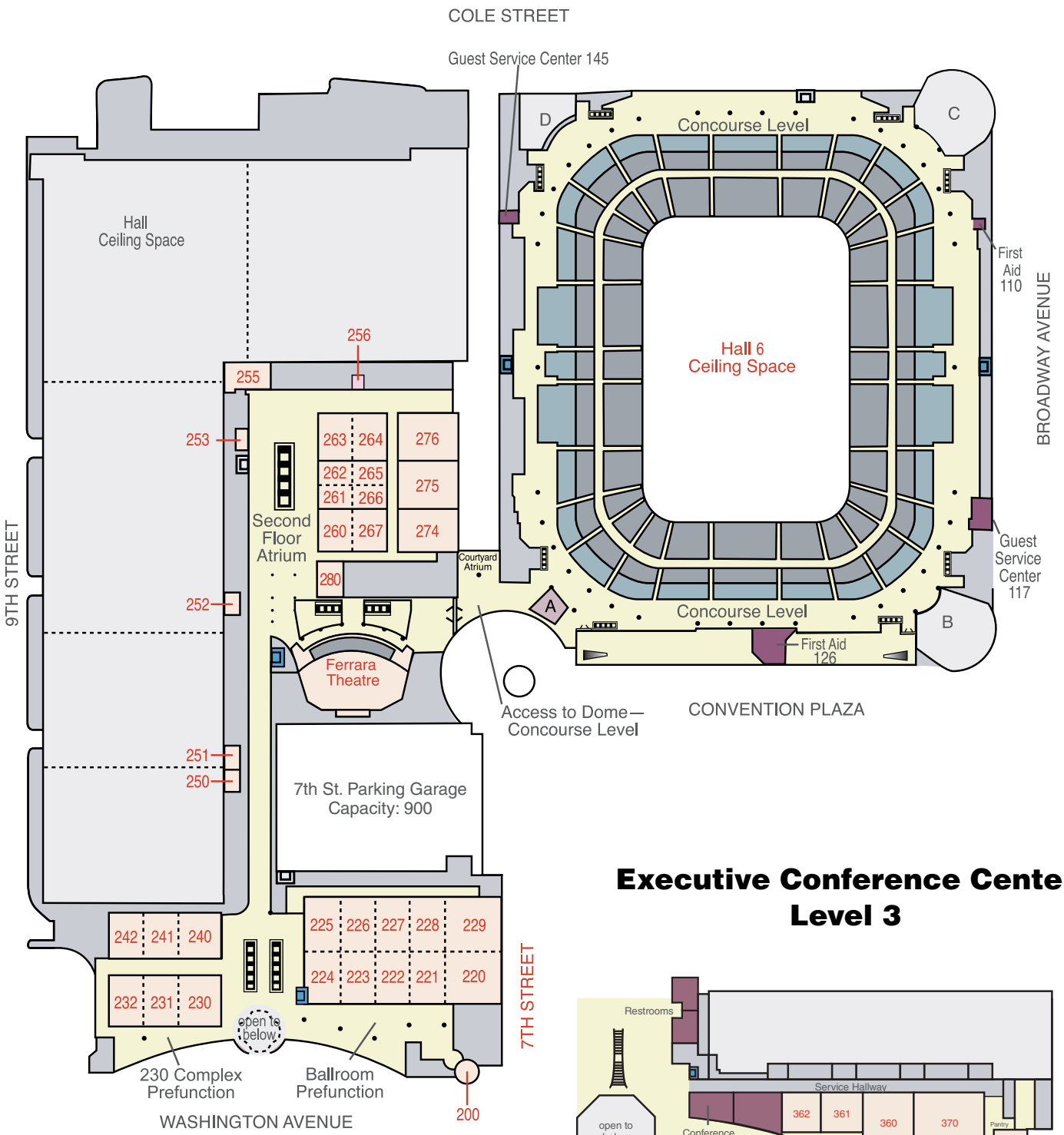

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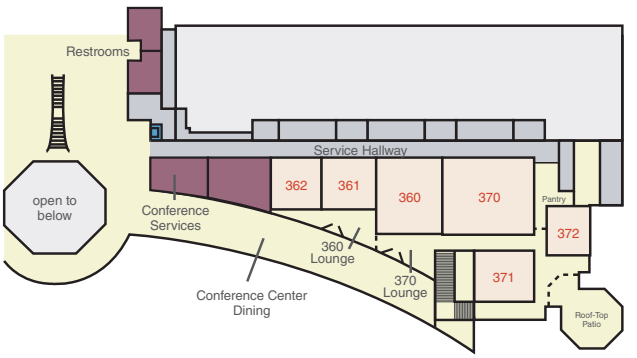
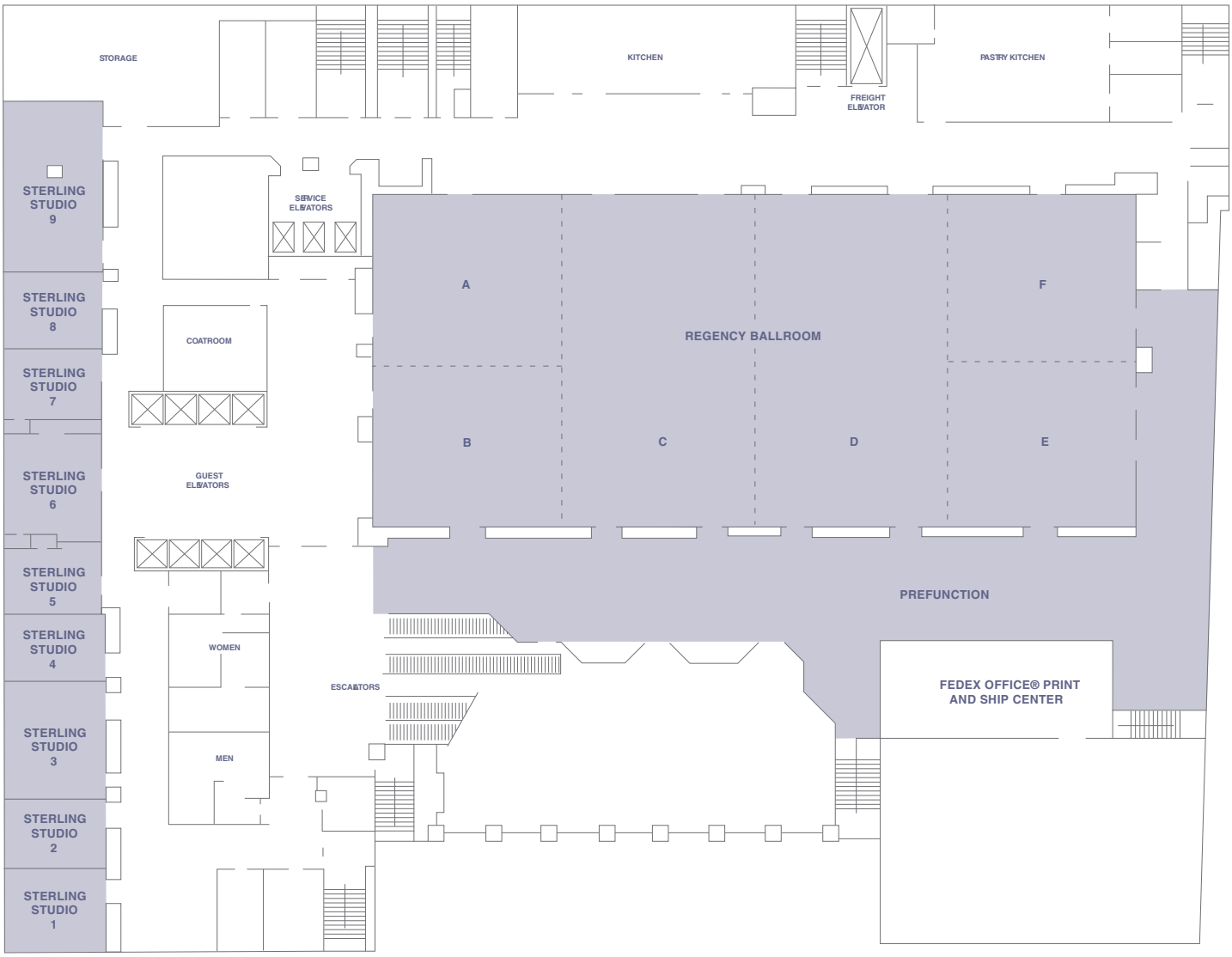


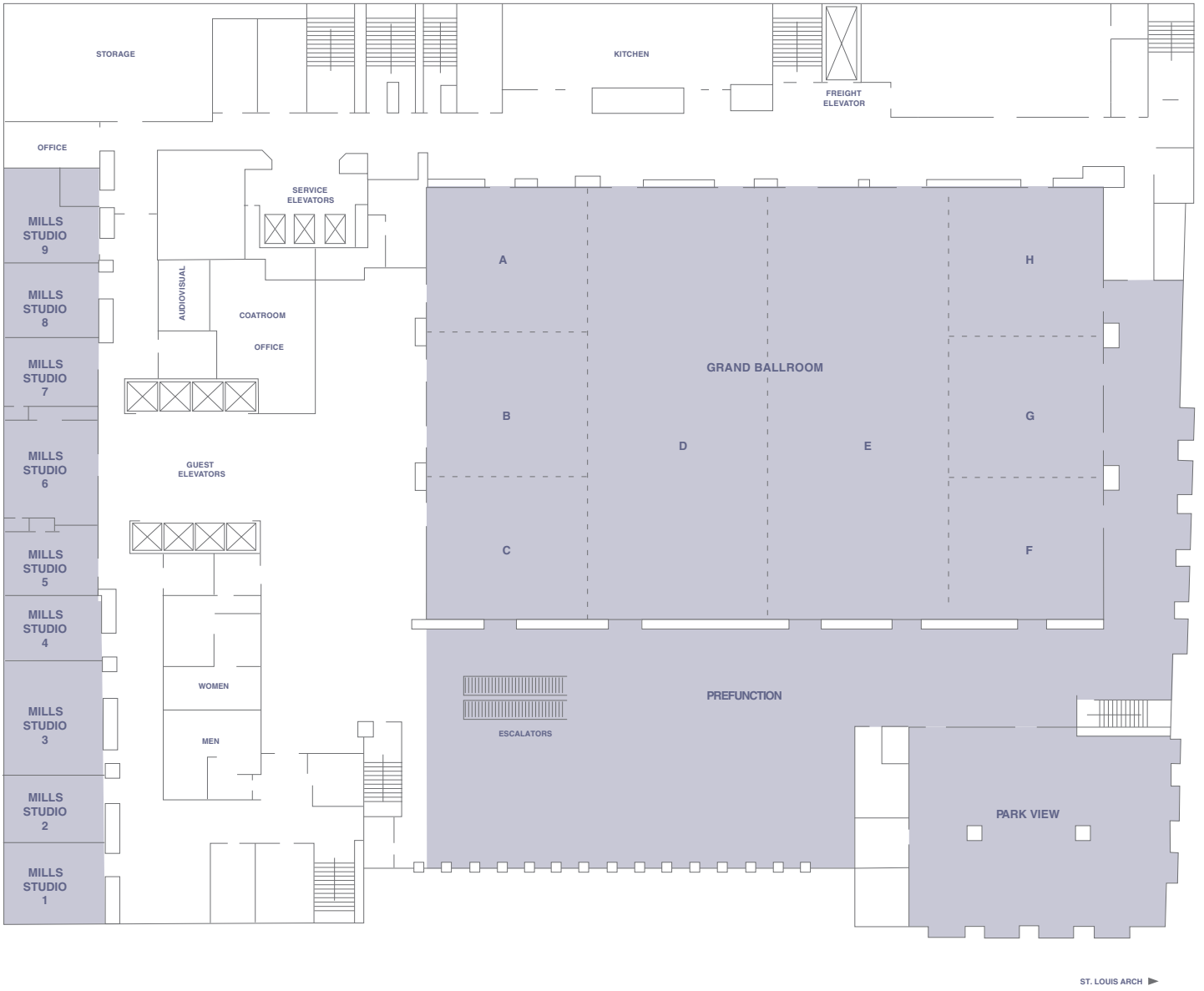
Hyatt Regency St. Louis at the Arch

Second Floor

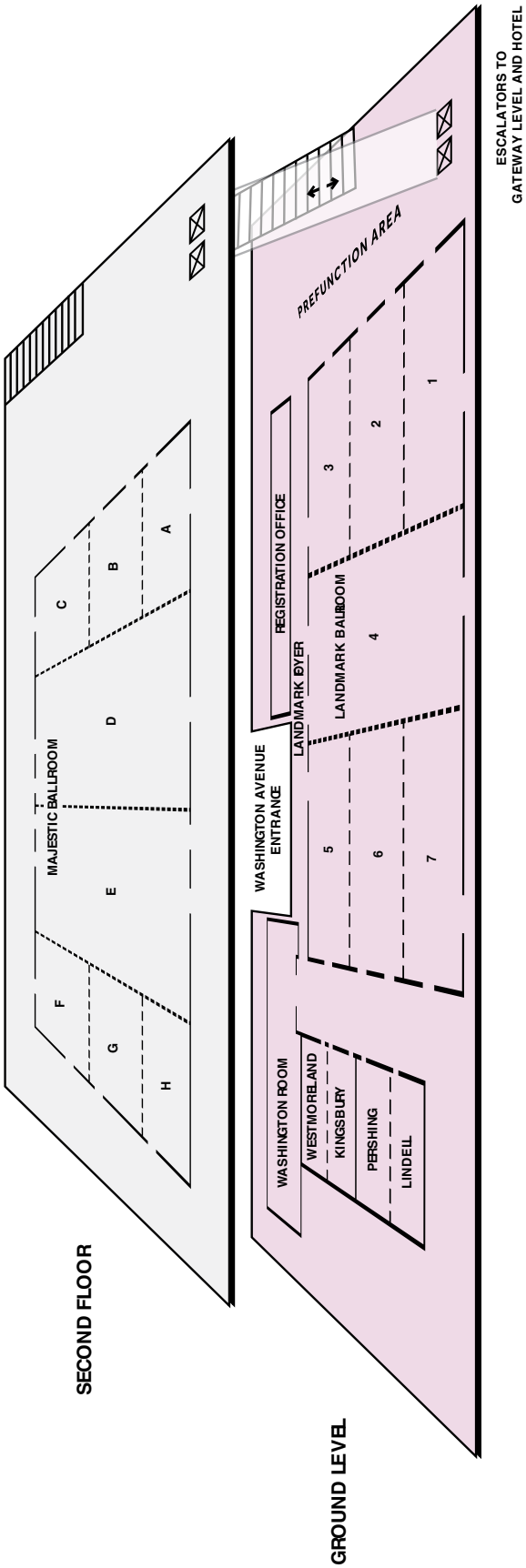


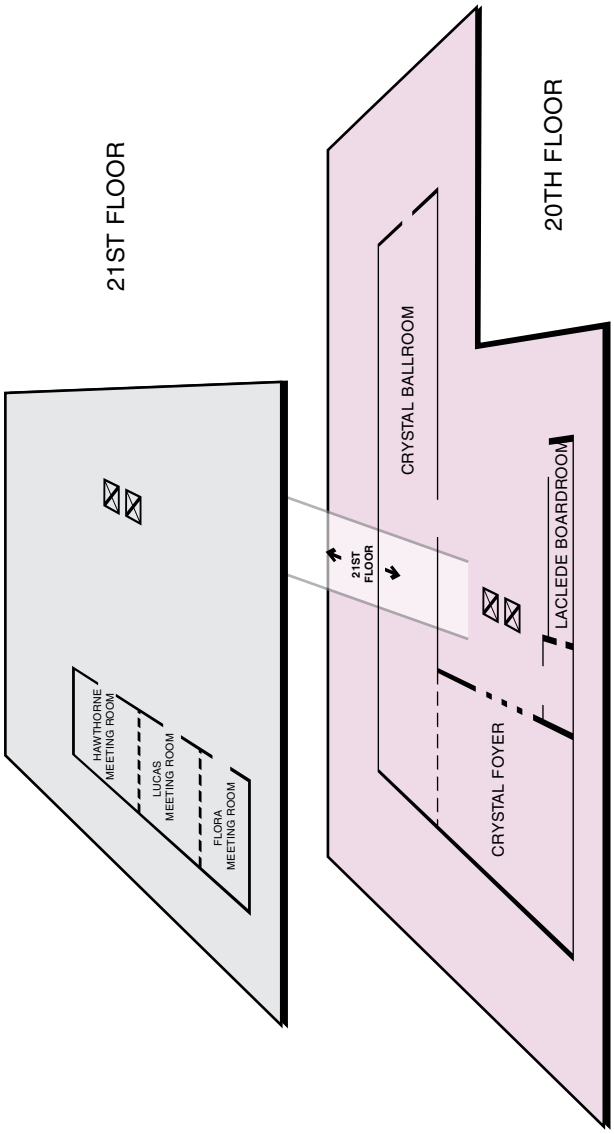
Hyatt Regency St. Louis at the Arch

Fourth Floor



Marriott St. Louis Grand





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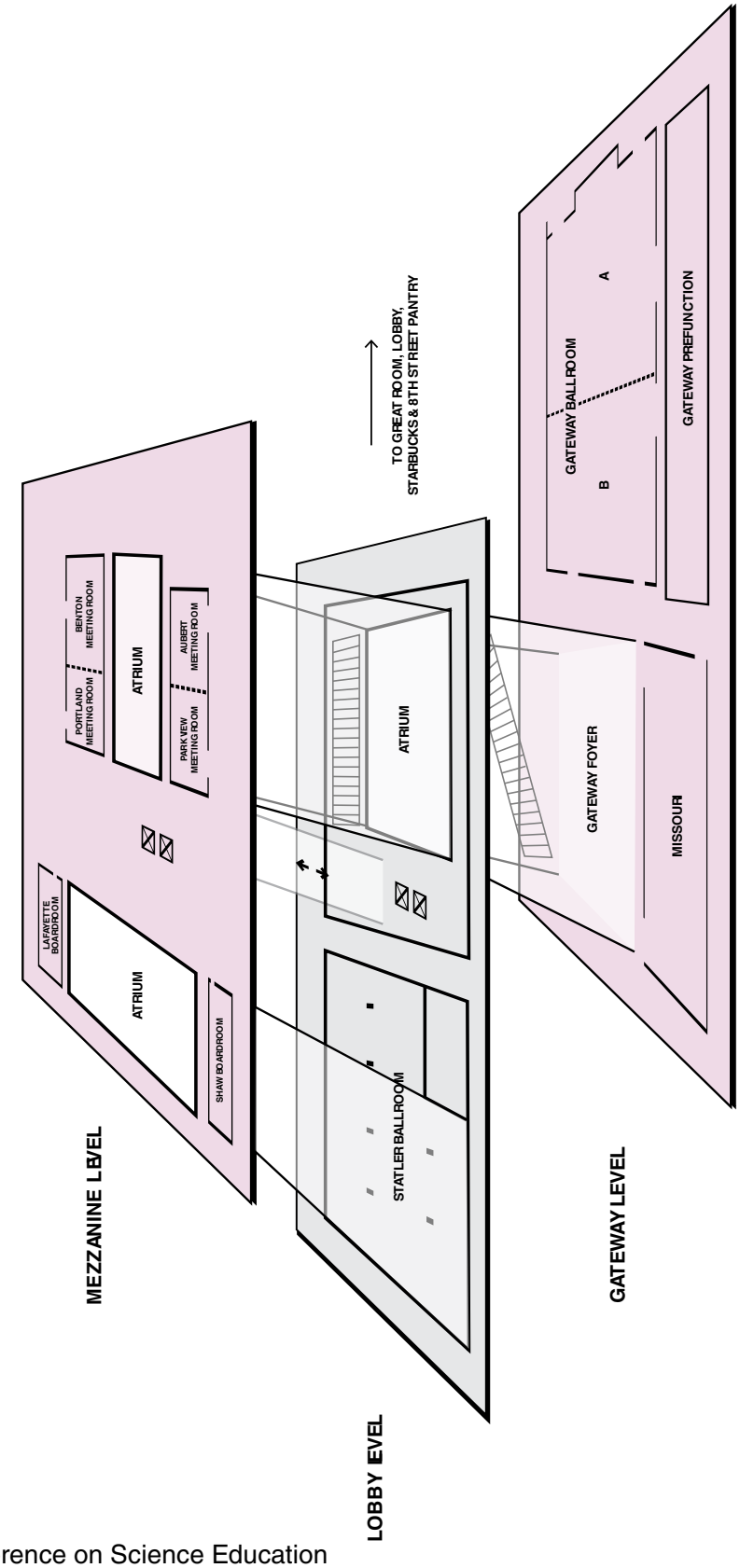

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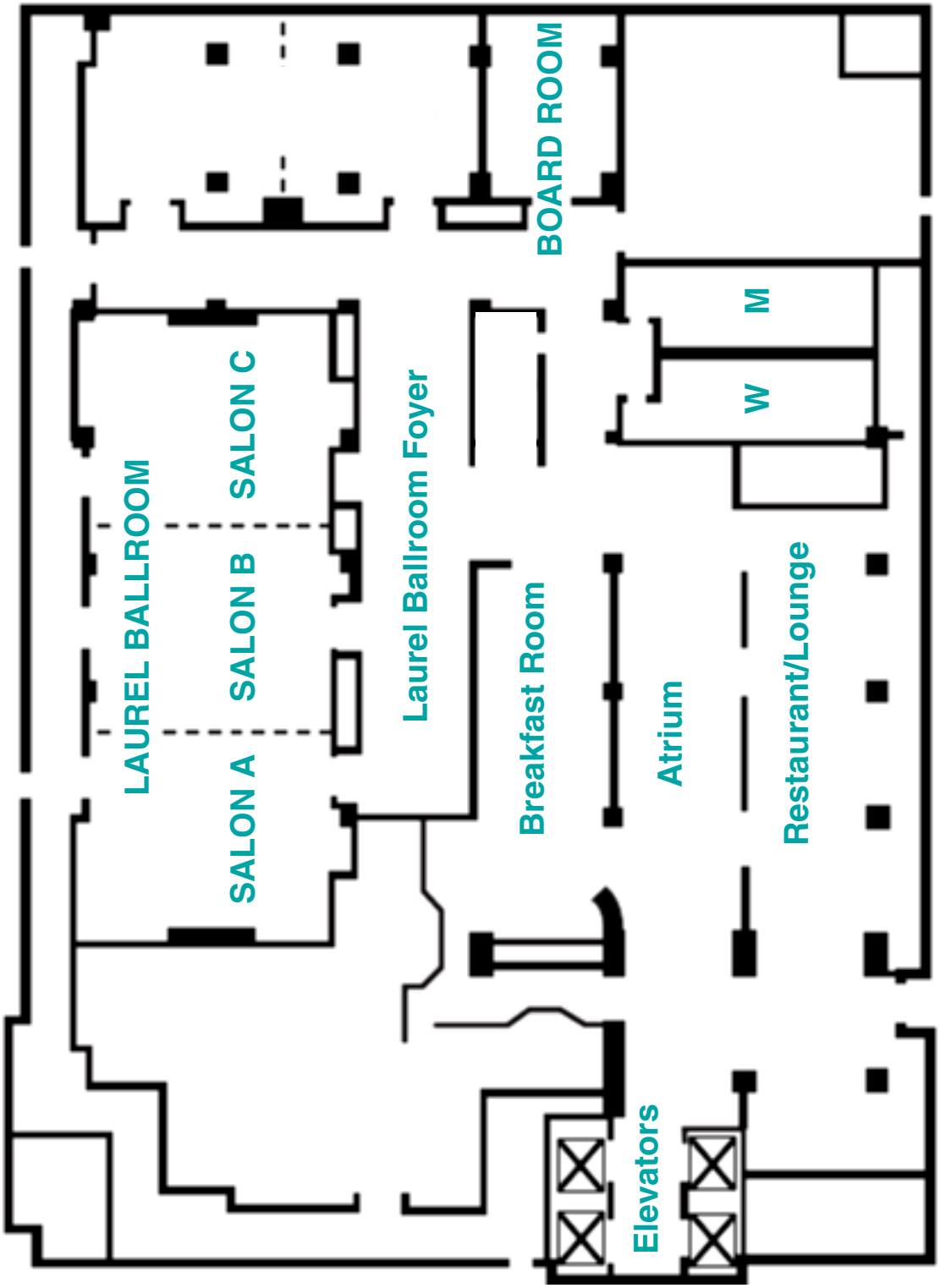

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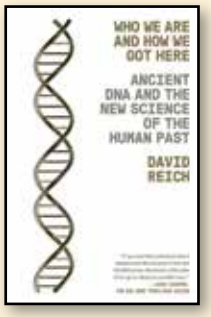
ASTRONAUT
SCOTT KELLY

NSTA 2019 Keynote Speaker

"The Sky Is Not the Limit: Lessons from a Year in Space"

Thursday, April 11th 9:15 AM – 10:30 AM

America's Center, Halls 1/2



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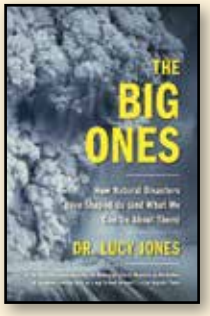

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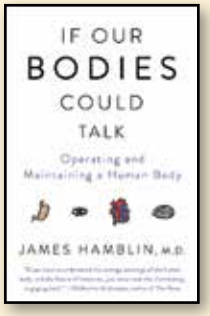

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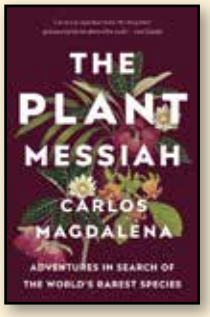

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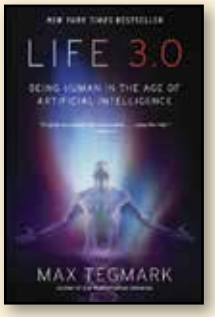

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All cities are subject to change pending final negotiation.

National Conferences on Science Education

Boston, Massachusetts
April 2–5, 2020

Chicago, Illinois
April 8–11, 2021

8th Annual STEM Forum & Expo, *hosted by NSTA*

San Francisco, California—July 24–26, 2019

9th Annual STEM Forum & Expo, *hosted by NSTA*

Louisville, Kentucky—July 22–24, 2020

10th Annual STEM Forum & Expo, *hosted by NSTA*

Detroit, Michigan—July 28–30, 2021

Area Conferences on Science Education

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
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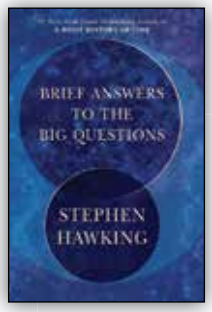

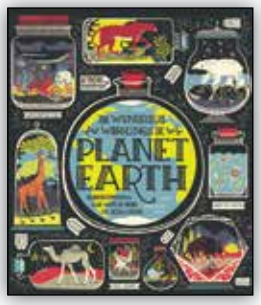

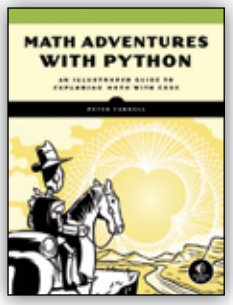

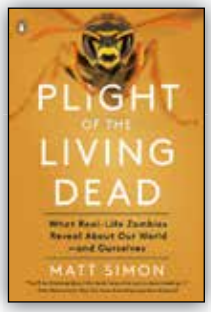

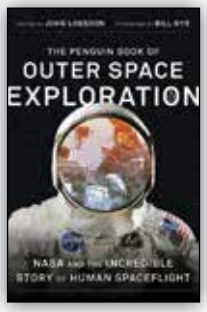

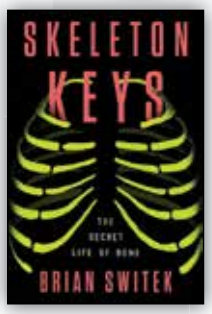

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Special Evening Session with Sean M. Carroll: The Many Worlds of Quantum Mechanics

Wednesday, April 10, 6:00–8:00 PM

Sean M. Carroll
A research professor of theoretical physics at the California Institute of Technology, Sean specializes in quantum mechanics, gravitation, cosmology, statistical mechanics, and foundations of physics.

Sponsored by Penguin Random House

Also, be sure to join author Sean M. Carroll after his talk, from 7:00 to 8:30 PM in the Plaza Lobby, where he will be signing copies of his books. The books will be available for purchase while supplies last. There will also be an opportunity for advance purchase of his latest book, *Something Deeply Hidden: Quantum Worlds and the Emergence of Spacetime* (for release September 2019).

Keynote Presentation: The Sky Is Not the Limit: Lessons from a Year in Space

Thursday, April 11, 9:15–10:30 AM

—Photo courtesy of NASA/Bill Ingalls

Scott Kelly
Astronaut Scott Kelly is a former military fighter pilot and test pilot, an engineer, a retired astronaut, and a retired U.S. Navy captain. A veteran of four space flights, he was mission commander on several expeditions to the International Space Station and was a member of the almost yearlong mission aboard the ISS from 2015 to 2016.

Sponsored by Knopf Doubleday and Random House Children's Books

A limited number of tickets will be given out on a first-come, first-served basis for a post-talk book signing by Scott Kelly. Tickets will be handed out prior to his keynote presentation.

Wednesday, April 10

9:00 AM–4:00 PM NSTA Professional Learning Institutes (check in between 8:00 and 9:00 AM) 40
6:00–8:00 PM Special Evening Session with Sean M. Carroll 41

Thursday, April 11

8:00–9:00 AM Is This Your First NSTA Conference? First-Timer Conference Attendees' Orientation 73
9:15–10:30 AM Keynote Presentation: Astronaut Scott Kelly 42
10:45–11:00 AM NSTA 75th Birthday Celebration and Special Announcement 48
11:00 AM–6:00 PM Exhibits 48
3:30–4:30 PM Featured Presentation: Joseph Davis and Tiffany Besse 64
6:00–9:30 PM HHMI Movie Night. 59
7:15–9:15 PM #*NGSS*Schat Live Social. 75

Friday, April 12

8:00–10:00 AM Elementary Extravaganza. 81
9:00 AM–5:00 PM Exhibits 79
9:30–10:30 AM Robert H. Carleton Lecture: Cary Sneider 86
9:45 AM–4:30 PM Meet Me in the Middle Day 77
11:00 AM–12 Noon Featured Presentation: Paul Andersen 93
11:45 AM–12:15 PM Meet and Greet with the Presidents and Board/Council . . 93
1:00–2:30 PM Linking Literacy Panel Discussion and Reception 100
2:00–3:00 PM AGU-NESTA Sponsored Lecture: Theresa Damiani. 94
3:30–4:30 PM Featured Presentation: Leslie Cook, Kevin Krasnow, and Joe Petrick 100
6:00–9:00 PM NSTA Teacher Awards Gala (M-1) 106

Presenters, key information, and complete session descriptions on Conference App:

Visit: *www.nsta.org/conferenceapp*

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 10 for details.

Saturday, April 13

8:00–9:00 AM	The Fred Kavli Keynote: Nalini M. Nadkarni	122
9:00 AM–3:00 PM	Exhibits	117
9:30–10:30 AM	NGSS@NSTA Share-a-Thon	118
9:30–11:00 AM	High School Share-a-Thon: Set Your Sights Higher!	131
10:00–11:00 AM	Linking Literacy Author Book Signing	124
11:00 AM–12 Noon	Featured Presentation: Michael Weiss	128
12:30–1:30 PM	Mary C. McCurdy Lecture: Linda Froschauer	128
12:30–1:30 PM	Paul F-Brandwein Lecture: Peter Raven	124
12:30–1:30 PM	Community Connections Share-a-Thon	124
2:00–3:00 PM	NSTA/ASE Honors Lecture: Mary Whitehouse	135
2:00–3:00 PM	Featured Presentation: Kiana Frank	128

THE FRED KAVLI KEYNOTE

Saturday, April 13, 2019
8:00–9:00 AM
Room 276, America's Center

Tapestry Thinking: Weaving Diverse Threads of Science and Society

Speaker: Nalini M. Nadkarni
Professor, Dept. of Biology • The University of Utah

Join Nalini Nadkarni, a forest ecologist who studies the ecology of tropical forest canopies, as she describes the novel collaborations she has forged to synergistically share excitement for and knowledge of science with a wide range of public audiences.

Sponsored by: THE KAVLI FOUNDATION
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Wednesday Speaker

6:00–8:00 PM • Ferrara Theatre, America's Center

Sean M. Carroll
Research Professor of Physics
California Institute of Technology
Pasadena, CA

Sponsored by Penguin Random House

See page 41.

Thursday Keynote Presentation

9:15–10:30 AM • Halls 1/2, America's Center

—Photo courtesy of NASA/Bill Ingalls

Scott Kelly
Retired Astronaut and
Retired U.S. Navy Captain
New York, NY

Sponsored by Knopf Doubleday and Random House Children's Books

See page 42.

Friday Speakers

9:30–10:30 AM • Room 274
America's Center

Cary Sneider
Visiting Scholar
Portland State University
Portland, OR

See page 86.

11:00 AM–12 Noon • Room 274
America's Center

Paul Andersen
Educational Consultant
and YouTube Creator
Bozeman, MT

See page 93.

2:00–3:00 PM • Ferrara Theatre
America's Center

Theresa Damiani
Chief, Spatial Reference
System Division
National Geodetic Survey, NOAA
Silver Spring, MD

Sponsored by American Geophysical Union and the National Earth Science Teachers Association

See page 94.

3:30–4:30 PM • Room 274, America's Center

Left to right,
Leslie Cook
Senior Director
Teacher Learning Center
Teton Science Schools

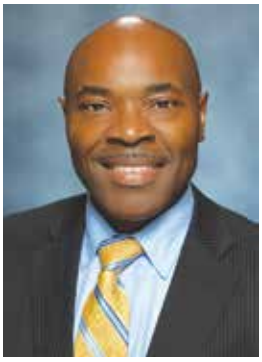
Kevin Krasnow
Graduate Faculty and
Research Specialist
Teton Science Schools

Joe Petrick
Vice President of Field Education
Teton Science Schools
Jackson, WY

See page 100.

Thursday Speakers

3:30–4:30 PM • Room 274, America's Center



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Superintendent
Ferguson-Florissant
School District
Hazelwood, MO

Tiffany Besse
Chief Academic Officer
Ferguson-Florissant
School District
Hazelwood, MO

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See page 64.

Saturday Speakers

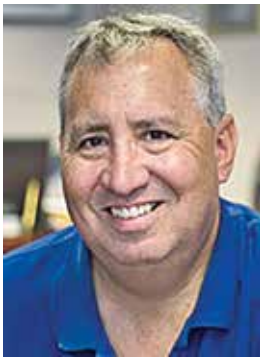
8:00–9:00 AM • Room 222
America's Center

Nalini M. Nadkarni
Professor, Dept. of Biology
The University of Utah
Salt Lake City, UT

Sponsored by The Kavli Foundation

See page 122.

11:00 AM–12 Noon • Room 274
America's Center



Michael Weiss
Nature Photographer
and Photojournalist
Silver Spring, MD

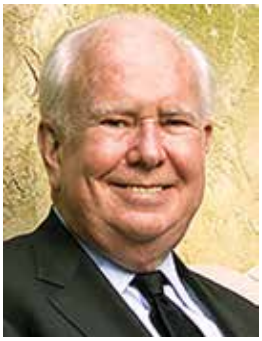
See page 128.

12:30–1:30 PM • Room 275
America's Center

Linda Froschauer
2006–2007 NSTA President, and
2009–2018 Field Editor, *Science & Children*
Pasadena, CA

See page 128.

12:30–1:30 PM • Ferrara Theatre
America's Center



Peter H. Raven
President Emeritus
Missouri Botanical Garden
George Engelmann Professor Emeritus of Botany
at Washington University
St. Louis, MO

Sponsored by Brandwein Institute

See page 124.

2:00–3:00 PM • Room 274
America's Center

Kiana L. Frank
Assistant Professor
Pacific Bioscience Research Center
University of Hawaii at Mānoa
Honolulu, HI

See page 128.

2:00–3:00 PM • Grand Ballroom A
Hyatt

Mary Whitehouse
Chair of ASE and
Honorary Fellow, University of York
York, UK

Sponsored by The Association for Science Education

See page 135.

The St. Louis Conference Committee has planned the conference around these four strands, enabling you to focus on a specific area of interest or need.

Three-Dimensional Grand Slam

Shifting science educators' focus from simply teaching science ideas to helping students figure out solutions is exciting. In their learning, students must use all three dimensions of the *NGSS* or NRC *Framework* in an integrated fashion in order to make sense of phenomena or design solutions to problems. Classrooms incorporating three-dimensional learning have students build models, design investigations, develop explanations, and argue using evidence, all of which allow students to develop important 21st-century skills such as problem solving, critical thinking, communication, collaboration, and self-management. This strand will focus on implementing three-dimensional learning to increase student understanding and will be targeted by level: novice, intermediate, or advanced attendees.

Phenomena: Gateway to Learning

Using phenomena in science experiences expands learning. Inclusion of multiple disciplines or subject areas in three-dimensional learning aids in deepening student thinking, learning, and reflecting. This strand will show how teachers can use structures such as the 5E instructional model, Claims-Evidence-Reasoning (CER), Problem-Based Learning, Place-Based Learning, or Project-Based Learning as viable approaches to facilitate student understanding. This strand will be targeted by level: novice, intermediate, or advanced attendees.

Jazzing Up Science with Cross-Curricular Connections

In the past, science and engineering were often taught in isolation. Using best practices has proven that integrating science and engineering with other content areas or other science disciplines promotes students' mastery of disciplinary core ideas and crosscutting concepts. Integration within the sciences or among other disciplines leads to deeper learning and understanding for all students. This strand will focus on ways that science and other subject areas can be integrated, including the best way to bundle disciplinary core ideas. This strand will be targeted by level: novice, intermediate, or advanced attendees.

Confluence of Equity and Education

"Arguably, the most pressing challenge facing U.S. education is to provide all students with a fair opportunity to learn" (*Framework*; NRC 2012, p. 282). This challenge is of great importance as we continue to embrace changing demographics in our classrooms, communities, and country. Our imperative is to maintain high expectations and broaden access and opportunities in STEM education to increase the likelihood of student success and to prepare them to compete globally. This strand will be targeted by level: novice, intermediate, or advanced attendees.

FLINN Workshops

Hands-On Science to Motivate and Educate

All Flinn Workshops • Room 131 • America's Center

Thursday, April 11

8:00 a.m. – 9:30 a.m.	Dynamic Demonstrations from Flinn Scientific
10:00 a.m. –11:30 a.m.	Flinn Favorite Biology Activities & Games
12:00 p.m. – 1:30 p.m.	Blended Labs Prepare Students for the AP® Chemistry Exam
2:00 p.m. – 3:30 p.m.	A New Twist on Old Chemistry Labs
4:00 p.m. – 5:30 p.m.	Streamlining Dissection Labs in the Classroom

Friday, April 12

8:00 a.m. – 9:30 a.m.	Fantastic Physical Science Phenomena from Flinn Scientific
10:00 a.m. –11:30 a.m.	Engaging Demos & Labs for New Chemistry Teachers
12:00 p.m. – 1:30 p.m.	Awesome STEM Activities!
2:00 p.m. – 3:30 p.m.	The Power of Blending Scientific Inquiry with Engineering Practice
4:00 p.m. – 5:30 p.m.	Blended Labs Prepare Students for the AP® Biology Exam

Visit Flinn Scientific at Booth #1562 to learn more and for in-booth presentations

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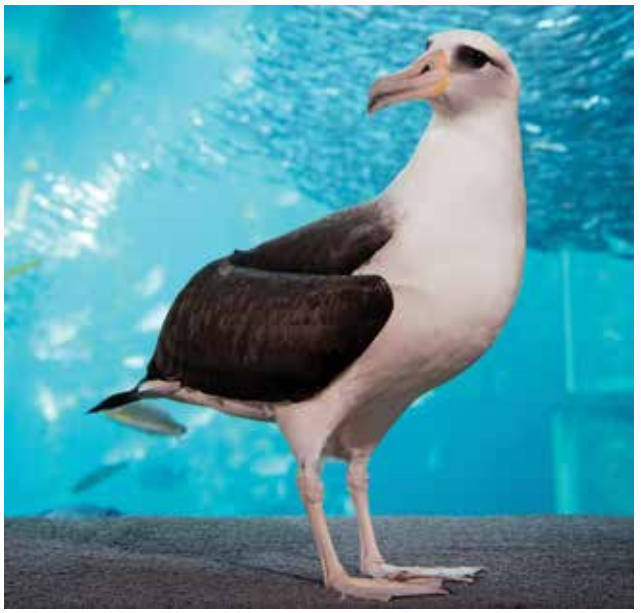
FLINN SCIENTIFIC

For full workshop descriptions, go to ev.flinnsci.com/nsta2019



—Photo courtesy of ©Monterey Bay Aquarium/Tyson V. Rininger

— SC-2: Ocean Plastic Pollution: Issues and Solutions

Admission to NSTA short courses is by ticket only. Tickets, if still available, can be purchased at the NSTA Attendee Services. See Conference App or St. Louis session browser for complete descriptions.

Ramps and Pathways: Integrative STEM and Literacy Experiences that Occur Daily Within the Literacy Block (SC-1)
Level: K–3
Date/Time: Thursday, April 11, 3:00–6:00 PM
Location: Laurel Salon A, Embassy Suites
Ticket Price: $46

In this short course, participants will experience and discuss the crosscutting concept of cause and effect as they design and build marble runs using wooden unit blocks, tracks, and objects to move, an NSF-funded experience.

Ocean Plastic Pollution: Issues and Solutions (SC-2)
Level: Grades 6–8
SOLD OUT
Date/Time: Thursday, April 11, 3:00–6:00 PM
Location: Laurel Salon B, Embassy Suites
Ticket Price: $39

Enrich your classroom with *NGSS*-focused activities surrounding plastic pollution issues and solutions. Activities will highlight plastic's physical and chemical properties, including density and buoyancy. We will explore solutions to plastic pollution, alternatives to single-use plastics, and empowering students to tackle environmental problems without experiencing ecofatigue.

Turning Cookie Cutter Labs into Cutting-Edge Inquiry Experiments (SC-3)
Level: Grades 6–12
Date/Time: Thursday, April 11, 3:00–6:00 PM
Location: Mercantile, Embassy Suites
Ticket Price: $23

Have tons of cookie cutter labs that aren't student-centered? Let's work on shifting the traditional labs into 3-D inquiry-based experimentation, projects, and investigations. Leave with resources to launch your own exploration at your school. Bring your tablet/laptop, if available.

3D **Developing and Using Models for Better Conceptual Understanding (SC-4)**
Level: Grades 3–C
Date/Time: Friday, April 12, 8:00–11:00 AM
Location: Laurel Salon A, Embassy Suites
Ticket Price: $43

The short course will engage participants in unpacking the second *NGSS* practice: developing and using models. Participants will then engage in two hands-on tasks: the mystery tube activity, adapted to emphasize the predictive nature and adaptability of models, as well as a second modeling activity chosen from the solar system, habitats, or natural hazards.

A+ **Blending the E and the S in STEM (SC-5)**
Level: Grades 4–8
Date/Time: Friday, April 12, 10:30 AM–4:30 PM
Location: Mercantile, Embassy Suites
Ticket Price: $23

We will explore the integration of engineering into science classrooms in ways that motivate deep learning of science and engineering via doable instructional shifts. This research-based and reality-driven approach is based on tested resources built on a research foundation for layering the *NGSS* engineering design process into elementary classrooms and secondary science courses. Expect a break for lunch on own.

Introducing ML-PBL: *NGSS*- and *CCSS*-Focused Elementary Project-Based Learning Unit(s) (SC-6)
Level: Grades 3–5
CANCELED
Date/Time: Friday, April 12, 10:30 AM–5:00 PM
Location: Laurel Salon B, Embassy Suites
Ticket Price: $73

Experience middle level project-based *NGSS*-focused instructional units, vetted by Achieve, that engage students in making sense of phenomena and solving problems. Leave with handouts; access to electronic resources, and materials for two sample units. Bring laptop. Expect a break for lunch on own.

Promoting Children's Science Inquiry and Thinking About Living Things in Preschool and Kindergarten (SC-7)

CANCELED

Level: PreK–1
Date/Time: Friday, April 12, 1:00–4:00 PM
Location: Laurel Salon C, Embassy Suites
Ticket Price: $30

For preservice and inservice early childhood/ elementary educators—experience life science inquiry and build your knowledge of core ideas and concepts related to living things, using life science concepts in *NGSS* K-LS1-1 and 1-LS-1 From Molecules to Organisms: Structures and Processes. Participants will investigate a variety of plants and "mini-beasts," make claims, construct explanations, and reason about organisms' characteristics, needs, habitats, and life cycles.

3D Designing and Using Three-Dimensional Assessments in Your Classroom (SC-8)

Level: Grades 3–12
Date/Time: Friday, April 12, 1:00–5:00 PM
Location: Laurel Salon A, Embassy Suites
Ticket Price: $36

Join us to learn a systematic way to design three-dimensional assessments you can use to inform your teaching and improve learning! We will guide participants through a process of adapting existing tasks or generating new tasks to assess a bundle of performance expectations.

GREAT Projects: A Scaffolded Approach to Phenomenon-, Problem- and Project-Based Learning (SC-9)

Level: Grades K–12
Date/Time: Saturday, April 13, 8:00 AM–2:30 PM
Location: Mercantile, Embassy Suites
Ticket Price: $33

Investigate ways to incorporate Project-Based Learning with citizen science, engineering challenges, case studies, problem-solving, and sensemaking. Bring a laptop/tablet. Participants should also dress for outdoor activities as participants will go off-site to Gateway Arch Park for part of the short course. A picnic lunch will be provided, courtesy of the presenters, along with supplies, "Natural Inquirer" research student journal, lesson frameworks, and access to online resources.

Equity Through STEM Education (SC-10)

Level: General
Date/Time: Saturday, April 13, 9:00 AM–2:00 PM
Location: Laurel Salon A, Embassy Suites
Ticket Price: $61

Several key issues of equity and diversity in STEM education will be addressed, including aspects of *NGSS*, Appendix D, All Standards, All Students: Making the *NGSS* Accessible to All Students. Participants will experience several unique "tools" as they reflect upon and discuss many of the assumptions, values, and practices that hinder the STEM education of students of color. Take home a copy of *Ripples of Hope*. Expect a break for lunch on own.

The World Ender: A NASA Cross-Disciplinary PBL Unit (SC-11)

Level: Grades 6–12
Date/Time: Saturday, April 13, 9:00 AM–2:00 PM
Location: Laurel Salon B, Embassy Suites
Ticket Price: $76

What would you do if an asteroid hit Earth? Come explore The World Ender, a 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. Bring your laptop/tablet. Expect a break for lunch on own.

GLOBE Weather: A New *NGSS*-Based Middle School Unit (SC-12)

Level: Grades 6–8
Date/Time: Saturday, April 13, 9:00 AM–2:00 PM
Location: Laurel Salon C, Embassy Suites
Ticket Price: $23

We will share a new, free unit about the science of weather that combines activities, data analysis, modeling, and weather measurements using GLOBE Program protocols. The curriculum helps students understand *NGSS*-based weather concepts. *Note:* Bring clothing appropriate for being outdoors for about 30 minutes during this short course. Expect a break for lunch on own.

—Photo courtesy of The UCAR Center for Science Education

— *SC-12: GLOBE Weather: A New* NGSS-*Based Middle School Unit*

Tickets for educational trips can be purchased (space permitting) at NSTA Attendee Services. See Conference App or St. Louis session browser for complete descriptions. Meet your trip leader at the Convention Plaza entrance of America's Center at least 15 minutes prior to departure time.

Global Conversations: Welcome to My Elementary Classroom **$30;** *by preregistration only*

W-1 Wednesday, April 10 7:20–11:45 AM

Global Conversations: Welcome to My High School Classroom **$30;** *by preregistration only*

W-2 Wednesday, April 10 7:20–11:45 AM

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 Maple Richmond Heights Elementary School or the Collegiate School of Medicine and Bioscience. Participants will be split into groups where half will visit the elementary school, and the other half will visit the high school. Time has been set aside for participants to observe and interact with teachers and students at their selected location.

Those with **W-1 tickets** will visit Maple Richmond Heights Elementary School, a grades 3–6 elementary school in which teaching and learning are focused by using the "School As Museum" metaphor to organize classroom projects. For more information, visit *www.mrhschools.net/elementary-school/about-us*.

Those with **W-2 tickets** will visit the Collegiate School of Medicine and Bioscience, an innovative college preparatory grades 9–12 high school with high expectations for its academic team and student body. For more information, visit *www.slps.org/collegiate*.

A Living Laboratory: FOOD ROOF Farm Tour **$16**

SOLD OUT

T-1 Thursday, April 11 8:15–10:30 AM

Get a glimpse into rooftop farming in downtown St. Louis at FOOD ROOF Farm! Not your typical farm, Urban Harvest STL led the collaboration of architects, landscape architects, green roof experts, horticulturalists, structural engineers, agronomists, and urban farmers to create this internationally recognized project. This hourlong tour includes a brief overview of Urban Harvest STL and the history of the FOOD ROOF Farm, followed by a farm walk. Group will walk together to the farm from America's Center.

Note: Participants must be able to walk up flights of stairs. The rooftop is only accessible by two flights of stairs.

Space Mission and "Stellar" Elementary Workshop at the Challenger Learning Center **$82;** *by preregistration only*

CANCELED

T-2 Thursday, April 11 9:00 AM–2:45 PM

Launch new learning with a trip to Challenger Learning Center. Participants start off spending two hours as "Jr. Astronauts," going on a simulated space mission and making compressed-air rockets. Then they will take part in a hands-on workshop that integrates reading, writing, and math into astronomy by doing standards-based activities that take the unreachable and make it hands on. Junior Astronauts programs are geared toward students ages 6 to 11. Box lunch is included.

Uncover the Marvels of Botanical Engineering at Missouri Botanical Garden **$46**

T-3 Thursday, April 11 9:30 AM–12:15 PM

Join us for a guided tour at the Missouri Botanical Garden focusing on botanical engineering. Survival for plants often means finding innovative ways to overcome challenges in the environment! In this fascinating tour, we'll explore the adaptations that plants have devised that enable them to survive in some of our planet's most extreme environments. Be sure to bring your NSTA conference badge as this will serve as your entrance credentials.

The SCIENCE of Modern Agriculture **$36**

By Preregistration Only

T-4 Thursday, April 11 12:15–5:00 PM

As a global enterprise in the life science fields of health care and agriculture, Bayer is committed to improving people's lives—with its defining purpose: Science for a better life. Bayer extends a special invite to science teachers to tour their world-class Crop Science research facility in Chesterfield, Missouri. Visitors will learn the importance of genetics to increase the speed, accuracy and efficiency of breeding efforts, explore how we search for sustainable solutions that prevent damage from destructive pests without harming beneficial insects, and see the benefits of soil microbes as a seed treatment that can complement or replace agricultural chemical products for improving nutrient uptake, promoting growth and yield, insect control and disease protection.

A Trip Back in Time: Cahokia Mounds **$44**

F-1 Friday, April 12 8:45 AM–12 Noon

S-1 Saturday, April 13 8:45 AM–12 Noon

Travel back in time on this visit to the Cahokia Mounds State Historic Site, the largest prehistoric Indian center in America. We'll begin our self-guided visit at the Interpretative Center where we'll see a short orientation movie, *City of the Sun*; a reproduction of a Mississippian village; and an exhibit gallery that incorporates genuine artifacts found in Cahokia. Weather permitting, we'll enjoy a walking tour of the Plaza, climb the 100-foot-high Monk Mound, and see a wooden Sun calendar. Comfortable clothing and shoes are recommended.

Discovering Shaw Nature Reserve Tour **$40**

F-2 Friday, April 12 9:00 AM–1:00 PM

CANCELED

Learn about Missouri's native plants, wildlife, and landscapes at Shaw Nature Reserve, a division of the Missouri Botanical Garden. Explore prairies, woodlands, and wetlands with the Nature Reserve's team of environmental educators as they share hands-on, inquiry-based activities and information about diverse program options. Be sure to bring your NSTA conference badge as this will serve as your entrance credentials. Travel time is roughly one hour each way.

Space Mission and Engineering Workshop at the Challenger Learning Center **$82**; *by preregistration only*

F-3 Friday, April 12 9:00 AM–2:45 PM

Launch new learning with a trip to Challenger Learning Center. Participants will spend two hours taking on the roles of scientists, astronauts, and engineers in a simulated space mission, and then engage in a two-hour hands-on workshop exploring ways to implement engineering design concepts into middle school and high school classrooms. After learning how to make several projects, they will discuss how to move students along the continuum from doing activities to actively carrying out projects. Box lunch is included.

Effective Outdoor Learning **$46**

F-4 Friday, April 12 1:00–5:00 PM

The Litzsinger Road Ecology Center is a 34-acre natural space devoted to place-based education programs that promote environmental citizenship. Working in small groups, gain hands-on experience with a variety of ways to make your field investigations come alive. As you work, we'll share everything from high-level planning frameworks down to our favorite low-cost tools that have proven useful as teachers strive to meet curriculum expectations through dynamic inquiry. *Note:* Come dressed for the weather.

F-1 and S-1: A Trip Back in Time: Cahokia Mounds

—Photo courtesy of Cahokia Mounds State Historic Site

Three Dimensions of the *Next Generation Science Standards (NGSS)*

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

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

Wednesday, April 10

NSELA Leadership Summit Breakfast
By Invitation Only, visit *www.NSELA.org*
Grand Ballroom E, Hyatt ..... 7:00–7:45 AM

Designing Three-Dimensional Lessons and Units Workshop
By Separate Registration Only
Regency B, Hyatt ..... 8:00 AM–5:00 PM

NSELA Leadership Summit
By Registration through NSELA. Visit *www.NSELA.org*
Grand Ballroom D, Hyatt ..... 8:00 AM–5:00 PM

Science Education for Students with Disabilities (SESD) Meeting
By Registration Through SESD, visit *www.sesd.info*
Pershing/Lindell, Marriott ..... 9:00 AM–6:00 PM

NSELA Leadership Summit Lunch
By Invitation Only, visit *www.NSELA.org*
Grand Ballroom E, Hyatt ..... 12 Noon–1:30 PM

NSELA Leadership Summit Reception
By Invitation Only, visit *www.NSELA.org*
Park View, Hyatt ..... 6:00–7:30 PM

Thursday, April 11

NSELA Membership Breakfast and Annual Meeting
By Invitation Only, visit *www.NSELA.org*
Park View, Hyatt ..... 7:30–10:00 AM

Designing Three-Dimensional Lessons and Units Workshop
By Separate Registration Only
Regency B, Hyatt ..... 8:00 AM–5:00 PM

Science Safety Advisory Board Meeting
Shaw Boardroom., Marriott ..... 8:30–11:00 AM

NSTA 75th Birthday Celebration and Special Announcement
Outside Entrance to Exhibit Hall..... 10:45–11:00 AM

NSTA/CAEP Program Report Auditors Meeting
Lafayette Boardroom, Marriott ..... 9:00 AM–12 Noon

Coordination and Supervision of Science Teaching Committee Meeting
Majestic D/E Group 6, Marriott ..... 12:30–2:30 PM

Informal Science Education Committee Meeting
Majestic D/E Group 7, Marriott ..... 12:30–2:30 PM

Journal of College Science Teaching Advisory Board Meeting
Majestic D/E Group 4, Marriott ..... 12:30–2:30 PM

Multicultural/Equity Committee Meeting
Majestic D/E Group 12, Marriott ..... 12:30–2:30 PM

NGSS Advisory Board Meeting
Majestic D/E Group 8, Marriott ..... 12:30–2:30 PM

Nominations Committee Meeting
Lafayette Boardroom, Marriott..... 12:30–2:30 PM

NSTA Reports Advisory Board Meeting
Majestic D/E Group 5, Marriott ..... 12:30–2:30 PM

Preservice Teacher Preparation Committee Meeting
Majestic D/E Group 9, Marriott ..... 12:30–2:30 PM

Professional Development in Science Education Committee Meeting
Majestic D/E Group 10, Marriott..... 12:30–2:30 PM

Research in Science Teaching Committee Meeting
Majestic D/E Group 11, Marriott ..... 12:30–2:30 PM

Science & Children Advisory Board Meeting
Majestic D/E Group 1, Marriott ..... 12:30–2:30 PM

Science Scope Advisory Board Meeting
Majestic D/E Group 2, Marriott ..... 12:30–2:30 PM

The Science Teacher Advisory Board Meeting
Majestic D/E Group 3, Marriott ..... 12:30–2:30 PM

AMSE Board of Directors Meeting
By Invitation Only.
Pershing, Marriott ..... 2:30–5:30 PM

NSTA Young Professional and New Teacher Reception
By Invitation Only
Hawthorne/Lucas/Flora, Marriott. ..... 3:00–4:00 PM

Aerospace Programs Advisory Board Meeting
Majestic D/E Group 5, Marriott ..... 3:00–4:30 PM

Awards and Recognitions Committee Meeting
Lafayette Boardroom, Marriott..... 3:00–4:30 PM

College Science Teaching Committee Meeting
Majestic D/E Group 4, Marriott ..... 3:00–4:30 PM

High School Science Teaching Committee Meeting
Majestic D/E Group 3, Marriott ..... 3:00–4:30 PM

International Advisory Board Meeting
Majestic D/E Group 6, Marriott ..... 3:00–4:30 PM

Middle Level Science Teaching Committee Meeting
Majestic D/E Group 2, Marriott ..... 3:00–4:30 PM

Preschool–Elementary Science Teaching Committee Meeting
Majestic D/E Group 1, Marriott ..... 3:00–4:30 PM

Retired Members Advisory Board Meeting
Majestic D/E Group 7, Marriott ..... 3:00–4:30 PM

Rural Advisory Board Meeting
Majestic D/E Group 8, Marriott ..... 3:00–4:30 PM

Science Matters Advisory Board Meeting
Majestic D/E Group 9, Marriott ..... 3:00–4:30 PM

Special Needs Advisory Board Meeting
Majestic D/E Group 10, Marriott..... 3:00–4:30 PM

Technology Advisory Board Meeting
Majestic D/E Group 11, Marriott ..... 3:00–4:30 PM

APAST Board Meeting
By Invitation Only
Mills Studio 2, Hyatt..... 4:00–6:00 PM

CESI Annual Board Meeting
By Invitation Only
Laclede Boardroom, Marriott..... 4:00–6:00 PM

NMLSTA Board of Directors Meeting
By Invitation Only. Interested NMLSTA members may attend.
Lindell, Marriott ..... 5:00–6:30 PM

HHMI Night at the Movies: *INVENTING TOMORROW*
Free admission. Ticket required. Visit *bit.ly/2GW4rJd.*
Ferrara Theatre, America's Center ..... 6:00–8:30 PM

Science Teachers of Missouri (STOM) Reception and Awards
Visit *www.stom.org* for more information.
Landmark 6/7, Marriott ..... 6:30–8:00 PM

*#NGSS*chat Live Social
Participate in person or via Twitter using #NGSSchat
Westmoreland/Kingsbury, Marriott ..... 7:15–9:15 PM

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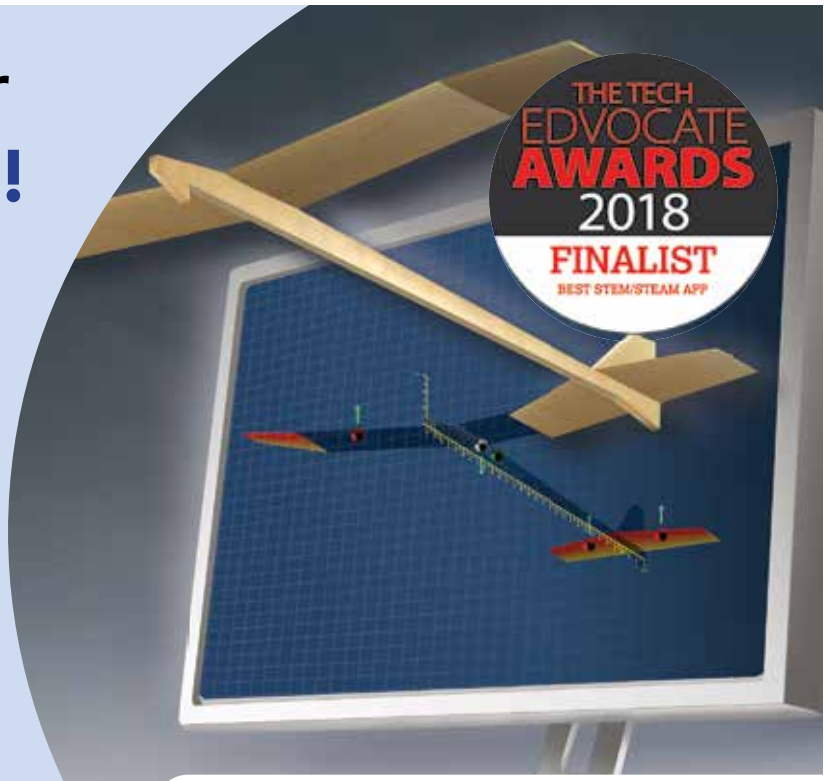

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Friday, April 12

Annual AMSE Alice J. Moses Breakfast
By Invitation Only.
Statler, Marriott ..... 7:30–9:30 AM

NSTA President's International Breakfast Reception
Sponsored by Northrup Grumman Foundation
Open to international visitors and invited guests.
Grand Ballroom D/E, Hyatt ..... 8:30–9:30 AM

Urban Science Education Advisory Board Meeting
Lafayette Boardroom, Marriott.....10:30 AM–12 Noon

AMSE Membership General Meeting
By Invitation Only
Pershing/Lindell, Marriott ..... 10:30 AM–12:30 PM

Meet and Greet with the Presidents and Board/Council
Exhibit Hall entrance, America's Center ...11:45 AM–12:15 PM

NMLSTA Membership and Board Meeting
All members are invited, as well as interested non-members for a short meeting and some get-to-know-you fun.
Majestic C, Marriott..... 12 Noon–12:30 PM

Society of Elementary Presidential Awardees (SEPA) Luncheon
By Invitation Only
Westmoreland/Kingsbury, Marriott .... 12 Noon–2:00 PM

Retired NSTA Members—Meet, Greet, and Network
Bring bag lunch
Sterling Studio 9, Hyatt Regency ..... 12:30–1:30 PM

James Balog's *The Human Element* film screening
Free screening. Open to All.
Room 275, America's Center .....1:30–3:30 PM

Society of Elementary Presidential Awardees (SEPA) Board Meeting
Shaw Boardroom, Marriott..... 2:00–3:30 PM

Chapter and Associated Group Leader Roundtable
By Invitation Only
Pershing/Lindell, Marriott..... 3:00–4:00 PM

SCST Business Meeting
Annual membership meeting. All members and individuals interested in college science teaching are welcome.
Sterling Studio 3, Hyatt ..... 3:30–5:00 PM

APAST Social/Business Meeting
By Invitation Only
Sterling Studio 9, Hyatt .....4:00–6:00 PM

Shell Reception
By Invitation Only
Regency B, Hyatt..... 5:00–5:45 PM

Big Picture Education Screening and Panel: *Food Evolution*
Free screening. Open to All.
Room 275, America's Center ..... 5:00–9:00 PM

NSTA Teacher Awards Gala
(Ticket required: M-1)
Regency Blrm. C/D, Hyatt..... 6:00–9:00 PM

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

Saturday, April 13

Shell Judging Panel Meeting
By Invitation Only
Mills Studio 4, Hyatt.....8:30–10:30 AM

CESI Membership Meeting
Majestic H, Marriott..... 10:00–11:00 AM

NSTA Standing Committee, Advisory Board, and Panel Chairs Meeting
By Invitation Only
Pershing/Lindell, Marriott..... 12:30–1:30 PM

NESTA Friends of Earth Science Reception
For more information, visit *www.nestanet.org.*
Crystal Ballroom, Marriott..... 6:30–8:00 PM

From the creators of *Eureka Math*™/EngageNY Math.

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FREE HANDS-ON WORKSHOPS

Great Minds®, the creators of *Eureka Math*™/EngageNY Math, introduce *PhD Science*™, an elementary science curriculum based on the *Framework* and designed for three-dimensional teaching and learning.

Rising Flood Waters: Engineering Design Challenge for Third-Graders

Thursday, April 11
8:00 – 9:30 AM
Room 160

Harnessing the Wind: Energy Transfer and Transformation for Fourth-Graders

Thursday, April 11
10:00 – 11:30 AM
Room 160

Gas Exchange: Cycles of Matter and Energy Transfer in Ecosystems for Fifth-Graders

Friday, April 12
2:00 – 3:30 PM
Room 160

BOOTH #1957

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LOCATION	7:00–7:45 PM	8:00 AM–5:00 PM	9:00 AM–4:00 PM	9:00 AM–6:00 PM
Grand Ballroom D Hyatt		**NSELA Leadership Summit** *By Registration Through NSELA*		
Grand Ballroom E Hyatt	**NSELA Leadership Summit Breakfast** *By Invitation Only*			
Regency B Hyatt		**Designing 3-D Lessons and Units Workshop** *By Preregistration Only*		
Landmark 1 Marriott			**Designing Meaningful STEM Lessons (PLI-1)** *By Preregistration Only*	
Landmark 2 Marriott			**Becoming a Practitioner of Science: Engaging Students in Solving Real Earth Science Problems (PLI-2)** *By Preregistration Only*	
Landmark 3 Marriott			**NextGen TIME: Transforming Implementation Through Materi-als Evaluation (PLI-3)** *By Preregistration Only*	
Landmark 4 Marriott			**Selecting Anchoring Phenomena for Equitable 3-D Teaching (PLI-4)** *By Preregistration Only*	
Pershing/ Lindell Marriott				**Science Education for Students with Disabilities (SESD) Meeting** *By Registration Through SESD*

Networking Opportunities | Meetings | Featured Speakers | PLIs

LOCATION	12 Noon–1:30 PM	6:00–7:30 PM	6:0M–8:00 PM
Grand Ballroom E Hyatt	NSELA Leadership Summit Lunch *By Invitation Only*		
Park View Hyatt		NSELA Leadership Summit Reception *By Invitation Only*	
Ferrara Theatre America's Center			Special Evening Session with Sean M. Carroll: The Many Worlds of Quantum Mechanics *Sponsor: Penguin Random House*
Landmark 1 Marriott			
Landmark 2 Marriott			
Landmark 3 Marriott			
Landmark 4 Marriott			
Pershing/ Lindell Marriott			

Networking Opportunities | Meetings | Featured Speakers | PLIs

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:15–10:30 AM	9:30–10:30 AM
Room 100 America's Center	Cultural Inclusivity in Science: Beyond George Washington Carver --- Museums as a Resource: Supporting Hispanic Students' STEM Learning			
Room 101 America's Center		Strategies for Motivating and Engaging All Students Through Life Science *Sponsor: Bio-Rad Laboratories*		
Room 102 America's Center		Algae Blooms: Agriculture, Ecology, and Economy *Sponsor: Bio-Rad Laboratories*		
Room 103 America's Center	littleBits in Grades 3–8 STEM Classrooms *Sponsor: Pearson*			Science Denial: What Science Educators Can Do About It *Sponsor: Pearson*
Room 104 America's Center		Space Science for the Modern, Interactive Classroom *Sponsor: Simulation Curriculum Corp.*		
Room 105 America's Center				
Room 106 America's Center		Get a Move On! Modeling Molecular Transport Across the Cell Membrane *Sponsor: 3D Molecular Designs*		
Halls 1/2 America's Center			Keynote Presentation The Sky Is Not the Limit: Lessons from a Year in Space Speaker: Scott Kelly *Sponsors: Knopf Doubleday and Random House Children's Books*	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–10:30 AM
Room 121 America's Center		**Common Biology Experiments Using the Latest Technology** *Sponsor: Vernier Software & Technology*	
Room 122 America's Center		**DIY Data-Logging with Arduino™** *Sponsor: Vernier Software & Technology*	
Room 125 America's Center	**Introducing Your Students to Gene Editing with CRISPR** *Sponsor: Edvotek Inc.*		**Left at the Scene of the Crime** *Sponsor: Edvotek Inc.*
Room 126 America's Center		**Bring Science, Computational Thinking, and Engineering to Life** *Sponsor: LEGO Education*	
Room 127 America's Center		***NGSS*—Body Systems: Gas Exchange** *Sponsor: Lab-Aids, Inc.*	
Room 130 America's Center		**A Salt Marsh Die-Off to Mass Extinction: What Evidence Reveals** *Sponsor: HHMI BioInteractive*	
Room 131 America's Center		**Dynamic Demonstrations from Flinn Scientific** *Sponsor: Flinn Scientific, Inc.*	
Annex America's Center	**NMEA Session: Whale of a Share-a-Thon**		**NMEA Session: Marine Science and Technology in the Classroom**

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–10:30 AM
Room 140 America's Center		**Integrating Literacy into the Science Classroom** *Sponsor: Houghton Mifflin Harcourt*	
Room 141 America's Center		**Making Science Accessible Through Hands-On Exploration, Technology, and Active Literacy** *Sponsor: ScienceFLEX and MakerSpace/ School Specialty Science*	
Room 143 America's Center	**STEM to the Max: Maximizing Learning from Science Fair Projects** *Sponsor: AEOP*		
Room 144 America's Center		**How K–5 Educators and Students Can Expertly Use CCCs** *Sponsor: Amplify*	
Room 145 America's Center	**Writing Science into Fairy Tales**		
Room 150 America's Center	**Using a Global Climate Model, EzGCM, to Promote Understanding of Earth's Changing Climate**		
Room 151 America's Center	**Citizen Science: Integrating All Five Innovations of the *NGSS* ---------- A Generation of Citizen Stewards**		
Room 152 America's Center	**What Does Sugar Have to Do with It? Evaluation of Project-Based Instruction in a High School Biology Course**		

LOCATION	8:00–8:30 AM	8:00–9:00 AM	8:00–9:30 AM
Room 160 America's Center			Rising Flood Waters: Engineering Design Challenge for Third-Graders *Sponsor: Great Minds*
Room 161 America's Center	Beyond Bean Sprouts and Fast Plants: Botanical Activities for the STEAM Classroom		
Room 162 America's Center		Science Curriculum Overhaul: Impressing Your Regional Accreditation Association --------- Coaching for the Instructional Science Coaches	
Room 221 America's Center	Crosscutting Concepts and Using Your Science "Eye" (CONNECTIONS strand)		
Room 222 America's Center		Equal Access to Science: Universal Design and Students with Disabilities (EQUITY strand)	
Room 223 America's Center		Student Engineers Build on Foundations (PHENOMENA strand)	
Room 224 America's Center		Astronomy Activities for Your Classroom	
Room 225 America's Center		Strategies to Develop Student Analysis of Data in STEM Subjects: Data Literacy	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–8:30 AM	8:00–9:00 AM	8:00–9:30 AM
Room 226 America's Center		NGSS Session: I Spy a Pattern: Leveraging the Crosscutting Concepts to Support Diverse Students' Sense-making	
Room 227 America's Center		Escape Room Hacks: Tools for Making an AMAZING STEM Escape Room!	
Room 228 America's Center		Using Claims, Evidence, and Reasoning to Evaluate Volcanic Risk	
Room 229 America's Center		Burn-Baby-Burn: Impact of Forest Fires on Yellowstone National Park Ecosystems	
Room 240 America's Center		Sustainability: Providing Real-World Science Experiences	
Room 241 America's Center		STEM on Station	
Room 242 America's Center		Integrated Meteorology and Ecology ----------	
Room 260 America's Center		Green Homes: Development, Assessment, and Learning Impacts of a Culturally Responsive Project	Engineering Solutions with Ward's Essentials *(Sponsor: Ward's Science)*

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LOCATION	8:00–8:30 AM	8:00–9:00 AM	8:00–9:30 AM
Room 262 America's Center			**Perimeter Institute: Evidence for Climate Change** *(Sponsor: Perimeter Institute)*
Room 263 America's Center		**pH: Hands-On Strategies to Tackle Misconceptions** *(Sponsor: PASCO)*	
Room 264 America's Center		**What's in the Water? Colorimetry and Conductivity of Solutions** *(Sponsor: PASCO)*	
Room 276 America's Center		**NSTA Press® Session: Using *Everyday Science Mysteries* as Unit Starters for Open Inquiry**	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	10:00–11:30 AM	10:45–11:00 AM	11:00 AM–12 Noon	11:00 AM–6:00 PM
Entrance to Exhibit Hall America's Center		NSTA 75th Birthday Celebration and Special Announcement		
NSTA Exhibits (Halls 3–5) America's Center				NSTA Exhibits!
Room 101 America's Center	Think Like an Engineer in Your Biology Class *Sponsor: Bio-Rad Laboratories*			
Room 102 America's Center	Building Biology Learning Through Connected Concepts—Reinforcing Big Ideas *Sponsor: Bio-Rad Laboratories*			
Room 103 America's Center			Beyond Climate: Using Global Change to Teach the NOS *Sponsor: Pearson*	
Room 104 America's Center	Earth Science for the Modern, Interactive Classroom *Sponsor: Simulation Curriculum Corp.*			
Room 105 America's Center	BIOZONE's Non-Integrated *NGSS* Series for High School *Sponsor: BIOZONE International Ltd.*			
Room 106 America's Center	A Visual Journey Through the Human Cell Using Watercolor Landscapes *Sponsor: MSOE Center for BioMolecular Modeling*			

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	10:00–11:30 AM	10:45–11:00 AM	11:00 AM–12 Noon	11:00 AM–6:00 PM
Room 120 America's Center	**Smithsonian 3-D Learning and Assessment: Two Sides of One Coin** *Sponsor: Carolina Biological Supply Co.*			
Room 121 America's Center	**Quick and Easy Biology and Chemistry Experiments Using the Latest Technology** *Sponsor: Vernier Software & Technology*			
Room 122 America's Center	**Quick and Easy Experiments Using the Latest Technology** *Sponsor: Vernier Software & Technology*			
Room 123 America's Center	**Protein Necklace: Harnessing the Glow of Jellyfish** *Sponsor: Carolina Biological Supply Co.*			
Room 124 America's Center	**Carolina's Young Scientist™ Dissections with Carolina's Perfect Solution® Specimens** *Sponsor: Carolina Biological Supply Co.*			
Room 125 America's Center			**Transform Your Class into a Neuroscience Laboratory** *Sponsor: Edvotek Inc.*	
Room 126 America's Center	**Ignite a Love for STEAM Learning in Your Classroom** *Sponsor: LEGO Education*			
Room 127 America's Center	***NGSS*—Evolution: Embry-OH!** *Sponsor: Lab-Aids, Inc.*			

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	10:00–11:30 AM
Room 130 America's Center	**Promoting Conversations about Race and Gender Using HHMI BioInteractive Resources** *Sponsor: HHMI BioInteractive*
Room 131 America's Center	**Flinn Favorite Biology Activities and Games** *Sponsor: Flinn Scientific, Inc.*
Room 140 America's Center	**Types and Uses of Phenomenal Phenomena** *Sponsor: Houghton Mifflin Harcourt*
Room 141 America's Center	**Where Cell Structure and Energy Dynamics ARE Fun and Games** *Sponsor: CPO Science/ School Specialty Science*
Room 142 America's Center	**How to "Integrate" Engineering** *Mosa Mack Science*
Room 144 America's Center	**Lead with Phenomena and the Three Dimensions Will Follow** *Sponsor: Amplify*
Room 160 America's Center	**Harnessing the Wind: Energy Transfer and Transformation for Fourth-Graders** *Sponsor: Great Minds*
Room 230 America's Center	**Teaching Weather and Climate with Digital Media, Grades 6–12** *Sponsor: PBS LearningMedia/WGBH*

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	9:30–10:30 AM	10:00–11:30 AM	11:00 AM–12 Noon
Room 231 America's Center		**Hands-On Anatomy: The Mind Cannot Forget What the Hands Have Learned!** *Sponsor: ANATOMY IN CLAY® Learning System*	
Room 232 America's Center		**Putting the A in "STEAM" Education** *Sponsor: Nasco*	
Room 260 America's Center		**The Great Owl Pellet Mystery** *Sponsor: Ward's Science*	
Room 261 America's Center		**Are You Moody?** *Sponsor: Texas Instruments*	
Room 262 America's Center		**Perimeter Institute: What's New in Physics?** *Sponsor: Perimeter Institute*	
Room 263 America's Center	**Hands-On: Modeling Ocean Acidification** *Sponsor: PASCO*		**Collecting and Analyzing Field Data with Sensors** *Sponsor: PASCO*
Room 264 America's Center	**Speed and Velocity: Lessons with Motion Graphs** *Sponsor: PASCO*		**Crash Barrier: How to Design a STEM Engineering Challenge** *Sponsor: PASCO*
Room 265 America's Center		**Integrating Academic Language and 3-D Science Learning** *Sponsor: Speak Agent, Inc.*	

Thursday At-A-Glance

Complete Session Details on App

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Room 100 America's Center		**Makerspaces: Why, What, How** ---------- **School Makerfaire Brings Community Together**	**Getting to the HEART of Biomedical Engineering**	
Room 101 America's Center				**The Opioid Epidemic: Exploring the Genetic Associations of Opioid Abuse** *Sponsor: Bio-Rad Laboratories*
Room 102 America's Center				**Shifting Practices to Infuse Science/Engineering Practices with CCSS Strategies** *Sponsor: Bio-Rad Laboratories*
Room 103 America's Center		**Experience Chemistry Through a PBL Approach** *Sponsor: Pearson*	**Let's Go on a Quest: Scaffolded Problem-Based Learning** *Sponsor: Pearson*	
Room 104 America's Center	**Space Science for the Modern, Interactive Classroom** *Sponsor: Simulation Curriculum Corp.*			**I Wish I Had These Models When Learning Molecular Biology** *Sponsor: Tumblehome Learning, Inc.*
Room 106 America's Center	**Touch a Nerve with Hands-On Modeling of Neuronal Communication** *Sponsor: 3D Molecular Designs*			**Because You're Mine… I Drive the Line** *Sponsor: Texas Instruments*
Room 120 America's Center	**How Can We Provide Fresh Water to Those in Need?** *Sponsor: Carolina Biological Supply Co.*			**Solve the Mystery of Beads in a Bottle** *Sponsor: Carolina Biological Supply Co.*
Room 121 America's Center	**Let's Get Physical: Human Physiology Experiments** *Sponsor: Vernier Software & Technology*			**Simple Enzyme Inquiry Activities for AP Biology** ***Sponsor:*** *Vernier Software & Technology*

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Room 122 America's Center	**Integrating Data-Logging STEM Tools into the Middle School Classroom** *Sponsor: Vernier Software & Technology*			**Investigate Physics Using Sensors** *Sponsor: Vernier Software & Technology*
Room 123 America's Center	**Introduction to Wisconsin Fast Plants®** *Sponsor: Carolina Biological Supply Co.*			**Keep Calm and Chemistry On: Successful Lab Activities for the New Chemistry Teacher** *Sponsor: Carolina Biological Supply Co.*
Room 124 America's Center	**Come to Your Senses: Physiology in Action** *Sponsor: Carolina Biological Supply Co.*			**Engineer Physical Science Excitement with a Carolina STEM Challenge®** *Sponsor: Carolina Biological Supply Co.*
Room 125 America's Center		**Sweet Science: Exploring Complex Mixtures with Biotechnology** *Sponsor: Edvotek Inc.*	**Exploring STEAM with Transformation** *Sponsor: Edvotek Inc.*	
Room 126 America's Center				**Ignite a Love for STEAM Learning in Your Classroom** *Sponsor: LEGO Education*
Room 127 America's Center	***NGSS*—Chemical Reactions: Designing Better Chemical Batteries** *Sponsor: Lab-Aids, Inc.*			**Developing Assessments for the *Next Generation Science Standards*** *Sponsor: Lab-Aids, Inc.*
Room 130 America's Center	**Class Ethos and Equity with BioInteractive: The *NGSS* 4th Dimension** *Sponsor: HHMI BioInteractive*			**VIDA Natural Selection Explanation Tool + BioInteractive Resources = Awesome!** *Sponsor: HHMI BioInteractive*
Room 131 America's Center	**Blended Labs Prepare Students for the AP® Chemistry Exam** *Sponsor: Flinn Scientific, Inc.*			**A New Twist on Old Chemistry Labs** *Sponsor: Flinn Scientific, Inc.*

Thursday At-A-Glance

Complete Session Details on App

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Annex America's Center		**NMEA Session: Bridge DATA Series: Sea Level Trends**	**NMEA Session: Using the *NGSS* to Explore the Oceans—Engaging Students in the Phenomena of Inner Space**	
Room 140 America's Center	**AccuSTEMize Your Students to Perseverance Through Engineering and Design** *Sponsor: Houghton Mifflin Harcourt*			**Awesome 3D Activities for the *NGSS* Elementary Classroom** ***Sponsor: Houghton Mifflin Harcourt***
Room 141 America's Center	**Developing and Using Models** *Sponsor: ScienceFLEX & MakerSpace/School Specialty Science*			**How to Argue in an Elementary Science Class** ***Sponsor: ScienceFLEX & MakerSpace/School Specialty Science***
Room 142 America's Center	**Demystifying Performance Assessments** *Sponsor: Mosa Mack Science*			**Hands-On Activities That Use STEM Concepts to Solve Health Problems** ***Sponsor: Science Take-Out***
Room 143 America's Center	**STEM Challenge: Keeping Students Engaged with Problem-Solving** *Sponsor: AEOP*			**Solving Crimes with Science—Forensics for Your Classroom** ***Sponsor: AEOP***
Room 144 America's Center	**Light Waves and Skin Cancer: Phenomena and 3-D Instruction for Grades 6–8** *Sponsor: Amplify*			**Access and Rigor: Three-Dimensional Science for English Language Learners** ***Sponsor: Amplify***
Room 145 America's Center		**NSTA's Position Statement on the Teaching of Climate Change: A New Tool for Up-to-Date Science Teaching**	**How to Move from Science Fair to STEMFest!**	
Room 150 America's Center		**The Journey: Real-World, Three-Dimensional Environmental Science and Sustainability Education**	**Using Field Investigations Surrounding Scientific Phenomena to Maximize STEM Learning**	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12:30–1:00 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Room 151 America's Center		Stoking the Spark of Curiosity with Phenomena ---------- Instructional Trajectories for Introducing Phenomena and Initiating Inquiry	Synchronizing Science and Social Studies: Telescope Territory in the Atacama Desert (2:30-3:00 PM)	
Room 152 America's Center		"All Standards, All Students" What About the Girls?	Using Virtual Field Trips to Gather Inquiry-Based Evidence	
Room 160 America's Center				Engaging Students with Chemistry Games: Covalent Bonding *Sponsor: PlayMada Games*
Room 161 America's Center		How to Start a Collaboration Between High School and Middle School Science Students ---------- Crosscutting Concepts with Cross-Curricular Units	Teaching the Whole Child Through Science ---------- Taking Action: Using Design Thinking to Promote Change	
Room 162 America's Center	Using Standards-Based Grading Principles with a Percentage-Based Grade System		Changing the Future of Science Teaching for Preservice Elementary Teachers… ---------- Innovation: Implementation of an Elementary STEM Teacher Preparation Program	
Room 220 America's Center		Raising the Bar: Developing Effective Three-Dimensional Lessons (3-D strand)	Case Studies: Compelling and Engaging 3-D Instructional Tools (3-D strand)	
Room 221 America's Center		Do It, Talk It, Write It: Incorporating Literacy and Digital Media to Promote Meaning Making for Young Learners (CONNECTIONS strand)		
Room 222 America's Center		STEP UP 4 Women: Bringing the Representation of Women in Physics to 50% with High School Interventions (EQUITY strand)		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Room 223 America's Center		NASA's Educator Tool Kit: Framing Phenomena-Based Student Investigations	Daytime Astronomy: Elementary Celestial Navigation	
Room 224 America's Center		ASTC-Sponsored Session: The Brain and Learning—Motivation, Attention, and Connections to Three-Dimensional Learning	ASTC-Sponsored Session: Navigate the Galactic Zoo of Citizen Science Projects	
Room 226 America's Center		NGSS Session: Science for All Americans—30 Years of Influencing Science Education	NGSS Session: Passing the Sniff Test: What Are Publishers Really Telling You in Their Alignment Claims?	
Room 227 America's Center		Yes, You Can! Tips and Tricks for Presenting at an NSTA Conference	Finding Productive Phenomena: Using an Interdisciplinary Tool for Designing NGSS-Focused Curriculum Materials	
Room 228 America's Center		Solar-ize Your Classroom	Assessing and Exploring the Phenomena of Earthquakes: Including the New Madrid Seismic Zone	
Room 229 America's Center		Whose Fault Is It? An Earthquake Locating Game	Cougars and Bears and Wolves, Oh Elk! Natural Ecological Patterns in Yellowstone National Park	
Room 230 America's Center	Big Data in the Classroom: Teaching About Earth and Space with Authentic Data for Elementary Grades *(Sponsor: PBS LearningMedia/WGBH)*			Building Simple Electric Motors to Learn Engineering Design *Sponsor: AquaPhoenix Scientific*
Room 231 America's Center				Crash into STEM with IIHS-HLDI in the Classroom *Sponsor: Insurance Institute for Highway Safety*

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Room 232 America's Center	Conductive Tape and You: Creating Paper-Based Circuitry Projects *Sponsor: Nasco*			Your Classroom in Motion: A STEAM App Series *Sponsor: NBCUniversal*
Room 240 America's Center		Evaluating Space Science Resources for Igniting Student Investigations for *NGSS*	Weather and Climate: Use a Free Web-Based Graphing Tool to Analyze and Interpret Local and National Climate Data	
Room 241 America's Center		NASA Astrobiology: The Search for Life Beyond Earth	NASA Citizen Science: How Your Students Can Help	
Room 242 America's Center		Freshwater Stewardship: Equip Your Student-Scientists with Cutting-Edge Resources from NOAA	Teaching Human Impact with a Sustainable City Simulation	
Room 260 America's Center	Gateway to Grants *Sponsor: Ward's Science*			Career-Connected Classroom® Forensic Facial Reconstruction *Sponsor: Ward's Science*
Room 261 America's Center				Purple Plow: Agricultural STEM Challenges for Your Classroom! *Sponsor: American Farm Bureau Foundation for Agriculture*
Room 262 America's Center	Building the Human Connection with National Geographic Learning *Sponsor: National Geographic Learning | Cengage*			Teaching with Virtual Specimens: Venture into the VR/AR Science Class *Sponsor: Animalearn*
Room 263 America's Center		Spectroscopy of Wine: STEM in a Glass *Sponsor: PASCO*	Investigating Beer's Law: A Student Discovery Approach *Sponsor: PASCO*	

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Room 264 America's Center		Enlighten Your Optics: Lessons in Light and Color *Sponsor: PASCO*	New Techniques in AP Physics 1 Labs *(Sponsor: PASCO)*	
Room 265 America's Center				Three-Dimensional Learning Through Three-Dimensional Modeling *Sponsor: Pandia Press*
Room 267 America's Center				How Diseases Spread: Using Science and History with High School Students *Sponsor: Vaccine Education Center at Children's Hospital of Philadelphia*
Room 276 America's Center		NSTA Press® Session: The Power of Assessing—Guiding Powerful Practices	NSTA Press® Session: What Is the Difference Between Weather and Climate?	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	3:30–4:30 PM	4:00–5:30 PM	5:00–6:00 PM	6:00–8:30 PM
Room 100 America's Center			**Brain Wise Saves Lives: Smart Brain**	
Room 101 America's Center		**How to Get PCR and Electrophoresis Results Fast** *Sponsor: Bio-Rad Laboratories*		
Room 102 America's Center		**Are Increased Incidences of Infection the Result of Climate Change?** *Sponsor: Bio-Rad Laboratories*		
Room 103 America's Center	**Bringing the 5 Innovations of the *NGSS* into Your Classroom** *Sponsor: Pearson*			
Room 104 America's Center		**Teaching Artificial Intelligence in K–12 Using an Approach Combining Narrative and Interactive Software** *Sponsor: Tumblehome Learning, Inc.*		
Room 106 America's Center		**Are You Moody?** *Sponsor: Texas Instruments*		
Ferrara Theatre America's Center				**HHMI Movie Night Presents *INVENTING TOMORROW*** *Free; tickets required*
Room 120 America's Center		**Structures and Functions: What Is the *NGSS* Learning Progression?** *Sponsor: Carolina Biological Supply Co.*		

Earth and Space Science | **Engineering & Tech** | **Life Science** | **Physical Science** | **Informal Science Ed** | **General Science Ed**

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	3:30–4:30 PM	4:00–5:30 PM
Room 121 America's Center		Common Chemistry Experiments Using the Latest Technology *Sponsor: Vernier Software & Technology*
Room 122 America's Center		Robots, Coding, and Science: A Complete STEM Experience *Sponsor: Vernier Software & Technology*
Room 123 America's Center		Phenomenal Classroom Critters *Sponsor: Carolina Biological Supply Co.*
Room 124 America's Center		Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs *Sponsor: Carolina Biological Supply Co.*
Room 125 America's Center	Cancer Investigators: Medical Diagnostics in Your Classroom *Sponsor: Edvotek Inc.*	
Room 126 America's Center		Get Your Students Excited About a Career in STEM *Sponsor: LEGO Education*
Room 127 America's Center		*NGSS*—Weather and Climate: Atmosphere, Climate, and Global Warming *Sponsor: Lab-Aids, Inc.*
Room 130 America's Center		The Story of Ecological Regulation with HHMI BioInteractive *Sponsor: HHMI BioInteractive*

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	3:30–4:30 PM	4:00–5:30 PM	5:00–6:00 PM
Room 131 America's Center		Streamlining Dissection Labs in the Classroom *Sponsor: Flinn Scientific, Inc.*	
Room 141 America's Center		A STEM Approach to Engineering Design: Wind Turbines and Electric Motors *Sponsor: CPO Science/ School Specialty Science*	
Room 145 America's Center	The 3-D Teacher Mind-Set: Using the Science and Engineering Practices and Crosscutting Concepts to Guide Your Thinking as a Teacher		Is It Engineering or Not?
Room 150 America's Center	Discover Island Biogeography Through Modeling and Data Analysis		Using Authentic Video Resources to Enhance the Implementation of the *NGSS*
Room 151 America's Center	Using Technology to Increase Access to a Statewide Professional Learning Community ---------- Creating a Technology-Based, Student-Centered Classroom		
Room 152 America's Center	Reading and Writing and Science Really DO Go Together!		Using Cognate Words in a Bilingual Science Classroom
Room 161 America's Center	Go Beyond 3-D with the Natures of STEM ---------- Arguing Science: Use Historical Scientific Controversies to Jazz Up Your Science Classroom!		Equitable Group Work: Designing True Group Tasks
Room 162 America's Center	Using Choice to Increase Student Outcomes ---------- Non-Visual Differentiation in the Science Classroom		Engaging Members in the Local NSTA State Affiliate Organization

LOCATION	3:30–4:30 PM	5:00–6:00 PM	5:30–6:00 PM
Room 220 America's Center	Using Energy, Engineering, and Explanations in Elementary ML-PBL Science Classrooms (3-D strand)		Implementing Three-Dimensional Assessment Practices in High School Science (3-D strand)
Room 221 America's Center	Not Enough Time? Fill Your Day with Nature! (CONNECTIONS strand)	Serving Up Science Through Independent Learning Menus (CONNECTIONS strand)	
Room 222 America's Center	Meaningful Notebooking! (EQUITY strand)	Two Growth Mind-Set Activities to Help Motivate and Teach All Students Nature of Science (EQUITY strand)	
Room 223 America's Center	NOS Naturally (PHENOMENA strand)	Harry Potter and the Science of Invisibility (PHENOMENA strand)	
Room 224 America's Center	ASTC-Sponsored Session: Citizen Science Investigations—Data-Rich Learning at Your Doorstep	ASTC-Sponsored Session: Nature in Your Schoolyard and Beyond!	
Room 225 America's Center	Community Connections: Early Childhood Learning	Teaching Environmental Sustain-ability Using a Free Place-Based Watershed Model	
Room 226 America's Center	NGSS Session: Instructional Materials Review of Full-Year *NGSS* Instructional Materials by *EdReports.org*	OpenSciEd: An Open Educational Middle School Science Curriculum Designed for *NGSS*	
Room 227 America's Center	STEM Infographic Use, Analysis, and Production for Higher Scientific Literacy in the Classroom	Activate Your Body and Mind in an Energy Theater STEM Experience	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	3:30–4:30 PM	4:00–5:30 PM	5:00–6:00 PM
Room 228 America's Center	Integrating the Missouri River into Your Classroom		Why Are Dogs Getting Sick and What Can We Do About It? Exploring Global Changes and Local Impacts Through a Phenomena-Based Case Study
Room 229 America's Center	Climate Change, Making Connections to Kids		NSTA Press® Session: Instructional Sequence Matters—Structuring Lessons with the *NGSS* in Mind
Room 230 America's Center		A Microscopic to Molecular Perspective in Modeling Chromosomes *Sponsor: MSOE Center for BioMolecular Modeling*	
Room 231 America's Center		Make Time for Science with Project-Based Learning *Sponsor: Van Andel Education Institute*	
Room 240 America's Center	The Great Model Mash-Up: Earth Science		Using Real-World Data to Understand Earth's Moving Surface
Room 241 America's Center	\		Using NASA Education Materials to Achieve Scientific Literacy
Room 242 America's Center	Bring NASA's Seismic Data from Mars to Your Classroom!		From Science Ambassadors to 3-D Science in the Schoolyard: A Georgia Model for Professional Learning
Room 260 America's Center		Be Amazed by Ward's Phenomena Kits *Sponsor: Ward's Science*	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	3:30–4:30 PM	4:00–5:30 PM	5:00–6:00 PM
Room 261 America's Center		**Different: Using Insects to Talk About Social Issues** *Sponsor: Celestron*	
Room 262 America's Center		**Linking Literature and STEM in the Primary Classroom** *Sponsor: SAE International*	
Room 263 America's Center	**Stoichiometry: Tools and Strategies that Make It Easier to Teach** *Sponsor: PASCO*		
Room 264 America's Center	**Understanding Photosynthesis and Respiration: A Lab-Based Approach** *Sponsor: PASCO*		
Room 265 America's Center		**Welcome to Conceptual Academy** *Sponsor: Conceptual Academy*	
Room 267 America's Center		**May the Force Be with You** *Sponsor: Arbor Scientific*	
Room 274 America's Center	**Featured Presentation Equity: The Power of Understanding the Impacts of Equity and Science Instruction** Speakers: Joseph Davis and Tiffany Besse (EQUITY strand)		
Room 276 America's Center	**NSTA Press® Session: Picture-Perfect STEM Lessons: Using Children's Books to Inspire STEM Learning, K–5**		**NSTA Press® Session: Integrate Engineering into the Science Classroom Using Case Studies**

Elementary Extravaganza

Friday, April 12, 2019

8:00–10:00 AM • Hall 2, America's Center

JOIN THE FUN

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

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

Sponsored by:

CAROLINA www.carolina.com

Learning A-Z

PhD SCIENCE

PITSCO EDUCATION

NSTA National Science Teachers Association

Linking Literacy

FRIDAY AND SATURDAY, APRIL 12–13, 2019

ST. LOUIS NATIONAL CONFERENCE ON SCIENCE EDUCATION

Join science teachers from across the globe for a special event focusing on science and children's literature! All are invited; however the event is especially geared for elementary teachers looking for strategies to increase science instruction while meeting ELA standards as well.

Highlights of the event will be:

- Hearing directly from great authors of trade books as they celebrate their work, discuss their books and suggest how to use them in your classroom.
- Engaging in small group "Conversations with Authors" about how their books can help bring forth equity, promote three-dimensional science, and offer phenomena to engage readers, and make cross-curricular connections.

COME JOIN US FOR A CONFERENCE FEATURE THAT IS SURE TO BE A HIT AS WE LINK LITERACY WITH SCIENCE.

Friday, April 12, 2019:

1:00-2:30pm	Panel Discussion and Reception
2:45-3:15pm	Sessions
3:30-4:00pm	Sessions

Saturday, April 13, 2019:

10:00-11:00am	Author Book Signing, Meet & Greet

Refer to Conference App for Room Locations

SPONSORED BY: Amplify Science

75th NSTA ANNIVERSARY

Thursday At-A-Glance

Complete Session Details on App

LOCATION	7:30–10:00 AM	8:00–9:00 AM	8:00 AM–5:00 PM	12:30–1:30 PM
Regency B Hyatt			**Designing Three-Dimensional Lessons and Units Workshop** *(By Separate Registration)*	
Regency D Hyatt		**Engage Students in Designing Experiments So Hands-On Science Doesn't Spiral Out of Control**		**Science Crush: Experiencing the Science World Through Student Travel Experiences**
Regency E Hyatt		**Developing 3-D Instruction and Assessment Practices Using Scaffolds for Text and Task Analysis**		**Using Memes, Puns, Jokes, and Comics in the Science Classroom Version 2.0** ---------- **Free Range Teaching: Individualized Pacing for the Flipped Classroom**
Regency F Hyatt		**Beyond F=ma**		**Explore Newton's Laws of Motion**
Park View Hyatt	**NSELA Membership Breakfast and Annual Meeting** ***By Invitation Only***			**Using Mitotic Division to Introduce Statistical Hypothesis Testing in AP and IB Biology**
Sterling Studio 1 Hyatt		**Science Anxiety, Motivation, and Attitude** ---------- **Using Podcasts to Explore Forensic Science, Race, and Social Justice**		**Planning for Success Through Actionable Steps** ---------- **Using Open Education Resources (OER) to Support Science Teaching**
Sterling Studio 3 Hyatt		**Divergent Thinking Through Forces and Motion** ---------- **Physics Is Not the Boys' Playground**		**SCST-Sponsored Session: Teaching the Earth…** ---------- **SCST-Sponsored Session: Teaching Science Labs Online…**
Sterling Studio 6 Hyatt		**Developing Inclusive, 3-D Science Communities in High School Chemistry Classrooms**		**Using a Student's Passion in a STEM-Related Field to Encourage Participation in Science Fairs, Leading Them Toward a Future STEM-Related Career**

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:30–9:30 AM	9:30–11:00 AM	11:00 AM–12 Noon
Sterling Studio 9 Hyatt	Cultivating the Whole Plant, Not Just the STEM			
Grand Ballroom A Hyatt	Wheat Takes a Walk on the Wild Side			
Grand Ballroom B Hyatt				
Grand Ballroom C Hyatt	Chewing on Change: Exploring 55 Million Years of Horse Evolution in Response to a Changing Climate			
Grand Ballroom D Hyatt		Teacher Researcher Day Session: Poster Session for Teachers and Teacher Educators: Inquiring into Science Learning and Teaching	Teacher Researcher Day Session: Data, Data Everywhere	
Grand Ballroom D/ Group 1 Hyatt				Teacher Researcher Day Session: What Would Happen If…? Implementing and Integrating the Question Formulation Technique into the Chemistry Classroom
Grand Ballroom D/ Group 2 Hyatt				Teacher Researcher Day Session: Using LessonSketch to Promote Conceptual Understanding Through Student-to-Student Discourse
Grand Ballroom D/ Group 3 Hyatt				Teacher Researcher Day Session: Empowering Teacher Voices Through Reflective Practice

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:00–10:00 AM	11:00 AM–12 Noon
Grand Ballroom D/ Group 4 Hyatt			Teacher Researcher Day Session: Putting Evidence First
Grand Ballroom F Hyatt		CSSS-Sponsored Session: Grand Slam 3-D Assessment—Researchers, Developers, and Practitioners to Build Capacity, Develop Items, and Implement Strategically	
Grand Ballroom G Hyatt	NSELA-Sponsored Session: Fostering Meaningful Professional Learning Communities Meetings		
Grand Ballroom H Hyatt	NARST-Sponsored Session: Reducing Misconceptions in Genetics Using Learning Technologies		
Mills Studio 1 Hyatt	Secondary Student Research Projects: Free Support from Planning to Publication		
Mills Studio 4 Hyatt	ASTE-Sponsored Session: Debunking Classroom Myths—Learning Styles Edition		
Mills Studio 6 Hyatt	Get Out There and Grow Something! Creating a School Gardening Program		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM	5:00–6:00 PM
Regency D Hyatt	Science Crush: Experiencing the Science World Through Student Travel Experiences	Phenomena and Hands-On Activities: Making Science "Real"	Sweating Alcohol in 3-D!	Three Key Ingredients to 3-D Assessments
Regency E Hyatt	Using Memes, Puns, Jokes, and Comics in the Science Classroom Version 2.0 ---------- Free Range Teaching: Individualized Pacing for the Flipped Classroom	If the Power Plant Is Right There, How Come Our Neighborhood Always Has Blackouts? Bringing Together Science and Social Justice	Learning and Applying Renewable Energy Through a Hands-On PBL Experience	Dumpster Dive with STEM
Regency F Hyatt	Explore Newton's Laws of Motion	*NGSS* Physical Science Fun and Inquiry Across the Grade Bands	Analyzing Lab Results Using Student-Led Discussion	It's Sedimentary, My Dear Watson!
Park View Hyatt	Using Mitotic Division to Introduce Statistical Hypothesis Testing in AP and IB Biology	Using Socio-Scientific Phenomena to Teach Enzyme and Biochemistry Concepts	Macromolecule Melee: A Fun Kinesthetic Model of Protein Synthesis	Materials Science and Engineering
Sterling Studio 1 Hyatt	Planning for Success Through Actionable Steps ---------- Using Open Education Resources (OER) to Support Science Teaching		Developing Curriculum for the *NGSS*	Modeling Nitrate Uptake by Building Bioreactors
Sterling Studio 3 Hyatt	SCST-Sponsored Session: Teaching the Earth… ---------- SCST-Sponsored Session: Teaching Science Labs Online…	SCST-Sponsored Session: Best Practices for Classrooms and Universities for Working with Individuals on the Autism Spectrum ---------- SCST-Sponsored Session: Is Vitamin D Deficiency Contributing to the Autism Epidemic? An Application of Science	SCST-Sponsored Session: Growing Quantitative Literacy in Science Courses ---------- SCST-Sponsored Session: A River Ran Through It…How to Survive a Natural Disaster and Save the Semester (Part II)—The Aftermath	Leveraging Cultural Capital with the Art and Science of Keeping a Journal ---------- Improving English Language Learner Use of Academic Discourse in the Science Classroom
Sterling Studio 6 Hyatt	Using a Student's Passion in a STEM-Related Field to Encourage Participation in Science Fairs, Leading Them Toward a Future STEM-Related Career	Peer Assessment: An Exciting Tool for Engaging Students with the Three Dimensions of the *NGSS*		Forensics 101: From the Ground Up
Sterling Studio 9 Hyatt	Planning and Designing Safe and Sustainable Science Facilities that Meet the *NGSS* (Science Facilities 101)	Planning and Designing Safe and Sustainable Science Facilities That Meet the *NGSS* (Science Facilities 102)	Spark Students' Curiosity with Chemistry!	Will Quantum Computers Change the World? Qubits, Cryptography, and the Classroom

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Thursday At-A-Glance

Complete Session Details on App

LOCATION	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM	5:00–6:00 PM
Grand Ballroom A Hyatt	De-Extinction—Blending Scientific Discovery and Moral Implications of Genetic Engineering ---------- Celebrating Genetic Diversity: A Genetics Bill of Rights	Unpacking Race in a Biology Classroom	Evolution Educators	3D Printing: Bringing Models into the STEM Classroom
Grand Ballroom B Hyatt	Using Citizen Science to Teach Biodiversity, Data Analyses, and Reflection	Figuring Out What Science Means to Me		
Grand Ballroom C Hyatt	Harmony of Nutrients and Water Sources		Electricity Made Simple	Fact or Phony? Successful Strategies to Promote Media Literacy
Grand Ballroom D/ Group 1 Hyatt	Teacher Researcher Day Session: Elementary Student Discourse: How to Drive Change in Classrooms	Teacher Researcher Day Session: Using Argumentation to Improve Scientific Literacy and Content Knowledge		
Grand Ballroom D/ Group 2 Hyatt	Teacher Researcher Day Session: Thinking Outside the Classroom: Maximizing the Potential of Outdoor Education	Teacher Researcher Day Session: Secondary Student Discourse: How to Drive Change In Classrooms		
Grand Ballroom D/ Group 3 Hyatt	Teacher Researcher Day Session: Introducing Preservice Teachers to the Three Dimensions of the *NGSS*	Teacher Researcher Day Session: Want Help Submitting a Proposal for Next Year? ---------- Teacher Researcher Day Session: STEM Integration into TESOL Institute		
Grand Ballroom D/ Group 4 Hyatt		Teacher Researcher Day Session: Getting on Message (2:30–3:00 PM)		
Grand Ballroom F Hyatt	ASTE-Sponsored Session: S.T.E.A.M.E.D. Up for Social Justice	CSSS-Sponsored Session: Choosing Compelling Phenomena to Anchor 3-D Units, Lessons, and Assessments	CSSS-Sponsored Session: Using Analogous Phenomena (3:30–5:30 PM)	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM	5:00–6:00 PM
Grand Ballroom G Hyatt	Connecting *NGSS* to Real-Life Experiences: Helping Elementary Students Recognize and Understand the Science and Natural Phenomena in Our Everyday World	NARST-Sponsored Session: Equity in Science Teacher Education—Toward an Expanded Definition		Not Your Mamma's Literacy: Engaging Students Through Graphics
Grand Ballroom H Hyatt	NARST-Sponsored Session: Getting Through the Modeling Cycle—Supporting Students in Sensemaking of Phenomena	NSELA-Sponsored Session: Use Hands-On Performance Assessment as an Effective Formative Assessment for 3-D Learning	NSELA-Sponsored Session: Promoting Safer STEM Through Collaboration and Cross-Curricular Connections	Wondering How to Get ALL Students Involved in STEM? Ways to Overcome Hurdles and Barriers for Underrepresented Students
Mills Studio 1 Hyatt	Nesting an Honors Course in a High School Science Class	Authentic Science Research in the Secondary School Classroom	Enabling Grades 3–8 Students to Recognize the Impact of STEM and the Essential Integration of All STEM Disciplines	Beyond the CER: Using the Jane Schaffer Paragraph to Support Struggling Writers in Science
Mills Studio 2 Hyatt			APAST Board of Directors Meeting *By Invitation Only* (4:00–6:00 PM)	
Mills Studio 3 Hyatt	Interactive Notebooks for Science: Best Tool in My Tool Box ---------- oVert: Using Digital 3-D Models of Museum Collections to Explore Vertebrate Diversity	The NSTA Learning Center: A Tool to Develop Preservice Teachers	ASTE-Sponsored Session: A Professional Learning Community of High School and College Instructors Focused on Biology Concepts, Science Practices, and Student Thinking (3:30–4:00 PM)	Partnering with NSTA to Personalize Professional Learning for Your School or District
Mills Studio 4 Hyatt	Pursuing STEM Equity Among Minority Populations Through Parent and Student Efficacy	ASTE-Sponsored Session: STEM Week to Develop Schoolwide Capacities for Excellence with Diverse Populations	Teach Engineering Practices on the Cheap with Concrete	Tesla Tales
Mills Studio 6 Hyatt	Dragon Genetics and Other Powerful, Free Simulations for Biology Teaching	The Impact of Informal STEM-Based Project-Based Learning Program on Underserved Populations ---------- Increasing Engagement and Access for Diverse Learners	A Demo a Week Makes Science Class Peak	Introducing Project-Based Learning into the Classroom

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Westmore-land/ Kingsbury Marriott	Cultivating a Culture of Science: The First 20 Days of Inquiry	Winning the Triple Crown of Journaling: Math, ELA, and Science	Exploring Conceptual Teaching and Learning in Elementary Science	
Landmark 1 Marriott		CESI-Sponsored Session: Girl Power! Historical Nonfiction Tradebooks to Encourage Girls in Science and Engineering	CESI-Sponsored Session: Coding Centers—Reinforcing Science Content with Creative Coding Activities	From Harmony to Humpbacks—Music as Motivation and Science
Landmark 2 Marriott	Using the Making It CLEAR Process ---------- How Will Our Friends Get to the Outdoor Classroom? Primary Engineers Tackle Real-World Problems	Science Learning at Your Window!	Connecting Literacy and Science Through an Elementary Biomimicry Lesson	Engage Your K–2 Students in Phenomena-Based, 3-D Learning Through Interactive E-Books and Hands-On Activities
Landmark 3 Marriott	Yikes! You Want Me to Teach Engineering?	*NGSS* Engineering Unit for Primary Students: Design a Snow-Gear Outfit for Midwest Winters	It's All in the Family	"It's Just Too Hard to Explain!" Making Sense of Phenomena by Developing and Using Models in the Elementary Classroom
Landmark 4 Marriott	Hiding in Plain Sight: Using Books to Support the 5E Lesson Plan Model	Using Storybooks to Support Space Science Learning for Young Children	Methods of STEM Education for Elementary Classrooms	City on the Delta: Engaging Students in Science Learning with River Investigations and Flood Protection Engineering Projects
Landmark 5 Marriott			*La Ciencia del Folklore:* Connecting Latino Legends to Elementary Science	STEM-Related Activities for K–8 Science
Landmark 6 Marriott	Using Hands-On Performance Assessment in Middle Grades: An Effective Formative Assessment Strategy for 3-D Learning		Animal Corridors: Empowering Students Through Engineering and Environmental Challenges	
Landmark 7 Marriott	Learning Science from K-Gray (8:00–8:30 AM)			

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Majestic A Marriott	Amplify Family Science Literacy	STEM for REAL!	GAPS in Nature: Using Engineering Processes to Transform Learners	Fairies, Shretelech, and Cross-Curricular Connections
Majestic B Marriott	Interlacing Excitement for Science with Nonfiction Reading and Writing	Sounds Like Fun	Developing Inquiry-Based Lessons with Authentic Integration of Science and Math	Launch into Engineering with Catapults
Majestic C Marriott	ClassFix: "Try On" Something New with Your Science Lesson with Game-ification (8:30–9:00 AM)	Teaching Inquiry-Based Science: A Functional Partnership of Phenomena, Active Learners, Teacher, and Development of Science Ideas		Science as a Whole-School Priority: Teacher Leader Case Studies
Majestic D Marriott	Is This Your First NSTA Conference? First-Timer Conference Attendees' Orientation			
Majestic D/E Marriott		NSTA Committee and Advisory Board Meetings (12:30–2:30 PM) *See page 36 for a complete list.*		NSTA Committee and Advisory Board Meetings (3:00–4:30 PM) *See page 36 for a complete list.*
Majestic F Marriott	How to Assess Science Conceptual Understanding When Using the Problem-Based Learning Strategy in the Middle Grades (8:30–9:00 AM)	How Do I Teach Writing in My Science Class? Integrating *NGSS* and *CCSS* in Middle School	Implementing Phenomena into a Three-Dimensional Lesson	Middle School Science Fair: Tips and Tricks
Majestic G Marriott	Developing Science Practices: Constructing Explanations and Engaging In Argumentation			National Geographic's Geo-Inquiry Process in Action!
Majestic H Marriott	STEMifying Storybooks: A Planning Guide Using Storybooks to Integrate Science and Engineering in Elementary Classrooms	Forensics Fun with Bones and Algebra	Abstract Concepts for the Concrete Mind: Lessons to Engage Middle Level Learners in the Science and Engineering Practices	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Thursday At-A-Glance

Complete Session Details on App

LOCATION	8:00–9:00 AM	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Pershing Marriott			AMSE Board of Directors Meeting By Invitation Only (2:30–5:30 PM)	
Statler Marriott	Magnetics	Amp Up Your Instructional Day with Robots	Elementary Data Analysis: Looking at Data with "I Squared"	
Portland/ Benton Marriott	An *NGSS*-Focused Engineering Unit for the Primary Grades: Design a Barn That Will Withstand Severe Weather	CSI Mammoth: Using Social Studies to Teach Science Investigations		
Parkview/ Aubert Marriott	Successfully Implementing STEM in the Reluctant Elementary Classroom ---------- Science Activities to Develop Deeper Conceptual Understanding	3-Defining the *Next Generation Science Standards*	Start STEM Young: Fostering Success for All K–2 Scientists	Help! I Only Have 50 Minutes to Teach Science: Teaching Students to Read and Write Like a Scientist
Shaw Boardroom Marriott	Science Safety Advisory Board Meeting (8:30–11:00 AM)			
Lafayette Boardroom Marriott	NSTA/CAEP Program Report Auditors Meeting *(By Invitation Only)* (9:00 AM–12 Noon)	Nominations Committee Meeting (12:30–2:30 PM)		Awards and Recognitions Committee Meeting (3:00–4:30 PM)
Hawthorne/ Lucas/Flora Marriott				NSTA Young Professional and New Teacher Reception (By Invitation Only) (3:00–4:00 PM
Gateway B Marriott	AMSE-Sponsored Session: Science Is Everywhere! Using an *NGSS*-Focused Questioning Framework to Identify Science Concepts Within Fictional Texts	AMSE-Sponsored Session: Supporting Early STEM Inquiry Through Learning Partnerships		Inside the Environmental Education Classroom: Linking Formal and Informal Resources

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	5:00–6:00 PM	6:30–8:00 PM	7:15–9:15 PM
Westmore-land/ Kingsbury Marriott			#NGSSchat Live Social
Lindell Marriott	NMLSTA Board of Directors Meeting *(By Invitation Only)* (5:00–6:30 PM)		
Landmark 1 Marriott	Student Field Investigations with Plants		
Landmark 2 Marriott	Preparing Preservice Teachers to Teach About Climate Change in Elementary Schools --- Using Local Storylines and Large Climate Data Sets to Teach Variability and Trends		
Landmark 3 Marriott	Creating Casseroles Out of Courses		
Landmark 4 Marriott	Growing Imagination and Fostering Creativity in STEM		
Landmark 5 Marriott	STEM–Literacy Integration: Paper and Digital Interactive Notebooks in Grades 3–8		
Landmark 6/7 Marriott		Science Teachers of Missouri (STOM) Reception and Awards	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	5:00–6:00 PM
Majestic A Marriott	Let the Light Shine Through: Using a Multidisciplinary Approach
Majestic B Marriott	Supporting Instruction in the Critiquing Science Practices: Arguing from Evidence and Evaluating Information
Majestic C Marriott	Supporting Evidence-Based Claims: A Quest for Strategies to Support Our Learners
Majestic F Marriott	Student Tools for Argumentation and Explanations
Majestic G Marriott	Getting Dirty with Statistics: Integrating Scientific and Statistical Investigations Using Soil pH ---------- Using Original-Source Data in Teaching Science Topics
Parkview/ Aubert Marriott	Interactive Science eBooks: Explaining Garden-Based Scientific Phenomena ---------- Safety for the Elementary Science Teacher
Laclede Boardroom Marriott	CESI Annual Board Meeting (By Invitation Only) (4:00–6:00 PM)
Gateway B Marriott	Alignment of Existing NASA STEM Lessons with Culturally Responsive Teaching (CET) Philosophies and Methods

LOCATION	3:00–6:00 PM
Laurel Salon A Embassy Suites	Ramps and Pathways: Integrative STEM and Literacy Experiences That Occur Daily Within the Literacy Block (SC-1) By Ticket Only; $46
Laurel Salon B Embassy Suites	Ocean Plastic Pollution: Issues and Solutions (SC-2) By Ticket Only; $39
Mercantile Embassy Suites	Turning Cookie Cutter Labs into Cutting-Edge Inquiry Experiments (SC-3) By Ticket Only; $23

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

PRE-K | K | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | COLLEGE

Meet Me in the Middle

Friday, April 12, 2019 | 10:15 AM - 4:30 PM

Marriott St. Louis Grand | Majestic Rooms: A/B, C, D/E, F/G, H

NSTA

Must be registered for the conference to attend

NMLSTA

Join us for a special **"Meet Me in the Middle Day,"** designed just for middle school educators, at **NSTA's 2019 National Conference in St. Louis!**

The day's events include fifteen workshops/presentations, two Roundtable Conversation networking sessions featuring a variety of topics, and an afternoon Share-a-thon with up to 100 presenters sharing their ideas.
All specifically designed for middle level educators.
You'll walk away with ideas you can use in your classroom next week!

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

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

#NSTA19

www.nsta.org/stlouis

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COMMUNITY CONNECTIONS SHARE-A-THON

WHEN?

Saturday, April 13th 12:30–2:30pm

WHERE?

National Conference on Science Education – St. Louis, MO
Hall 1, America's Center Convention Complex

Come **engage** with organizations that bring you exciting resources, programs, and opportunities available to you from museums, after-school, media, and other informal science education providers!

- **Interactive**, hands-on activities
- **Explore** new and engaging ways to connect with your students
- **Learn** about **FREE** programs and resources

—Photo courtesy of Gordon Radford/©St. Louis Convention & Visitors Commission

Opened to the public in 2012, the $18 million Sea Lion Sound exhibit at the Saint Louis Zoo allows visitors to walk through a 35-foot underwater tunnel into the sea lions' habitat to see the animals swimming all around them.

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:00 AM–5:00 PM	9:30–10:30 AM
NSTA Exhibits (Halls 3–5) America's Center			**NSTA Exhibits!**	
Room 100 America's Center	**Failure Is NOT an Option 2019 Version—It's Required (Growth Mind-Set + STEM)**			**Science Fair of Optimization**
Room 101 America's Center		**The Opioid Epidemic: Exploring the Genetic Associations of Opioid Abuse** *Sponsor: Bio-Rad Laboratories*		
Room 102 America's Center		**Conserving Panda Populations: Understanding Their Reproductive Endocrinology** *Sponsor: Bio-Rad Laboratories*		
Room 103 America's Center	**From 23andMe to Gene Therapy: Molecular Genetics Revolution** *Sponsor: Pearson*			**Elevate Teaching–Elevate Thinking–Elevate Learning** *Sponsor: Pearson*
Room 104 America's Center		**Earth Science for the Modern, Interactive Classroom** *Sponsor: Simulation Curriculum Corp.*		
Room 105 America's Center		**The Science of a GMO** *Sponsor: Bayer Corp.*		
Room 106 America's Center		**Using Maggots, Flies, and Flesh to Solve a Mystery!** *Sponsor: Texas Instruments*		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–11:00 AM	10:00–11:30 AM
Room 120 America's Center		**Structures and Functions: What Is the NGSS Learning Progression?** *Sponsor: Carolina Biological Supply Co.*		
Room 121 America's Center		**Gas Laws in a Jiffy** *Sponsor: Vernier Software & Technology*		
Room 122 America's Center		**Integrating Data-Logging STEM Tools into the Elementary Classroom** *Sponsor: Vernier Software & Technology*		
Room 123 America's Center		**Strawberry Milkshakes: DNA and Lactose Intolerance** *Sponsor: Carolina Biological Supply Co.*		
Room 124 America's Center		**Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens** *Sponsor: Carolina Biological Supply Co.*		
Room 125 America's Center	**Lab in a Box: A Free Biotechnology Loaner Program from Genes in Space** *Sponsor: miniPCR*		**P51 Glow Labs: Investigate DNA Structure and Enzyme Activity** *Sponsor: miniPCR*	
Room 126 America's Center		**Bring Science, Computational Thinking, and Engineering to Life** *Sponsor: LEGO Education*		
Room 127 America's Center		**Cell Differentiation and Gene Expression** *Sponsor: Lab-Aids, Inc.*		

LOCATION	8:00–9:00 AM	8:00–9:30 AM	8:00–10:00 AM	9:30–10:30 AM
Room 130 America's Center		From the Top Down: Exploring Trophic Cascades Around the World *Sponsor: HHMI BioInteractive*		
Room 131 America's Center		Fantastic Physical Science Phenomena from Flinn Scientific *Sponsor: Flinn Scientific, Inc.*		
Room 140 America's Center		Shark Week: Analyzing and Interpreting Shark Data *Sponsor: Houghton Mifflin Harcourt*		
Room 141 America's Center		Ten Minutes to Improving Science Achievement *Sponsor: Delta Education/ School Specialty Science–FOSS*		
Room 142 America's Center	Always Time for Science in Early Grades *Sponsor: STEMscopes*			Demystifying 3-D, the *NGSS*, and STEM Literacy Using the Phenomenon of Light *Sponsor: STEMscopes*
Room 143 America's Center				Hands-On with Google's Science Journal App *Sponsor: Google LLC*
Room 144 America's Center		How Grades 6–12 Educators and Students Can Expertly Use CCCs *Sponsor: Amplify*		
Hall 2 America's Center			Elementary Extravaganza! (Hall 2)	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Friday At-A-Glance

Complete Session Details on App

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–10:30 AM	10:00–11:30 AM
Annex America's Center	NESTA and NOAA Session: NOAA's Every Full Moon Video Series and Data in the Classroom			
Room 145 America's Center	Warming Up to Modeling in Science and Engineering		Collaboration Is the KEY!	
Room 151 America's Center	Find the Fund$ for STEM: Grant Writing 101		Transformational Leadership: STEM Educators—A Catalyst for Change (10:00–10:30 AM)	
Room 152 America's Center	Growing as a Teacher: What Do I Want to Be When I Grow Up?		Co-Developing *NGSS*-Designed Units with Teacher Leaders as a Mechanism for Bridging Research and Practice	
Room 160 America's Center		Stream Ecology: Slimy Leaves for Healthy Streams *Sponsor: LaMotte Co.*		Engaging Students with Chemistry Games: Phase Change *Sponsor: PlayMada Games*
Room 161 America's Center	Spinning Your Science Digitally in 360°		3, 2, 1…Action! Making Abstract Concepts Concrete with Role Playing ---------- Show What You Know!	
Room 162 America's Center	Using Science and STEM to Help Students Learn How to Learn (8:00–8:30 AM)		Improving Instructional Strategies for Students with a Learning Disability	
Room 220 America's Center	Merging Three-Dimensional Assessments with Standards-Based Grading (3-D strand)		Formative Processes in the NGSS Classroom (3-D strand)	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Room 221 America's Center	The Flight of the Bumblebee: A New Multimodal STEM Text Set and Related Activities for Diverse Middle School Learners (CONNECTIONS strand)	Learn Physics, Not Equations (CONNECTIONS strand) (9:30–10:00 AM)	Providing Real-World Relevance to Students of All Abilities Using CDC Public Health Lessons (CONNECTIONS strand)	Place-Based Projects Making a Difference on Your School Campus (CONNECTIONS strand)
Room 222 America's Center	Equity, Leadership, and STEM (EQUITY strand)	Standards-Based Grading: Impact on Student Engagement in a Science Classroom (EQUITY strand)	STEM Teaching for Dummies: How to Build a STEM Kid Using Nothing but Who's Already in Your Class (EQUITY strand)	Inviting All Students into the *NGSS:* Fostering Equitable Learning Communities Through Culturally Relevant Science Teaching (EQUITY strand)
Room 223 America's Center	Do Your Students Really Understand Chemical Equilibrium? (PHENOMENA strand)	Students Collecting Data for the GLOBE Urban Heat Island Effect Campaign (PHENOMENA strand)	It's All About Connections: Antarctic Ice to Local Climate (PHENOMENA strand)	The Saint Louis Box Turtle Project: Using Local Species to Understand World Issues (PHENOMENA strand)
Room 225 America's Center			Where Does Our Clean Water Come From and Where Does It Go After We Make It Dirty? A Grade 5 *NGSS* Storyline (3-D strand)	Creating or Updating Makerspaces and STEM Labs with Safety in Mind!
Room 226 America's Center	NGSS@NSTA Forum Session: Five Tools and Processes for Translating the *NGSS* into Instruction and Classroom Assessment	NGSS@NSTA Forum Session: Science Curriculum Topic Study (CTS)	NGSS@NSTA Forum Session: Using the EQuIP Rubric to Improve Instruction	NGSS@NSTA Forum Session: STEM Teaching Tools: Free Resources to Support Equitable 3-D Science Instruction
Room 227 America's Center	Assessing Student Growth of *NGSS:* How Do You Know That Your Students Are Really Learning?	My Incredible Journey as a National Geographic Certified Educator: Lessons and Ideas	The City Nature Challenge and Encyclopedia of Life: A Free STEAM Gateway for Investigating Local Biodiversity and Contributing to Global Projects	"I Want to Help My Daughter in Science" Families and Science Aspirations
Room 228 America's Center	Buoyancy, Glaciers, and Mountains—Physical Science Concepts in the Earth Science Classroom	NASA Aeronautics: Return of the X-Planes!	NASA Space Technologies: Research and Development for the Next Generation of Settlers and Explorers	
Room 229 America's Center	Engaging Students: Using Crosscutting Concepts to Prompt Student Sensemaking of Phenomena (3-D strand)	Our Wet Footprint: Interdisciplinary Lessons on Human-Ocean Impacts	Climate Change and Oceanography: What Everyone Needs to Know!	Designing Climate-Resilient Schools for the Year 2100

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–10:30 AM	10:00–11:30 AM
Room 230 America's Center		**STEM Bins®: Engineering Through Play** *Sponsor: ETA hand2mind*		**Kick-Start Coding with Jack, the Robot Mouse** *Sponsor: ETA hand2mind*
Room 231 America's Center		**Taking Anatomy and Physiology to the Third Dimension** *Sponsor: ANATOMY IN CLAY® Learning System*		**Make Time for Science with Project-Based Learning** *Sponsor: Van Andel Education Institute*
Room 232 America's Center		**Your Classroom in Motion: A STEAM App Series** *Sponsor: NBCUniversal*		**Inspiring the Next Generation of Scientists with Molecular Models** *Sponsor: Molymod Models-Spiring Enterprises Ltd.*
Room 240 America's Center	**Exploring the Earth and Other Worlds Through Card Games**		**Modeling in Earth Science: How Do We Get from Cookies to CER?**	
Room 241 America's Center	**The NASA/IPAC Teacher Archive Research Program (NITARP): An Authentic Research Program for Teachers**			
Room 242 America's Center	**Earth Day 2020: Mobilizing the Future (8:00–8:30 AM)**		**Life in the Universe**	
Room 260 America's Center	**Active Physics: Project-Based Learning for Content and Creativity** *Sponsor: Activate Learning*		**EarthComm: A Project-Based Earth Science Curriculum that Uses an Authentic *NGSS* Approach** *Sponsor: Activate Learning*	
Room 261 America's Center		**Deeper Explorations of Physics** *Sponsor: Fisher Science Education*		**Advances in Digital Microscopy: Fostering Collaborative Learning for Students and Classrooms** *Sponsor: Fisher Science Education*

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Hall #3

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Wednesday, April 10	4:00 PM–7:00 PM
Thursday, April 11	7:30 AM–6:00 PM
Friday, April 12	7:30 AM–5:30 PM
Saturday, April 13	7:30 AM–3:00 PM
Sunday, April 14	8:00 AM–NOON

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Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–10:30 AM	10:00–11:30 AM
Room 262 America's Center		**Hands-On STEM in the Upper Elementary Classroom** *Sponsor: SAE International*		**Perimeter Institute: Classroom Activities for Dark Matter** *Sponsor: Perimeter Institute*
Room 263 America's Center	**Stoichiometry: Tools and Strategies That Make It Easier to Teach** *(Sponsor: PASCO)*		**AP Chemistry: Inquiry with Kinetics** *(Sponsor: PASCO)*	
Room 264 America's Center	**Subscripts and Coefficients Made Easy!** *(Sponsor: PASCO)*		**Speed and Velocity: Lessons with Motion Graphs** *(Sponsor: PASCO)*	
Room 265 America's Center		**Integrating Crosscutting Concepts into Your Classroom** *Sponsor: TCI*		**Beyond Building: Teaching Engineering Design** *Sponsor: TCI*
Room 266 America's Center	**Colorful World of Electrophoresis! Molecules in ACTION!** *Sponsor: MiniOne Systems*		**To Taste or Not to Taste! PTC Genotype Determination** *Sponsor: MiniOne Systems*	
Room 267 America's Center		**Blinded By the Light** *Sponsor: Arbor Scientific*		**New Tools in Electricity and Magnetism** *Sponsor: Arbor Scientific*
Room 274 America's Center			**Robert H. Carleton Lecture: Connecting the Dots…the Critical Role of Crosscutting Concepts Speaker: Cary Sneider**	
Room 276 America's Center	**NSTA Press® Session: Problem-Based Learning in the Science Classroom, K–12**		**NSTA Press® Session: Reading Nature—Engaging Biology Students with Evidence from the Living World**	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	10:00–11:30 AM	11:00 AM–12 Noon	12 Noon–1:30 PM	12:30–1:30 PM
Room 100 America's Center				**Five Places to Get Started with Three-Dimensional Learning**
Room 101 America's Center	**Yuck or Yum? Investigate Your Foods for Genetic Modification** *Sponsor: Bio-Rad Laboratories*			
Room 102 America's Center	**Investigate Photosynthesis and Cellular Respiration with Algae Beads for GenBio** *Sponsor: Bio-Rad Laboratories*			
Room 103 America's Center		**Making Sense of Phenomena: Examples from Natural Hazards** *Sponsor: Pearson*		**Science Denial: Why Is It Increasing? What Can We Do About It?** *Sponsor: Pearson*
Room 104 America's Center	**I Wish I Had These Models When Learning Molecular Biology** *Sponsor: Tumblehome Learning, Inc.*		**Student Performance of Content-Rich Literature** *Sponsor: Southern Science Supply*	
Room 105 America's Center	**BIOZONE's New Integrated *NGSS* Series for High School** *Sponsor: BIOZONE International Ltd.*			
Room 106 America's Center	**Zombie Apocalypse!** *Sponsor: Texas Instruments*		**Modeling Proteins, Enzymes, and How Water Drives Structure/Function** *Sponsor: 3D Molecular Designs*	
Room 120 America's Center	**How Can We Provide Fresh Water to Those in Need?** *Sponsor: Carolina Biological Supply Co.*		**Solve the Mystery of Beads in a Bottle** *Sponsor: Carolina Biological Supply Co.*	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	10:00–11:30 AM	11:30 AM–12 Noon	12 Noon–1:30 PM	12:30–1:30 PM
Room 121 America's Center	**Connect and Collect: Photosynthesis in Minutes** *Sponsor: Vernier Software & Technology*		**Challenging AP Chemistry Topics Made Easier** *Sponsor: Vernier Software & Technology*	
Room 122 America's Center	**Physics Experiments Using Guided Inquiry** *Sponsor: Vernier Software & Technology*		**One Cart, Dozens of Mechanics Experiments** *Sponsor: Vernier Software & Technology*	
Room 123 America's Center	**Hands-On Activities to Model Sampling, Habitat Degradation, and Animal Choice** *Sponsor: Carolina Biological Supply Co.*		**Keep Calm and Chemistry On: Successful Lab Activities for the New Chemistry Teacher** *Sponsor: Carolina Biological Supply Co.*	
Room 124 America's Center	**They Come in Pairs: Addressing Student Misconceptions About Chromosomes** *Sponsor: Carolina Biological Supply Co.*		**Carolina's Young Scientist™ Dissections with Carolina's Perfect Solution® Specimens** *Sponsor: Carolina Biological Supply Co.*	
Room 125 America's Center		**Are You a Night Owl? A Morning Lark? The Answer May Be in Your Genes…** *Sponsor: miniPCR* .		**Taking Mendel Molecular: Add Genotyping to Wisconsin Fast Plant® Labs!** *Sponsor: miniPCR*
Room 126 America's Center	**Ignite a Love for STEAM Learning in Your Classroom** *Sponsor: LEGO Education*			
Room 127 America's Center	**Photosynthesis and Respiration Shuffle** *Sponsor: Lab-Aids, Inc.*		**What Is a Species?** *Sponsor: Lab-Aids, Inc.*	
Room 130 America's Center	**Phenomenon-Anchored Lessons with HHMI BioInteractive Resources** *Sponsor: HHMI BioInteractive*		**CRISPR-Cas9: the Mechanism, Applications, and New HHMI BioInteractive Resources** *Sponsor: HHMI BioInteractive*	

LOCATION	10:00–11:30 AM	11:00 AM–12 Noon	12 Noon–1:30 PM	12:30–1:30 PM
Room 131 America's Center	**Engaging Demos and Labs for New Chemistry Teachers** *Sponsor: Flinn Scientific, Inc.*		**Awesome STEM Activities!** *Sponsor: Flinn Scientific, Inc.*	
Room 140 America's Center	**Awesome 3-D Activities for the *NGSS* Elementary Classroom** *Sponsor: Houghton Mifflin Harcourt*		**Student-Designed Investigations** *Sponsor: Houghton Mifflin Harcourt*	
Room 141 America's Center	**FOSS for All Students—Access and Equity** *Sponsor: Delta Education/School Specialty Science–FOSS*		**Wave Properties and Information Technologies** *Sponsor: Delta Education/School Specialty Science–FOSS*	
Room 142 America's Center		**STEM Ecosystems: How Quality Teachers Can Create Schoolwide Improvement in a Community** *Sponsor: STEMscopes*		**Using Argumentation to Discuss Phenomena: Increasing Student Voice in the STEM Classroom** *Sponsor: STEMscopes*
Room 143 America's Center		**Hands-On with Google's Science Journal App** *Sponsor: Google LLC*		**NESTA and NOAA Ocean, Climate, and Weather Share-a-Thon**
Room 144 America's Center	**Embedded and Immersive Engineering** *Sponsor: Amplify*		**Snails, Robots, and Biomimicry: Phenomena and 3-D Instruction for Grades K–5** *Sponsor: Amplify*	**Cultivators of Change: Every Student a Citizen Scientist**
Annex America's Center		**NESTA and NOAA Session: NOAA Planet Stewards—Content, Collaboration, and Action**		
Room 145 America's Center		**Teaching Scientific Reasoning in the *NGSS***		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Friday At-A-Glance

Complete Session Details on App

LOCATION	11:00 AM–12 Noon	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM
Room 151 America's Center	Classroom Assessment Techniques		Interpreting Scientific Key Concepts Using Anchor Texts	All Aboard the STEAM Bus!
Room 152 America's Center	ASTC-Sponsored Session: Lighting the Way with Wind and Solar, Investigations for the Classroom		Developing a Framework for Science Education in Underserved Communities: An Examination of Three Programs That Work	Data and Variability Meet *NGSS:* Intermediate Strategies to Integrate Data Literacy into Science Classrooms
Room 160 America's Center		The Science Behind GMOs *Sponsor: GrowNextGen.org*		
Room 161 America's Center	Big Data, Small Devices		Co-Planning in a Three-Dimensional Classroom	
Room 162 America's Center	Cultivating a Growth Mind-Set Classroom for Addressing Gender and Minority Misconception in STEM			Affirming and Representing LGBTQIA+ Students in Science Curricula
Room 220 America's Center	Transforming Elementary Classrooms with Engineering Challenges: 3-D Planning Tools for Teachers (3-D strand)		Student Drivers: Driving Question Boards Empower Students to Figure Out What They Really Need to Know… ---------- States of Matter…Where Did They Go? Transforming Existing Elementary and Middle Grades Lessons to Meet (3-D strand)	Engaging Students in Scientific Arguments from Evidence (3-D strand)
Room 221 America's Center				
Room 222 America's Center				Launching Your *NGSS* Unit: Focus on Equity and Access (EQUITY strand)

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	2:00–3:30 PM
Room 223 America's Center			**Invigorate Your Classroom Through Science Literacy (PHENOMENA strand) (2:00–2:30 PM)**	
Room 225 America's Center			**From Science to Engineering**	
Room 226 America's Center			**NGSS@NSTA Forum Session: The NGSS@NSTA Hub**	
Room 227 America's Center			**Science Teaching, Learning, and Identity Through Community Science Workshops and Makerspaces**	
Room 228 America's Center			**Phenomenal Mars! Explore with Publicly Available NASA Tools**	
Room 229 America's Center			**No Teacher, Nor Student, Left Inside: Hampton Environmental Literacy Program (H. E. L. P.)**	
Room 230 America's Center	**Integrate Coding into Your Curriculum** *Sponsor: ETA hand2mind*			
Room 231 America's Center	**Big Data in the Classroom: Teaching About Earth and Space with Authentic Data for Middle School and High School** *Sponsor: PBS LearningMedia/ WGBH*			**Crash into STEM with IIHS-HLDI in the Classroom** *Sponsor: Insurance Institute for Highway Safety*

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Complete Session Details on App

LOCATION	11:00 AM–12 Noon	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM
Room 232 America's Center		**Creating Circuits on LEGO®: Crazy Circuits Curriculum** *Sponsor: Nasco*		
Room 240 America's Center	**Argument-Driven Instruction in the Earth Science Classroom**		**Astronomy That Makes Sense: Helping Students Hear and Feel the Cosmos**	**"Why Should I Care?" Encouraging Students' Interest in Watershed Issues Through an Integrated STEM Unit**
Room 241 America's Center	**Connecting Your Water Curriculum to Global Water Issues Through Service Learning** ---------- **Sustainable in St. Louis: Connecting Students and Concepts Through Real-World Waste Reduction Projects**		**Geologic Time Travel Brochure** ---------- **PolarTREC: Arctic Microbiological Adventures**	**Stellarium: Bringing the Universe to Your Classroom**
Room 242 America's Center	**Nurturing Computational Thinkers with a Technology-Rich Weather Curriculum**		**Up…Up…and Away! Using Weather Balloons to Launch Science Experiments into Near Space**	**Learning Through Aquaponics**
Room 260 America's Center	**Reading, Writing, Talking, and DOING Science: Literacy Strategies in the Elementary Classroom** *Sponsor: Activate Learning*		**Active Chemistry: Project Based Learning for Content and Creativity** *Sponsor: Activate Learning*	**Building a Rigorous and Equitable Discourse Culture** *Sponsor: Activate Learning*
Room 261 America's Center		**Faster, Better Biotech for Biology Classes— DNA Spooling with a Twist** *Sponsor: Fisher Science Education*		
Room 262 America's Center		**Perimeter Institute: The Process of Science** *Sponsor: Perimeter Institute*		
Room 263 America's Center	**pH: Hands-On Strategies to Tackle Misconceptions** *Sponsor: PASCO*		**Spectroscopy of Wine: STEM in a Glass** *Sponsor: PASCO*	**Level-Up AP Biology Labs: Moving to Inquiry and Analysis** *Sponsor: PASCO*

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	10:45 AM–12:15 PM	11:00 AM–12 Noon	11:45 AM–12:15 PM	12 Noon–1:30 PM
Room 264 America's Center				
Room 265 America's Center				Discussing the Inevitable—Preparing Students for the State Tests *Sponsor: TCI*
Room 266 America's Center	Hunting for Huntington's Disease *NGSS* Style *Sponsor: MiniOne Systems*			
Room 267 America's Center				Evaluating Information: Using Vaccine Safety to Develop High School Students' Skills *Sponsor: Vaccine Education Center at Children's Hospital of Philadelphia*
Room 274 America's Center		Featured Presentation Unlocking the Power of the *NGSS* Speaker: Paul Andersen (3-D strand)		
Room 276 America's Center		NSTA Press® Session: Developing Students' Identities as Scientists		
NSTA Exhibits Entrance (Halls 4/5) America's Center			Meet and Greet with the Presidents and Board/Council	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Complete Session Details on App

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:00 PM	2:00–3:30 PM	3:30–4:30 PM	4:00–5:30 PM
Room 101 America's Center		**Citizen Science, a Valuable Modern Biology Approach** *Sponsor: Bio-Rad Laboratories*		**A Gastronomic Time Capsule—The Victim's Last Meal** *Sponsor: Bio-Rad Laboratories*
Room 102 America's Center		**Engage Students in Your Structure and Function Lessons** *Sponsor: Bio-Rad Laboratories*		**Modern Biology Is Revolutionizing Human Lives! Are Your Students Prepared?** *Sponsor: Bio-Rad Laboratories*
Room 103 America's Center	**Make Any Classroom a Makerspace** *Sponsor: Pearson*		**Promoting Science Proficiency Through Argument-Driven Inquiry** *Sponsor: Pearson*	
Room 104 America's Center		**Teacher to Teacher: How to Incorporate Nonfiction into Your Science Classroom** *Sponsor: Scholastic Inc.*		**Educators in the Conquest of Cancer: Providing STEM Opportunities for Students** *Sponsor: American Association for Cancer Research*
Room 105 America's Center		**ISS National Lab's Space Station Explorers Latest and Greatest for Space Education including "ISS STEM Kit" and More!** *Sponsor: ISS National Laboratory*		
Room 106 America's Center		**Dynamic DNA—One Model to Teach Them All** *Sponsor: 3D Molecular Designs*		**Middle School Matters: Modeling with Magnetic Water Molecules** *Sponsor: 3D Molecular Designs*
Ferrara Theatre America's Center	**AGU-NESTA Sponsored Lecture: Finding Our Way: The Science Behind Today's GPS Revolution Speaker: Theresa Damiani** *Sponsor: AGU and NESTA*			
Room 120 America's Center		**Smithsonian 3-D Learning and Assessment: Two Sides of One Coin** *Sponsor: Carolina Biological Supply Co.*		

LOCATION	2:00–3:00 PM	2:00–3:30 PM	3:30–4:30 PM	4:00–5:30 PM
Room 121 America's Center		**Explore Changing Environments** *Sponsor: Vernier Software & Technology*		**Simple Water Quality Testing In and Outside the Classroom** *Sponsor: Vernier Software & Technology*
Room 122 America's Center		**Physics Smorgasbørd of Sensor Experiments** *Sponsor: Vernier Software & Technology*		**Pivot Interactives: Interactive Video Learning for Physics, Chemistry, Earth Science, and Biology** *Sponsor: Vernier Software & Technology*
Room 123 America's Center		**Phenomenal Classroom Critters** *Sponsor: Carolina Biological Supply Co.*		**Protein Necklace: Harnessing the Glow of Jellyfish** *Sponsor: Carolina Biological Supply Co.*
Room 124 America's Center		**Jump Right In— The Water's Great!** *Sponsor: Carolina Biological Supply Co.*		**Shark Dissection: A Jawsome Experience!** *Sponsor: Carolina Biological Supply Co.*
Room 125 America's Center	**Investigate Sickle Cell Genetics Using Gel Electrophoresis** *Sponsor: miniPCR*		**Identifying Signatures of GMO Sequences in Common Food Items** *Sponsor: miniPCR*	**LARP! Live Action Role Playing and the Biology Curriculum** *Sponsor: miniPCR* **(5:00–5:30 PM)**
Room 126 America's Center		**Get Your Students Excited About a Career in STEM** *Sponsor: LEGO Education*		**Get Your Students Excited About a Career in STEM** *Sponsor: LEGO Education*
Room 127 America's Center		**pH Scale** *Sponsor: Lab-Aids, Inc.*		**Distilling Aromatic Hydrocarbons** *Sponsor: Lab-Aids, Inc.*
Room 130 America's Center		**Exploring Dog Genomics with HHMI Resources** *Sponsor: HHMI BioInteractive*		**Demonstrating How Science Works Using HHMI BioInteractive Resources** *Sponsor: HHMI BioInteractive*

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	1:00–2:00 PM	2:00–3:00 PM	2:00–3:30 PM	2:30–3:30 PM
Room 131 America's Center			The Power of Blending Scientific Inquiry with Engineering Practice *Sponsor: Flinn Scientific, Inc.*	
Room 140 America's Center			Modeling Seasons in 3D *Sponsor: Houghton Mifflin Harcourt*	
Room 141 America's Center			Exploring Kinetic Energy Transfers in Collisions! *Sponsor: Delta Education/School Specialty Science–FOSS*	
Room 142 America's Center		Engaging in Relevant Mathematical and Computational Thinking with Tuva! *Sponsor: STEMscopes*		
Room 143 America's Center	Hands-On with Google's Science Journal App *Sponsor: Google LLC*			Hands-On with Google's Science Journal App *Sponsor: Google LLC*
Room 144 America's Center			Beyond CER Labels: Supporting Authentic Scientific Argumentation in the Classroom *Sponsor: Amplify*	
Annex America's Center		NESTA and SSSA: Soils—The Great Core Idea Connector!		
Room 145 America's Center		Turning "Regular Stuff" into "Phenomena"		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:30 PM	3:30–4:30 PM	4:00–5:30 PM	5:00–6:00 PM
Room 151 America's Center		Using Science and Engineering Graphic Organizers to Plan Phenomena-Based Lessons		
Room 152 America's Center		Engaging Every Student in the Science Classroom		
Room 160 America's Center	Gas Exchange: Cycles of Matter and Energy Transfer in Ecosystems for Fifth-Graders *Sponsor: Great Minds*		This IS Rocket Science! *Sponsor: Estes Industries*	
Room 161 America's Center		Leading Efficient *NGSS* Writing Sessions that Lead to Forming High-Quality Products		
Room 162 America's Center		Chemical Management in Our Schools		
Room 220 America's Center		What About the Crosscutting Concepts? How to Make Them Explicit in Your Science Lessons (3-D strand)		Developing Models Through Peer Critique and Feedback (3-D strand)
Room 221 America's Center		STEAM on the Street: Surprising Everyday STEAM Encounters! (CONNECTIONS strand)		Maker Movement: Building Bridges Between Science and English Language Arts (CONNECTIONS strand)
Room 222 America's Center		Providing Equitable Learning Experiences for ELLs in Science (EQUITY strand)		Counter Racism Science Pedagogy: Race, Racism, and Science Through History and into Our Classrooms (EQUITY strand)

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:30 PM	3:30–4:30 PM	4:00–5:30 PM	5:00–6:00 PM
Room 223 America's Center				What Happened Here? Using the 5Es to Explore Phenomena Outdoors (PHENOMENA strand)
Room 225 America's Center		Community Connections: Visual Storytelling		
Room 226 America's Center		NGSS@NSTA Forum Session: NextGen TIME: Toolkit for Instructional Materials Evaluation/Transforming Implementation Through Materials Evaluation		
Room 227 America's Center		Myth of the Scientific Method		
Room 228 America's Center		My NASA Data 2.0: NASA Debuts Fresh Face and NGSS Earth Science Resources		
Room 231 America's Center			DataClassroom: Kids Can Do Big Data! *Sponsor: DataClassroom*	
Room 232 America's Center	Improve Students' STEM Competencies with Personalized Online Labs That Grade Themselves *Sponsor: Inq-ITS by Apprendis*		Monday Morning STEM Activities for Your Middle School Classroom! *Sponsor: Nasco*	
Room 241 America's Center		From Students to Stewards: Leading Students to Plan and Enact Stewardship Action Projects (4:00–4:30 PM)		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12:30–1:30 PM	2:00–3:30 PM	3:30–4:30 PM	4:00–5:30 PM
Room 242 America's Center			**Argumentation and Modeling in Earth Science Using Free Online Modules**	
Room 260 America's Center			**Project-Based Inquiry Science™ (PBIS): Creating "Coherence and Science Storylines" for Middle School** *Sponsor: Activate Learning*	
Room 261 America's Center		**Faster, Better Biotech for Biology Classes—Gel Box Science** *Sponsor: Fisher Science Education*		
Room 262 America's Center		**Making the Literacy Connection, National Geographic Learning Style** *Sponsor: National Geographic Learning | Cengage*		**The Last Czar of Russia: An Interdisciplinary Approach to Exploring Forensic Anthropology** *Sponsor: Bone Clones, Inc.*
Room 263 America's Center			**Hands-On: Exploring Enzymes the *NGSS* Way** *Sponsor: PASCO*	
Room 264 America's Center	**Dynamic Forces: Newton's Laws Made Easy!** *Sponsor: PASCO*	**Teaching Circuits Made Easy: Untangle Your Circuits Lessons** *Sponsor: PASCO* **(2:00–3:00 PM)**	**Hands-On Strategies to Teach Adaptations** *Sponsor: PASCO*	
Room 265 America's Center		**Performance Assessments: Creating Engaging Tasks** *Sponsor: TCI*		**Using a Variety of Methods to Assess for the Three Dimensions** *Sponsor: TCI*
Room 266 America's Center	**Who Is Baby Whale's Father? DNA Fingerprinting Solves the Mystery!** *Sponsor: MiniOne Systems*	**DNA Forensics Solves the Murder Mystery of Dr. Ward** *Sponsor: MiniOne Systems* **(1:45–3:00 PM)**	**SNIP SNIP! Restriction Digest FUN-damentals Made Quick and Easy** *Sponsor: MiniOne Systems* **(3:30–5:00 PM)**	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Friday At-A-Glance

Complete Session Details on App

LOCATION	12:30–1:30 PM	1:00–2:30 PM	2:00–3:00 PM	3:30–4:30 PM
Hall 2 America's Center		Linking Literacy Panel Discussion and Reception	Linking Literacy Breakout Session: NGSS/STEM/3D (2:45–3:15 PM)	Linking Literacy Breakout Session: Phenomena (3:30–4:00 PM)
Room 100 America's Center			Linking Literacy Breakout Session: Cross Curricular Connections (2:45–3:15 PM)	Linking Literacy Breakout Session: Equity (3:30–4:00 PM)
Annex America's Center			Speed and Velocity: Lessons with Motion Graphs *(Sponsor: PASCO)*	NESTA and NOAA Session: Game Design and Game Jams for the Science Classroom
Room 142 America's Center				
Room 145 America's Center				A Cyber-Physical Neighborhood Model
Room 274 America's Center				Featured Presentation: Place-Based Phenomena for Extraordinary Learning (PHENOMENA strand) *Speakers: Leslie Cook, Kevin Krasnow, and Joseph Petrick*
Room 275 America's Center		Film Screening: James Balog's *THE HUMAN ELEMENT* (1:30–3:30 PM)		
Room 276 America's Center	NSTA Press® Session: Diving into Teaching with the *NGSS* Science Practices		NSTA Press® Session: Beyond the Egg Drop-Infusing Engineering into High School Physics/Science Classrooms	NSTA Press® Session: Argument-Driven Inquiry in Grades 3–5—Three-Dimensional Investigations That Integrate Literacy and Mathematics

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:30 PM	3:30–4:30 PM	4:00–5:30 PM	5:00–9:00 PM
Room 131 America's Center			**Blended Labs Prepare Students for the AP® Biology Exam** *Sponsor: Flinn Scientific, Inc.*	
Room 141 America's Center			**Argumentation and Explanation in FOSS Grades K–5** *Sponsor: Delta Education/School Specialty Science–FOSS*	
Room 142 America's Center		**Phenomena-Based Science Instruction** *Sponsor: STEMscopes*		
Room 143 America's Center			**Hands-On with Google's Science Journal App** *Sponsor: Google LLC* **(4:00–5:00 PM)**	
Room 267 America's Center	**An Interactive Approach to Understanding Global Change** *Sponsor: HHMI BioInteractive*		**Ecological Exploration Brings Students Face-to-Face with Nature in the Classroom** *Sponsor: HHMI BioInteractive*	
Room 275 America's Center				**Big Picture Education Screening and Panel**

Earth and Space Science | **Engineering & Tech** | **Life Science** | **Physical Science** | **Informal Science Ed** | **General Science Ed**

Friday At-A-Glance

Complete Session Details on App

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Regency A Hyatt	Arguing from Evidence in Grades 6–12: Why and How	Put Some STEAM in Your Body Systems	Incorporating the Use of Scientific Models into Everyday Classroom Lessons	
Regency B Hyatt	Illuminate Your Classroom Using the National Synchrotron Light Source II	Bringing the "Science" to Social Science: Interdisciplinary Project-Based Learning in Human Geography	Infuse Math in Your APES/IB ESS or Biology Course by Using Data-Generating Activities Each Day	What Do These Data Say to You? Helping AP/IB Students Describe Data Using Variance, Standard Deviatio2, and Standard Error
Regency D Hyatt	Rejuvenating Egg Drop	Ancestral Knowledge for 21st-Century Learners	Developing and Adapting Curricular Materials That Serve the Implementation of *NGSS*	World of Wonder: See the World Through the Lens of a Scientist
Regency E Hyatt	Culturally Relevant Teaching: Examining Food Deserts in Chicago and St. Louis	BiteScis: Bringing Current Scientific Research into the High School Classroom	Simulating Life: A Gentle Introduction to the NetLogo Programming Environment	Argumentation and Scientific Writing: Applying Phenomena and Data in Your Science Classroom
Regency F Hyatt	Exploring Protein Structure and Function Using Interactions: A Free 3-D Science Curriculum for Grade 9 Physical Science	Adventures in Flipped-Mastery: The Do's and Don'ts of Changing a Traditional Classroom into a Flipped Learning and Standards-Referenced Environment	Roller Coasters, Energy Transformations, and Design Engineering	
Sterling Studio 1 Hyatt	A Future-Ready Journey in STEM and Success Strategies	Engineering Solutions with Designing, Coding, Robotics, and Agriculture	Examination of Forensic Tire and Shoe Impression Evidence	Building Systems Models, Identifying Patterns and Using Systems Thinking
Sterling Studio 3 Hyatt	SCST-Sponsored Session: Address Student Misconceptions About Genetics and Natural Selection … ---------- SCST-Sponsored Session: Using "Exam Wrappers" to Help Students Identify Better Ways to Study in Biology	SCST-Sponsored Session: Service Learning for Science Students ---------- SCST-Sponsored Session: Do Rural Students Matter in Science?	SCST-Sponsored Session: How Are We Implementing Vision and Change in the College Science Classroom? Part 1	SCST-Sponsored Session: How Are We Implementing Vision and Change in the College Science Classroom? Part 2
Sterling Studio 4 Hyatt	Using Data to Help Students and Teachers Assess Their Learning	Grading Philosophy in the 21st-Century Science Classrom	Using Systems Thinking to Re-THINK the Way You Teach (11:00–11:30 AM)	Science Practices Take Practice: Encouraging Student-Led Inquiry

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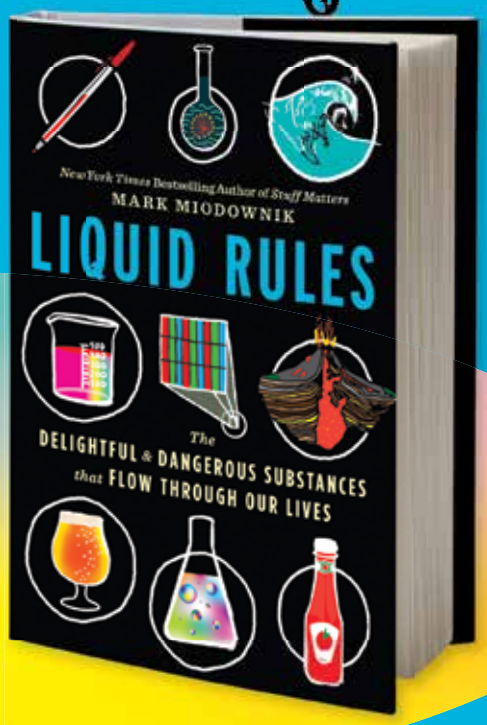

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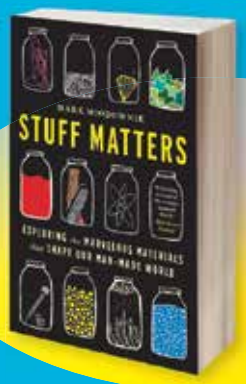

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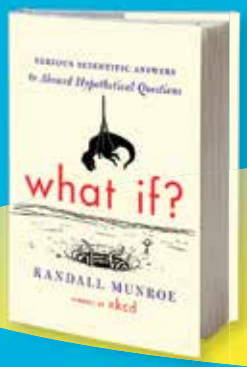

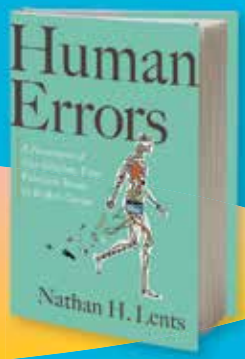

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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Sterling Studio 6 Hyatt	Can We Teach Organic Chem Before Gen Chem? ---------- Teaching Physics Concepts Layered Through Earth Science	Developing the Three Dimensions of Science in an Online Learning Space	Making Science Accessible by Replacing Dissection with Alternative Approaches	Polymers: Basics for the Science Classroom
Sterling Studio 9 Hyatt	Creating a High School Physics *Course in the NGSS Style* ---------- How Do Previous Math and Science Courses Impact Chemistry Pathways?	Using Chemical Bonding to Form Bonds Among Students	The Development of Simulations to Support Student Learning Outcomes in Physics Education	Retired NSTA Members—Meet, Greet, and Network
Grand Ballroom A Hyatt	Hydroponics: Simple and Inexpensive Hydroponic Systems You Can Build and Use to Support and Enhance Your K–12 Classroom Instruction	Fiery STEM Partnerships	Increase Relevance by Learning the Science of Apple Trees and How You Can Start an Orchard ---------- Native Pollinator Gardens: All They Are Cracked Up to Bee!	Specialty Crops in the Classroom: Educating Youth Through Mobile Classroom Growing Systems
Grand Ballroom B Hyatt	A K–8 *NGSS* Scope and Sequence That Connects to Engaging Science Phenomena and Engineering Design Problems	Problem-Posing Education: Pushing Boundaries and Questioning the Origins of Scientific Phenomena	Interactive Note-taking in the Science Classroom	ASTE-Sponsored Session: Unlocking the Power of Teacher Collaboration Through Professional Learning Teams (PLTs)
Grand Ballroom C Hyatt	It Takes a Cross-Disciplinary Village: Integrating Type 2 Diabetes Concepts into Science and Health Classes	PlantingScience: Growing Students' Science Understanding Through Plant Investigations and Online Mentoring	Darwin and Evolution: Using Historical Critiques and Responses to Address Student Misunderstanding	
Grand Ballroom D/E Hyatt	NSTA President's International Breakfast Reception *Sponsored by Northrop Grumman Foundation* (8:30–9:30 AM)	Global Initiatives Enhancing Science Education: An International Share-a-Thon and Poster Session (9:30–11:30 AM)		
Grand Ballroom F Hyatt	Patterns and Trends: Web-Based Exploration of Bird Populations from Local to Global	Teach Evolution with the World's Most Extravagant Bird	Free Technology-Enhanced Curriculum for Exploring Real-World Phenomena from Molecules to Populations	Science and Engineering Practices: Innovation, Application, and Integration
Grand Ballroom G Hyatt	Challenge-Based Learning Units Incorporating Engineering Design with Secondary Science and Math Content (8:00–8:30 AM)	Promoting Literacy in the STEM Classroom Using Colloquiums and Article Responses	Advocating for Science Education	CSSS-Sponsored Session: CSSS Science Professional Learning Standards—A Tool for Designing, Supporting, and Evaluating Professional Learning

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Grand Ballroom H Hyatt		Shell Science Teaching Award: Fueling Success with Students with $10K	The Sweet Sound of Science	NARST-Sponsored Session: How to Promote Student Inquiry and Reflection on What Science, Scientists Are Like
Mills Studio 1 Hyatt	NARST-Sponsored Session: Designing Science Education from a Feminist Perspective	NARST-Sponsored Session: Using Modeling to Make Sense of Climate Change and Carbon Cycling in a 10th-Grade Classroom	NARST-Sponsored Session: Science and Literacy—How Is Preservice Teacher Learning Impacted by a Mobile Device Curriculum?	Classroom Collaborations: Partnerships Between Educators and Engineers (12:30–1:00 PM)
Mills Studio 3 Hyatt	NSELA-Sponsored Session: Meaningful Conversations for Science Leaders—Professional Development	NSELA-Sponsored Session: Secret of Effective Professional Development	NSELA-Sponsored Session: Meaningful Conversations for Science Leaders—Diversity and Equity	NSELA-Sponsored Session: Who Is Coaching the STEM Coach?
Mills Studio 4 Hyatt	ASTE-Sponsored Session: Environmental Education Activities for Teacher Educators—A Sampling from Wisconsin	ASTE-Sponsored Session: Engaging in Argumentation—Using Simulated Classroom Environments to Facilitate High-Quality Discussion Among Elementary-Aged Students	ASTE-Sponsored Session: Basic Concepts in Mechanics That Even Physics Teachers Struggle With	Making the Most of Project-, Problem-, Place-, Passion-, and Partnership-Based Learning
Mills Studio 6 Hyatt		CSSS-Sponsored Session: Address Educational Equity in Academically Inclusive Science Classrooms	Integrating E-Books into the Secondary Classroom	Do You Need a New Science Lab? Win a Shell Science Lab Makeover ($20,000 Value) for Your School

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Friday At-A-Glance

Complete Session Details on App

LOCATION	2:00–3:00 PM	3:30–4:30 PM	5:00–6:00 PM	6:00–9:00 PM
Regency A Hyatt	Participation Structures to Support Equitable Three-Dimensional Group Work	The "Cardinal" Rule of STEM: Make Science and Math Mutualistic!		
Regency B Hyatt	From Consumption to Creation: Digital Literacies and Infographic Design in the Science Classroom		Shell Reception *By Invitation Only* (5:00–5:45 PM)	
Regency C/D Hyatt				NSTA Teacher Awards Gala (M-1) Ticket Required; $73
Regency E Hyatt	Practices Make Science	Smart Devices: Data Collection, Analysis, and Reporting	Simulating Life: A Gentle Introduction to the NetLogo Programming Environment	
Regency F Hyatt	Thermoset vs. Thermoplastic Polymers	Using CDC Disease-Level Classifications to Identify Patterns and Trends	Roller Coasters, Energy Transformations, and Design Engineering	
Sterling Studio 1 Hyatt		Storylines and Phenomena: Key to Coherent Curriculum in the Physical Science Classroom	Examination of Forensic Tire and Shoe Impression Evidence	
Sterling Studio 3 Hyatt	SCST-Sponsored Session: OUSTA Award Presentation	SCST Business Meeting (3:30–5:00 PM)	SCST-Sponsored Session: How Are We Implementing Vision and Change in the College Science Classroom? Part 1	
Sterling Studio 4 Hyatt	Model-Based Inquiry in the High School Classroom ---------- Inquiry-Based Science Activities in Grades 6–12: Meeting the *NGSS*		Using Systems Thinking to Re-THINK the Way You Teach (11:00–11:30 AM)	

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LOCATION	2:00–3:00 PM	3:30–4:30 PM	4:00–6:00 PM	7:00–9:00 PM
Sterling Studio 6 Hyatt	The Egg Drop Reimagined: Combining PBL, Equity, and Engineering	Transforming a Traditional Copper Cycle Lab in AP Chemistry		
Sterling Studio 9 Hyatt			APAST Social/Business Meeting *(By Invitation Only)*	
Park View Hyatt	Connecting Natural Selection and Speciation			
Grand Ballroom A Hyatt	Teaching "Reel" Issues: Using Documentary Films for Evidence and Inquiry	Differentiating and Implementing Scientific Argumentation		SCST Social and Poster Session
Grand Ballroom B Hyatt	NSELA-Sponsored Session: What Are They Thinking? Using Formative Assessment Strategies in Teacher Professional Development to Enhance Student Learning			
Grand Ballroom C Hyatt	Energy Is Blowin' in the Wind	Using Comics and Pop Culture References to Engage Students and Facilitate the Learning of Difficult Concepts in Biology		
Grand Ballroom F Hyatt	The Ultimate Review Game: Practice and Retention of Disciplinary Core Ideas	Three-Dimensional Science Learning for Beginners		
Grand Ballroom G Hyatt	Providing Increased Opportunities in Rural Communities Through Career and Technical Education Partnerships	CSSS-Sponsored Session: Formative Assessments of Learners' Interests, Identities, and Knowledge (3:30–5:30 PM)		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:00 PM	3:30–4:30 PM
Grand Ballroom H Hyatt	Applying Forensic Sand and Soil Analysis in Crime Scene Investigations (Forensics, Earth Science, History, Technology)	Using Phenomena to Engage in Student Science Performances (3:30–5:30 PM)
Mills Studio 1 Hyatt	Do I Really Have to Teach Literacy…This Is Science!	NARST-Sponsored Session: Understanding Student Thinking: Using Crosscutting Concepts to Represent Key Aspects of the Disciplinary Core Ideas (3:30–4:00 PM)
Mills Studio 3 Hyatt	NSELA-Sponsored Session: Teaching a Culturally Responsive Pedagogy	NSELA-Sponsored Session: Meaningful Conversations for Informal Science Education Leaders—A Best-Practices Sharing Session
Mills Studio 4 Hyatt	ASTE-Sponsored Session: Moving Students from Passive to Active Learners	10 Tech Tools to Engage Students
Mills Studio 6 Hyatt	Success in Stoichiometry (2:00–2:30 PM)	PhysiCalc: An Integrated, Team-Taught Approach to Calculus and Physics

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Exhibit Hall Hours

Thursday, April 11
11:00 am to 6:00 pm
(Exclusive hours:
11:00 am to 12:30 pm)

Friday, April 12
9:00 am to 5:00 pm

Saturday, April 13
9:00 am to 3:00 pm

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NSTA National Science Teachers Association

Friday At-A-Glance

Complete Session Details on App

LOCATION	8:00–9:00 AM	9:30–10:30 AM	10:30 AM–12:30 PM	11:00 AM–12 Noon
Westmore-land/ Kingsbury Marriott	GLOBE Phenological Gardens in Urban Schools: Using School Gardens to Engage City Students in Science	Using Engineering Practices to Understand Seed Dispersal		
Pershing/ Lindell Marriott			AMSE Membership General Meeting *By Invitation Only*	
Landmark 1 Marriott	STEAMing Through the *NGSS* ---------- Creating a Culture of Thinking: A Deep Dive into the Science and Engineering Practices	Finding Voice for Every Student: KLEWS		CESI-Sponsored Session: Creative Life Cycles—Engaging Students in Plant and Animal Life Cycles Through Stop-Motion Videos
Landmark 2 Marriott	Engaging Students in All Disciplines Through PBL	The NSTA Learning Center—Free Professional Learning Resources and Opportunities for Educators		Integrating the Science Lab and the Makerspace in Middle School
Landmark 3 Marriott	Why Do Dead Things Disappear Over Time? A Grade 5 *NGSS* Storyline			Engaging Multilingual Students in Math and Science
Landmark 4 Marriott	Picture-Perfect Science Lessons: Using Children's Books to Guide Inquiry K–5	Climate Literacy for All: Inspiring Change-Makers		Bridging STEM and Literacy with Engaging Trade Books: K–5
Landmark 5 Marriott	Anchoring Engineering with ELA in the Elementary Classroom	Putting the A in STEAM with Novel Engineering		
Landmark 7 Marriott		Making Elementary Science Relevant with Place-Based Education		

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LOCATION	8:00–9:00 AM	9:30–10:30 AM	10:15–10:45 AM	11:00 AM–12 Noon
Majestic A/B Marriott			Meet Me in the Middle Session: Combating Science Mis- and Disinformation	Meet Me in the Middle Session: A Roller Coaster of a Phenomenon! (11:00–11:30 AM)
Majestic C Marriott			Meet Me in the Middle Session: Energy House	Meet Me in the Middle Session: Gardening and Composting in the Classroom (11:00–11:30 AM)
Majestic D/E Marriott			Meet Me in the Middle Session: Roundtable Conversations, Session A	Meet Me in the Middle Session: Roundtable Conversations, Session B (11:00–11:30 AM)
Majestic F/G Marriott			Meet Me in the Middle Session: The Route to Successful STEM Activities!	Meet Me in the Middle Session: Literacy and Science Notebooking in the Elementary Classroom Using STEAM! (11:00–11:30 AM)
Majestic H Marriott				Meet Me in the Middle Session: Rediscovering the Joy (11:00–11:30 AM)
Statler Marriott	Annual Alice J. Moses Breakfast *By Invitation Only* (7:30–9:30 AM)			Wind Can Do Work!
Portland/ Benton Marriott	Novel Engineering and Problem-Based Learning	Let's Get Wet—Wind, Water, and Weather for Grades PreK–3		Making Sense of the Crosscutting Concepts
Parkview/ Aubert Marriott	Drumming Up Sound: A Grade 1 Integrated STEM Lesson ---------- Young Learners	Taking the Leap: Supporting Social Emotional Risk-Taking in Elementary Science		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	10:30 AM–12 Noon	11:00 AM–12 Noon
Shaw Boardroom Marriott				
Lafayette Boardroom Marriott			Urban Science Education Advisory Board Meeting	
Laclede Boardroom Marriott		Development Advisory Board Meeting *By Invitation Only*		
Gateway A Marriott	...On Second Thought: Shifting the Focus of Engineering Design Challenges	Designing Science Curriculum with English Language Learners at the Center— Equity and Access for All		Ice, Ice, Baby: An Integrated 3-D Storyline Unit for Middle School Science Using Instant Ice Packs
Gateway B Marriott	Following the Yellow Brick Road of *NGSS* --------- Bridging Place-Based and Elementary Classroom Science Instruction Focused on Local Missouri River Environmental Issues			EXENTHUNCO: What Is That?
Laurel Salon A Embassy Suites	Developing and Using Models for Better Conceptual Understanding (SC-4) (3-D strand) By Ticket Only; $43 (8:00–11:00 AM)			
Mercantile Embassy Suites			Blending the E and the S in STEM (SC-5) (CONNECTIONS strand) By Ticket Only; $23 (10:30 AM–4:30 PM)	

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LOCATION	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Westmore-land/ Kingsbury Marriott	Society of Elementary Presidential Awardees (SEPA) Luncheon *By Invitation Only* (12 Noon–2:00 PM)		
Pershing/ Lindell Marriott			Chapter and Associated Group Leader Roundtable *By Invitation Only* (3:00–4:00 PM)
Landmark 1 Marriott	CESI-Sponsored Session: Creating (and Transforming) "Predict, Observe, Explain" Hands-On Science Activities for Lower Elementary Science		
Landmark 2 Marriott	An Outdoor STEM Classroom Designed for Early Childhood (12:30–1:00 PM)	STEM and Beyond!	Learning About Light and Shadows with Shadow Stories (3:30–4:00 PM)
Landmark 3 Marriott		Preparing Students for the Future (2:00–3:30 PM)	
Landmark 4 Marriott	Kindergarten Coding: Yes, It's a Thing!		
Landmark 5 Marriott	Using Simple Robotics to Encourage Scientific Thinking		
Landmark 7 Marriott	Engaging St. Louis Area Students in Equity Through Design Thinking	Fourth-Dimensional Clean Sweep: Teaching the Nature of Science (aka Don't Forget Appendix H!)	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Friday At-A-Glance

Complete Session Details on App

LOCATION	12:30–1:30 PM	1:15–1:45 PM	2:00–3:00 PM	3:30–4:30 PM
Majestic A/B Marriott		Meet Me in the Middle Session: Engaging Students in Three-Dimensional Learning	Meet Me in the Middle Session: Understanding Weather and Climate with a Free Web-Based Graphing Tool (2:00–2:30 PM)	
Majestic C Marriott	NMLSTA Membership and Board Meeting (12 Noon–12:30 PM)	Meet Me in the Middle Session: Empower, Engage, and Explore Through Personalized Learning	Meet Me in the Middle Session: *NGSS* Shift in Classroom Pedagogy (2:00–2:30 PM)	
Majestic D/E Marriott				Meet Me in the Middle Share-a-Thon (3:00–4:30 PM)
Majestic F/G Marriott		Meet Me in the Middle Session: Using Phenomena to Make Your Lessons Phabulous	Meet Me in the Middle Session: *Everyday Engineering* (2:00–2:30 PM)	WIDA Session: Strengthening Science Reasoning and Language for All Students Through Active 3-D Learning
Majestic H Marriott		Meet Me in the Middle Session: Engineering in Middle School Chemistry	Meet Me in the Middle Session: Using Agriculture to Implement Cross-Curricular Connections in the Enhancement of STEM Education (2:00–2:30 PM)	
Statler Marriott	Take It Outside! Using the Outdoors as an Experiential Learning Lab			
Portland/ Benton Marriott	Skulls: The Science of Survival		Linking Science and Literacy Through 3-D Learning	Bringing Student Creativity to Life in the Elementary Science Classroom
Parkview/ Aubert Marriott			Phenomena in the Elementary Classroom (2:30–3:00 PM)	Bugs, Scat, Nests, and Nature: An Exploration of Place-Based Project Learning

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Shaw Boardroom Marriott		Society of Elementary Presidential Awardees (SEPA) Board Meeting (2:00–3:30 PM)	
Gateway A Marriott	Designing and Testing Roller Coasters: How Are the Energy and Force with Us?	Making It Happen!	That's the Way the Pallet Crumbles
Gateway B Marriott	Reimagining Your Science Fair (12:30–1:00 PM)	AMSE-Sponsored Session: Beyond Engagement—Making Meaningful Connections in Equity Throughout the Community	AMSE-Sponsored Session: Rooting Peer Learning Across Grades—Socially Conscious STEM and the Story of Science
Laurel Salon A Embassy Suites	Designing and Using Three-Dimensional Assessments in Your Classroom (SC-8) (3-D strand) By Ticket Only; $36 (1:00–5:00 PM)		

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—Photo courtesy of Dan Donovan/©St. Louis Convention & Visitors Commission

A 102-fountain "spray plaza" is one of the many highlights of Citygarden, a combination of both city park and sculpture garden in downtown St. Louis.

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:00 AM–3:00 PM	9:30–10:30 AM
NSTA Exhibits (Halls 3–5) America's Center			**NSTA Exhibits!**	
Room 100 America's Center	**Solidarity/Affinity Groups: Developing Equitable Working Environments to Support Diverse Science Faculty and Justice-Centered Mind-Sets**			**Science at the Dollar Store: 2019 Edition**
Room 105 America's Center		**Advocating for Cultural Controversies: Impact Your Classrooms and Communities** *Sponsor: Vaccine Education Center at Children's Hospital of Philadelphia*		
Room 106 America's Center		**STEMulating the Heart with Code!** *Sponsor: Texas Instruments*		
Room 121 America's Center		**Common Chemistry Experiments Using the Latest Technology** *Sponsor: Vernier Software & Technology*		
Room 122 America's Center		**Robots, Coding, and Science: A Complete STEM Experience** *Sponsor: Vernier Software & Technology*		
Room 125 America's Center		**Earth and Space Science Classroom Resources** *Sponsor: American Geosciences Institute*		
Room 127 America's Center		**Using Climate Proxies to Learn About Earth's Climate History** *Sponsor: Lab-Aids, Inc.*		

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–10:30 AM	10:00–11:30 AM
Room 130 America's Center		**Exploring Human Evolution with HHMI BioInteractive** *Sponsor: HHMI BioInteractive*		**Scientific Investigations Then and Now with HHMI BioInteractive** *Sponsor: HHMI BioInteractive*
Room 131 America's Center		**Sparking Curiosity in K–6 Classrooms!** *Sponsor: Twig Education*		**Twig Secondary: Engaging Multimedia Tools and Resources for Teachers** *Sponsor: Twig Education*
Hall 1 America's Center	**NESTA/NSTA's Aerospace Advisory Board Share-a-Thon**		**NGSS@NSTA Share-a-Thon**	
Annex America's Center	**Concord Consortium and NESTA Present: High-Adventure Science—Free Simulations Exploring Earth's Systems and Sustainability Topics**		**NESTA, UNAVCO, and IRIS Session: Are Earth's Plates Really Moving? Explore Earth Science Data**	
Room 141 America's Center		**NOAA in Your Classroom Workshop Series I: GPS** *Sponsor: NOAA*		**NOAA in Your Classroom Workshop Series II: Remote Sensing and Real-World Data** *Sponsor: NOAA*
Room 145 America's Center	**Braincandy: Supporting Student Talk and Argumentation**		**SCRATCHing the Surface of Integrating Science and CS**	
Room 150 America's Center			**Lessons from My Journey with the Standards-Based Grading in AP and College Prep Chemistry Classrooms (9:30–10:00 AM)**	
Room 151 America's Center	**Three-Dimensional Science Using 3D Printing**		**Integrating Robotics and *NGSS:* Tools and Strategies for Teachers, Principals, and District Administrators**	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Room 152 America's Center	Introduction to Modeling Instruction	Accounting for Uncertainty in Scientific Argumentation	Testing Models: Does the Kuznets Curve Hold Up?	Classroom Innovations: Shifting Practice with Protocols for PLCs
Room 161 America's Center	Stability and Change of Students' STEM Career Interests During High School	Do You Know What Your Students Are Really Thinking About Science? Do You Know What YOU Are Really Thinking About Science?	Has Technology Gone Too Far? Making the Case for Some Old School Teaching Techniques	Manipulating Objects and Space in the Classroom to Foster 3-D STEM Learning (12:30–1:00 PM)
Room 162 America's Center	Translating *NGSS* into Classroom Instruction: A PD Plan for Whole School Transformation That Works	Toward Inclusion: Accessibility and Equity for All Students	Making Modeling Clear: Engaging All Students in Authentic Scientific Modeling	Talking 3-D Science with Administrators: Building Systems of Support for Science Teaching and Learning
Room 220 America's Center		Cultivating the Scientific Practice of Asking Questions: Tools for Teachers and Students (3-D strand)		Integrating Content in a 3-D World (3-D strand)
Room 221 America's Center	Busy Beavers: Engineering Excitement in the Classroom (CONNECTIONS strand)	STEM All Day Long…and Still Cover the Standards! (CONNECTIONS strand)	Integrating Science and Literacy Instruction with Struggling Readers (CONNECTIONS strand)	Science Stated Clearly: Teaching Chemistry and Biology with Animation (CONNECTIONS strand)
Room 222 America's Center	Non-Scientists: The Forgotten Majority ---------- When Physics and Pop Culture Collide! Strategies for Engaging Assessment and Instruction (EQUITY strand)	All Kids Have A Voice: Using Protocols and Other Activities in the Middle School Science Classroom to Build Equity ---------- Empowering Experiences for Girls in Computer Science (EQUITY strand)	A Cancer Education Curriculum for Underserved Elementary Schoolchildren (EQUITY strand)	Counteracting Implicit Bias in Science Classrooms ---------- Vocabulary Instruction for English Language Learners! (EQUITY strand)
Room 223 America's Center	Phenomenon-*"Mah na mah na:"* How to Use a Local Anchoring Phenomena to Drive a Lesson Series (PHENOMENA strand)	Place-Based Curricula and Project-Based Learning Units Address a Real-World Problem of Marine Debris in the U.S. Virgin Islands (PHENOMENA strand)	CER…CERtainly a Way to Help Students Become Scientists ---------- Wild Spiders in Three Dimensions (PHENOMENA strand)	Climate Science and Stewardship Project: Plants as Bioindicators and Solutions (PHENOMENA strand)
Room 224 America's Center	Using Tool 1 of the Five Tools and Process to Plan a *NGSS*-Designed Unit of Instruction	Using Tool 2 of the Five Tools and Process to Translate Performance Expectations into a Plan for Classroom Assessment	Using Tool 3 of the Five Tools and Processes to Develop a Conceptual Flow Using the 5E Instructional Model	

Saturday At-A-Glance

Complete Session Details on App

LOCATION	8:00–9:00 AM	9:30–10:30 AM	10:00–11:30 AM	11:00 AM–12 Noon
Room 225 America's Center	Student-Driven Lessons Around 3D Printing and Paleontology: iDigFossils	Student Engagement Through Place-Based Citizen Science		#GettingScienceDone
Room 226 America's Center	NGSS Session: Assessing What Matters: Using 3-D Assessments as a Lever for Equity in the Classroom	Bridging the Gap: Connecting Students' Lived Experiences to STEM Through Creativity and Informal Science Learning		How Do Eggs Become Chickens or Other Living Things? A Middle School *NGSS* Storyline Unit
Room 227 America's Center	Supporting Fellow Teachers in the Transition to *NGSS*	Academically Appealing Phenomena		Creating a Positive Feedback Culture: Practical Strategies for Providing Effective Feedback
Room 228 America's Center	Let's Use STEM Skills to Explore What NASA and Coral Reefs Have in Common	Decoding Starlight—From Photons to Pixels to Images—Using Science and Art		
Room 229 America's Center	Teaching Ecology Through Game-based Models and Design	Biomagnification in Ocean Food Webs: You Are What You Eat		YouthAstroNet: Promoting Middle School STEM Interest with Online Telescopes
Room 232 America's Center			Monday Morning STEM Activities for Your High School Classroom! *Sponsor: Nasco*	
Room 240 America's Center		Making Space Science Relevant: Anchoring Phenomena to Engage and Excite Students About the Universe		
Room 241 America's Center	Water Quality: Modeling and Assessing a Real-World Ecological Problem	ASTC-Sponsored Session: Beyond Tests—Finding Evidence for STEM Learning Where You Least Expect It		ASTC-Sponsored Session: In Search of Earth's Secrets—A Pop-Up Science Encounter

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High School Share-a-Thon

Set Your Sights Higher!

April 13, 2019, 9:30 AM - 11:00 AM
Hyatt Regency St. Louis at the Arch, Grand Ballroom D/E

Looking for new lessons for your classroom?

Join your fellow high school science educators to:

- Network with other secondary science teachers and share ideas.
- Hear about different activities in an informal manner, talk with the presenters one on one.
- Walk away with ideas to use tomorrow.
- Learn about award and grant programs.
- Enter to win doorprizes!

Interested in being a presenter?

Contact Carrie Jones (High School Division Director) at *ncscienceteacher@yahoo.com*

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LOCATION	8:00–9:00 AM	8:00–9:30 AM	9:30–10:30 AM	10:00–11:30 AM
Room 242 America's Center	**Stratospheric Ballooning for Middle School Students** ---------- **Exploring Earth's Atmosphere with the Use of Weather Balloons**			
Room 261 America's Center		**Bugs 101: Entomology for Teachers** *Sponsor: Celestron*		**Exploring and Understanding the Moon** *Sponsor: Celestron*
Room 262 America's Center		**Perimeter Institute: Hands-On Wave-Particle Duality** *Sponsor: Perimeter Institute*		**Perimeter Institute: Expanding Universe and Gravitational Waves** *Sponsor: Perimeter Institute*
Room 265 America's Center		**The Components of a Truly Integrated Program** *Sponsor: TCI*		**Let's Get into (Particle) Motion! States of Matter Using Three-Dimensional Learning** *Sponsor: TCI*
Room 267 America's Center				**Socioeconomics and Its Impact on the Developing Brain** *Sponsor: Society for Neuroscience*
Room 274 America's Center				
Room 275 America's Center	**NSTA Press® Session:** ***Everyday Engineering***		**NSTA Press® Session: Argument-Driven Inquiry in Biology, Chemistry, and Physics—Lab Investigations for Grades 9–12**	
Room 276 America's Center	**The Fred Kavli Keynote: Tapestry Thinking: Weaving Diverse Threads of Science and Society Speaker: Nalini Nadkarni** *Sponsored by The Kavli Foundation*		***Picture-Perfect STEM Lessons:* Using Children's Books to Inspire STEM Learning, K–5**	

LOCATION	10:00–11:30 AM	11:00 AM–12 Noon	12 Noon–1:30 PM	12:30–1:30 PM
Room 100 America's Center		**Structuring Meaningful 3-D Professional Development Opportunities for Teachers**		***NGSS* from a Three-Dimensional Policy Perspective**
Room 105 America's Center	**AP Biology: BIOZONE Showcases the Latest Editions** *Sponsor: BIOZONE International Ltd.*			
Room 106 America's Center	**"Going with the Flow" of Genetic Information** *Sponsor: MSOE Center for BioMolecular Modeling*		**Using Water Models to Uncover Misconceptions in Chemistry** *Sponsor: 3D Molecular Designs*	
Room 121 America's Center	**Forensic Chemistry: Poisoned Wine and Mystery Powders** *Sponsor: Vernier Software & Technology*		**Common Biology Experiments Using the Latest Technology** *Sponsor: Vernier Software & Technology*	
Room 122 America's Center	**Investigate Physics Using Sensors** *Sponsor: Vernier Software & Technology*		**Integrating Data-Logging STEM Tools into the Middle School Classroom** *Sponsor: Vernier Software & Technology*	
Room 125 America's Center	**Explore Your World via National Geographic Educator Grants** *Sponsor: National Geographic Society*			
Room 127 America's Center	**Prospecting for Mineral Ore** *Sponsor: Lab-Aids, Inc.*		**Calling All Carbons** *Sponsor: Lab-Aids, Inc.*	
Room 130 America's Center			**HHMI Biointeractive Presents Mass Extinctions— And What Happens Next?** *Sponsor: HHMI BioInteractive*	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	10:00–11:00 AM	11:00 AM–12 Noon	12 Noon–1:30 PM	12:30–1:30 PM
Room 131 America's Center			Twig Science TK–6 Built for Generation Z *Sponsor: Twig Education*	
Ferrara Theatre America's Center				Paul F-Brandwein Lecture: Saving Life, Saving Ourselves Speaker: Peter Raven *Sponsor: Brandwein Institute*
Hall 1 America's Center				Community Connections Share-a-Thon (12:30–2:30 PM)
Hall 5 America's Center	Linking Literacy: Author Book Signing			
Annex America's Center		NESTA Earth System Science Share-a-Thon		Concord Consortium and NESTA Present: GEODE: Transforming Geoscience Education with Interactive Models for Exploring Plate Tectonics
Room 141 America's Center			NOAA in Your Classroom Workshop Series III: Stewardship *Sponsor: NOAA*	
Room 142 America's Center			Mystery Phenomena, Labs, and Engineering: Mosa Mack Science Demo *Sponsor: Mosa Mack Science*	
Room 145 America's Center		Focusing Your Eyes on *NGSS*		Connecting Informational Text and the Science Practices Through Triad Summarizing

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	11:00 AM–12 Noon	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Room 150 America's Center	Learning Together: Engaging Families in Equitable STEAM Learning	Setting the Table to Support 3-D Professional Learning	Successful Classroom Strategies for Urban Science Educators *Sponsor: HHMI BioInteractive*	Eureka! Science Trade Books—Good as Gold!
Room 151 Theatre America's Center	Talking Science with the Hosts of NSTA's "Lab Out Loud" Podcast		Integrating Discussions About Race and Gender into the Science Classroom	Designing Equitable STEAM Learning Environments That Invite and Leverage Learners' Stories and Experiences
Room 152 America's Center			Group Learning Routines to Promote Access in an *NGSS* Science Classroom Through Equitable Discussion	Exploring Practices, Nature of Science, and Science in Society: Analyzing Historical Primary Sources from the Library of Congress
Room 161 America's Center			Bring on the Data! Beginning Strategies to Integrate Data Literacy into Science Classrooms	Powerful, Free Simulations for 3-D *NGSS* Teaching
Room 162 America's Center			Creating Standards-Based Rubrics Grounded in Cognitive Rigor	Not Your Traditional Lab Report: Teaching Students to Communicate in Science So People Will Listen
Room 220 America's Center			The Trifecta: Driving Question Boards, Anchor Models, Anchor Charts (3-D strand)	Writing 3-D Storylines (3-D strand)
Room 221 America's Center			The Young Artist as Scientist: What Can Leonardo da Vinci Teach Us? (CONNECTIONS strand)	Blocks and Beyond: The Importance of Spatial Understandings in STEM (CONNECTIONS strand)
Room 222 America's Center			Can You Hear Me Now? Doing Science with Students with Limited and Interrupted Education (SLIFE) (EQUITY strand)	Connecting Makerspaces to Speech and Occupational Therapy (EQUITY strand)

LOCATION	12 Noon–1:30 PM	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Room 223 America's Center			After an Earthquake: Real-Time Earthquake Data as a Hook to Encourage Answer-Seeking About the Geologic and Societal Context of the Event (PHENOMENA strand)	Science Curriculum from the Grassroots (PHENOMENA strand)
Room 224 Theatre America's Center			Using Tool 4 of the Five Tools and Processes to Design Learning Sequences Using the 5E Instructional Model	Using Tool 5 of the Five Tools and Processes to Develop Performance Tasks from Evidence of Learning Specifications
Room 225 America's Center		Aerial Exploration of Environmental Study Sites—Using Kites, Cameras, and Other Sensors	Computer Modeling Can Do WHAT? Meeting Cross-Curricular Goals with StarLogo Nova	GreenSTEM: Putting Relevance and Impact into STEM Instruction and Programming
Room 226 America's Center		NGSS Session: What Can and Should We Do with CRISPR? A Next Generation Storyline That Connects Science to Students' Interests and Concerns	NGSS Session: What Does It Look Like? Assessing 3-D Learning in the Classroom: How to Navigate Opportunities and Pitfalls	NGSS Session: Doing 3-D PD the NGSS@NSTA Way
Room 227 America's Center		Making Sense of Student Work: A Protocol for Using Formative Assessments		
Room 228 America's Center		Cosmology in the Classroom	Our Puzzling Climate: Could Less Arctic Sea Ice Mean More "Snow on Ice"?	New Improved Planetarium Projector…Everything You Need to Construct and Operate
Room 229 America's Center		Modeling Stellar Evolution by Plotting Variable Stars on the H-R Diagram	Using a River Ecology Teaching Case to Engage Students in Developing and Using Models, and Constructing Explanations from Evidence	How Does the Solar System and Its Objects Affect Life on Earth? A Sample Middle School Unit on Space
Room 231 America's Center	Army ROTC High School Scholarship Benefits Briefing *Sponsor: U.S. Army ROTC (Washington University in St. Louis)*			

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National Earth Science Teachers Association Events at the 2019 NSTA National Conference in St. Louis

*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, April 12 and Saturday, April 13, we have a series of sessions all in the **Annex** of the **America's Center Convention Complex**. Don't miss out on our Share-a-Thons and the events below.*

www.nestanet.org

Friday, April 12

2:00 – 3:00 p.m. **AGU-NESTA Sponsored Lecture: Dr. Theresa Damiani**

Finding Our Way: The Science Behind Today's GPS Revolution

Getting from place to place is a daily activity for most people. Now, many of us use the U.S. Global Positioning System (GPS) through our smartphone, car, or other navigation device to do that. This talk explores the science of GPS and mapping, how it allows us to quickly and easily find our way through the world, and the sometimes, unexpected ways in which it is revolutionizing our society.

Ferrara Theatre, America's Center Convention Complex

Saturday, April 13

3:30 – 4:30 p.m. **NESTA's exciting Rock, Mineral, and Fossil Raffle!**

Annex, America's Center Convention Complex

6:30 – 8:00 p.m. **NESTA Friends of Earth Science Reception**

Crystal Ballroom, Marriott St. Louis Grand

NESTA gratefully acknowledges the following organizations and projects as partners:

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LOCATION	11:00 AM–12 Noon	12:30–1:30 PM	2:00–3:00 PM	3:30–4:30 PM
Room 240 America's Center		Ecosystem Dynamics	Mapping the Surface of Mercury: Bringing Together Science and the Arts	Bridging the Gap of the Ocean and Atmosphere with Interdisciplinary Concepts
Room 241 Theatre America's Center		ASTC-Sponsored Session: *'A'ohe pau ka 'ike i ka hálau ho'okahi*—All Knowledge Is Not Learned in Just One School	ASTC-Sponsored Session: Museum Educator for a Day—Using the Museum as a Learning Lab for Future STEM Teachers	A Unique and Challenging Ice Core Investigation That Integrates the Three Dimensions of *NGSS* and STEM
Room 242 America's Center	What Galileo's Telescope Really Proved: Incorporating the History of Science into Teaching About Scientific Investigations	Water Water Everywhere…Not a Drop to Drink? Teaching Students About the Water Crisis	Teaching Science Using Student-Collected Environmental Data: A Three-Dimensional Learning Experience	Coral Reefs, Fragile Wonders Under Threat: Bring Vibrant Environmental Stewardship Lessons to Your Students with Free NOAA Resources
Room 265 America's Center		Is There Such a Thing as Too Much Phenomena? *Sponsor: TCI* (12 Noon–1:30 PM)	Integrating Literacy Skills in Elementary Science Investigations *Sponsor: TCI* (2:00–3:30 PM)	How to Develop and Revise Models in Order to Explain Phenomena *Sponsor: TCI* (4:00–5:30 PM)
Room 274 America's Center	Featured Presentation: Exploring Nature's Beauty and Teachings Speaker: Michael Weiss	Igniting Student Interest and Imagination with Episodes from Harry Potter	Featured Presentation: Hulahula and Learn Something… Expressing Science Through Culture and Dance Speaker: Kiana Frank (CONNECTIONS strand)	
Room 275 America's Center	NSTA Press® Session: Preparing Preservice Science Teachers for 3-D Instruction	NSTA Press® Session: *Next Time You See a Bee*	NSTA Press® Session: What Do K–12 and Preservice Students Really Think About Matter and Energy Ideas	NSTA Press® Session: Staging Family Science Nights
Room 276 America's Center	Bringing English Learners into Focus Through Next Generation Science	Mary C. McCurdy Lecture: Facing Challenges, Making Changes, Changing Lives Speaker: Linda Froschauer		
Room 145 America's Center				Nature Journaling: Getting Creative with Scientific Observation

LOCATION	2:00–3:00 PM	2:00–3:30 PM	3:30–4:30 PM	4:00–5:30 PM
Room 100 America's Center	What Can STEM Educators Do to Shape the Public Face of Science?		Professional Learning Communities for Integrated STEM Learning—A Project-Centered Approach ---------- Developing Three-Dimensional Assessment Literacy for Science Teaching and Learning: …	
Room 105 Theatre America's Center		Become a National Geographic Certified Educator *Sponsor: National Geographic Society*		
Room 106 America's Center		Genome Editing with CRISPR: Connections to What You Already Teach *Sponsor: MSOE Center for BioMolecular Modeling*		
Room 121 America's Center		Catch the Wave(length): Spectroscopy Visualized *Sponsor: Vernier Software & Technology*		
Room 122 America's Center		Explore Motion with Vernier Video Physics™ for iOS *Sponsor: Vernier Software & Technology*		
Room 130 America's Center		The Amazing Origin Story of Maize: Models, Mutants, and More! *Sponsor: HHMI BioInteractive*		
Room 131 America's Center		Getting Out of the Classroom with Elementary Students While Implementing *NGSS* *Sponsor: Twig Education*		Rock-and-Roll Earthquake Engineering: Digital and Hands-On *NGSS* *Sponsor: Twig Education*
Annex America's Center	NESTA and MEL2: Going Beyond the Controversy by Promoting Critique, Evaluation, and Argument in Earth Science		National Earth Science Teachers Association (NESTA): Rock, Mineral, and Fossil Raffle	

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Saturday At-A-Glance

Complete Session Details on App

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Regency A Hyatt	Larger than Life Plankton	Learning About Population Growth Through a Conservation Lens	Let's CELLabrate! You're Invited to a Cell Energy Party!	Going Beyond "Just-So" Stories: Data Analysis of Elaborate Male Traits
Regency B Hyatt	Virtual Reality's Impact on Secondary Science	Transfer of Energy Through Phenomena and Driving Questions in Grade 4 and Beyond	STEM and PBL: The Perfect Match! ---------- STEM School to Work: Tools and Strategies for Implementation for Teachers and Administrators	Closing the Gaps in the NGSS Learning Progressions ---------- Path to Proficiency: Our Journey Toward Student Achievement in *NGSS*
Regency D Hyatt	DCI, CCC, and SEPs Oh My! Sweet and Salty Investigations with a 3-D Twist!	Argumentation in the *NGSS* Classroom	3-D Science in a Modern Technology-Based Classroom	Anchor Away
Regency E Hyatt		Zombie Apocalypse! Argument-Driven Inquiry Lab	Discovering Science Through Puzzles	Throw a Changeup into Your Instruction: Games as a Tool for 3-D Instruction
Regency F Hyatt		Unpacking Race in the Chemistry Classroom	Groovy Sounds: *NGSS* Investigations into Waves	
Sterling Studio 1 Hyatt	We're Still Slowing Down, But Going Faster Than Ever!	Retirement: Questions and Suggestions	Using Scientific Writing to Build Understanding and Critical Thinking	Inquiry for All
Sterling Studio 3 Hyatt	Leveraging NASA Programs to Support STEM	How to Get Published in an NSTA Journal	Growth of Content Knowledge, Science Teaching Self-Efficacy, and Curricular Role Identity in Physical Science of Preservice Teachers (11:30 AM–12 Noon)	
Sterling Studio 6 Hyatt	Phun Physics Projects	Beyond the Egg Drop: Incorporating Traditional Activities into a Conceptual Storyline		Why Matter Matters: Socially Conscious Chemistry (12:30–1:00 PM)

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Sterling Studio 9 Hyatt	Science Leaders Roundtable	College Committee: High Impact/ Low Effort Strategies for Student Success in AP and College Courses (9:30–11:30 AM)		Anatomy and Physiology: Techniques and Activities
Park View Hyatt	At the Heart of the Matter!	Moving Genes	A Bird in the Hand: Citizen Science Outdoors	Super Models in Biology
Grand Ballroom B Hyatt		Ation, an Action or Process?	Macromolecules in My Pet Food?	How a First Year Teacher Learned that Inquiry-Based Teaching was the Best Way to Teach Science
Grand Ballroom C Hyatt	The Molecular Unity of Life	Building Biology with the Chromatid Sisters	"Dealing" with the Periodic Table of Elements	Cheese-Making in Culinary Chemistry
Grand Ballroom D/E Hyatt		High School Share-a-Thon: Set Your Sights Higher! (9:30–11:00 AM)		Yager Science Teaching Awardees Share-a-Thon
Grand Ballroom F Hyatt	Using a Case-Based Approach to Explore Dengue Virus in a Blended Format: Combining Hands-On Labs with the WISE Platform	Hello, My Name Is…GMO	Anatomy Rocks!	How Humans Impact the Spread of Vector-Borne Disease: Using Lyme Disease to Model Complex Human-Ecosystem Interactions
Grand Ballroom G Hyatt		ESSA and Science Education	The Top 10 Safety Issues in the Science Classroom/Lab You Need to Know!	
Grand Ballroom H Hyatt	Don't Forget the TEAM in STEAM!	How to Build Knowledge by Rebuilding Civilization	Use Data and Descriptive Statistics to Paint a Picture of Cause and Effect Using Interactives in the Science Classroom	Using Paired Inquiry to Implement 3-D Learning

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Mills Studio 1 Hyatt	Evidence-Based Claims in Chemistry (8:00–8:30 AM)	How Do You Know What Your Students Understand about Chemical Ideas?	Forensic Science: Something for Everyone ---------- Education Through Integration: A PBL Approach to an ELA and Physical Science Classroom	How to Locate, Map, and Process an Outdoor Crime Scene
Mills Studio 4 Hyatt	Shell Judging Panel Meeting *By Invitation Only* (8:30–10:30 AM)			
Laurel Salon A Embassy Suites		Equity Through STEM Education (SC-10) (EQUITY strand) By Ticket Only; $61 (9:00 AM–2:00 PM)		
Laurel Salon B Embassy Suites		The World Ender: A NASA Cross-Disciplinary PBL Unit (SC-11) (PHENOMENA strand) By Ticket Only; $76 (9:00 AM–2:00 PM)		
Laurel Salon C Embassy Suites		GLOBE Weather: A New *NGSS*-Based Middle School Unit (SC-12) By Ticket Only; $23 (9:00 AM–2:00 PM)		
Mercantile Embassy Suites	GREAT Projects: A Scaffolded Approach to Phenomenon-, Problem- and Project-Based Learning (SC-9) By Ticket Only; $33 (8:00 AM–2:30 PM)			

We know how hard you work for your students.

We are here to work for you!

Science education is facing some real challenges, and NSTA continues to be the strongest advocate for science education nationwide.

Advocacy and outreach are central to NSTA's mission. NSTA is a leading influencer on science and STEM teaching and learning—both here in Washington, DC and nationwide. With your support we have created a stellar reputation in the education and science communities as a committed advocate for science, STEM, and classroom teachers.

As an NSTA member, you will be supporting NSTA's advocacy work on behalf of science and STEM education (and for you and your students), as well as benefiting from all of the great journals and conference discounts.

We hope you will stay with us—or plan to join this grand adventure as a new NSTA member this year.

Join us and together we can make sure that teachers have a seat at the table and that your teacher voice is heard.

Sincerely,

David Evans
Executive Director
devans@nsta.org

#onlyatNSTA

Learn about all your membership benefits at *www.nsta.org/membership*

NSTA National Science Teachers Association

LOCATION	2:00–3:00 PM	3:30–4:30 PM
Regency A Hyatt	3-D Natural Selection	
Regency B Hyatt	Using Technology to Solve Daily Problems	
Regency D Hyatt	Sci4SJ: Building Community Around Science for Social Justice	
Regency E Hyatt	Learning to See, Seeing to Learn: Freshwater Macroinvertebrates as Gateways to Learning	
Regency F Hyatt	Dipole Vectors: A Chemistry and Pre-Calculus Integration	
Sterling Studio 1 Hyatt	STEAM Outreach into Your Community --------- It Takes a Village: Partnering with the Community to Create Meaningful Science Experiences	Zoom In: Learning Science with Data (4:00–4:30 PM)
Sterling Studio 3 Hyatt		Crafting Your Curriculum to the Culture(s) of Your Students
Sterling Studio 6 Hyatt		Connecting Biodiversity, Literacy, and Culturally Responsive Pedagogy (3:30–4:00 PM)

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:00 PM	3:30–4:30 PM
Sterling Studio 9 Hyatt	Locked Out Forensics	The Innovative Marriage Between Nature, Robotics, and Our Science Classroom
Park View Hyatt	Explain the Steps of Cellular Respiration Using Pop Beads, Ziplock Bags, Cups, and Paper Money	Modeling Natural Selection with Beads
Grand Ballroom A Hyatt	NSTA/ASE Honors Exchange Lecture: The Role of Assessment in Developing a New Science Curriculum Speaker: Mary Whitehouse *Sponsor: The Association for Science Education*	
Grand Ballroom B Hyatt	Make Evolutionary Thinking Visible Through Cladograms!	
Grand Ballroom C Hyatt	Illuminate Human-Centered Design with Circuits!	
Grand Ballroom D/E Hyatt	Award-Winning Share-a-Thon: Featuring NSTA Distinguished Teachers	
Grand Ballroom F Hyatt	Let's Talk Trash About Marine Debris	
Grand Ballroom G Hyatt	Get Students Talking! Resources and Strategies for Supporting Student Discussions	

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LOCATION	2:00–3:00 PM
Grand Ballroom H Hyatt	Intersection of Understanding by Design Framework and *NGSS*
Mills Studio 1 Hyatt	NGSS-ifying Career and Technical Education Courses

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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Westmore-land/ Kingsbury Marriott	Modeling and the *NGSS:* Where Creative Thinking Meets Evidence!			Engaging the Community with STEM Family Events
Pershing/ Lindell Marriott				NSTA Standing Committee, Advisory Board, and Panel Chairs Meeting *By Invitation Only*
Landmark 1 Marriott	Learning About Watersheds with *NGSS* and Models	Water Should Be Seen and Heard NOT Smelled	Building Alliances with Afterschool STEM Educators	Animal Architects: Using Nature's Builders to Teach STEAM in the Early Childhood Classroom
Landmark 2 Marriott	Unfunded STEAM: Integrating Disciplines with Little to No Extra Funding ---------- Navigating the *NGSS:* Building Your Science Curriculum from Scratch	Project-Based Learning on the Farm: A Cross-Curricular Unit	CESI-Sponsored Session: Interactive Web Tools Forum	Engage Your Grades 3–5 Students in Phenomena-Based, Three-Dimensional Learning Through Interactive E-Books and Hands-On Activities
Landmark 3 Marriott	The Art of Science: Connecting Calder, Chihuly, and Seurat to Science	Building STEM Literacy	Using Natural Materials to Explore, Mess About, Investigate, Experiment, and Inquire in Early Childhood Science	
Landmark 4 Marriott	Transforming Your Science Classroom with Technology	Reading, Writing, and Reasoning in an Outdoor Classroom	Connecting Social Studies to STEM in the Makerspace	Launching an Elementary STEM Program
Landmark 5 Marriott	Interactive Phenomenon Wall Using Crosscutting Concepts	Forensics Fun for All	Three-Dimensional Assessments: From Creation to Data Analysis	STEM for the Younger Crowd
Landmark 6 Marriott	Seeds of STEM: A Problem-Based STEM Curriculum for Preschool Classrooms	*NGSS*-Focused Summative Classroom Assessments of Three-Dimensional Learning		Blending Science and Wellness to Engage All Students

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Saturday At-A-Glance

Complete Session Details on App

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Majestic A Marriott	Making the Atomic World Accessible for Middle Schoolers	Exploring Energy Transformations: When the Top Thrill Dragster Rolls Back	Roller Coasters…in a Middle School Science Classroom? YES with a Phenomena on the Side!	
Majestic B Marriott	CESI-Sponsored Session: Butterfly Gardening Using Native Plants	Taking Your Classroom Outdoors with Citizen Science	Using Compelling Phenomena to Drive Instruction	"Dash"ing Across the Curriculum
Majestic C Marriott	Using Fiction and Poetry in Science Education: Insights from Authors and Educators	Two Sides of the Same Coin: Literature and Science ---------- I Like Scientists! Strategies for Science Instruction for ELLs in the Early Years	Jazzing Up Science Research with Podcasting ---------- Using STEAM and Literacy to Teach Ecology in an Urban Classroom	So, This Is Basically the Thingy, Right? Student Sensemaking in Science (12:30–1:00 PM)
Majestic D/E Marriott			Middle School Share-a-Thon Hosted by National Stem Cell Foundation Scholars	
Majestic F Marriott			Precipitating Change: Integrating Meteorology, Mathematics, and Computational Thinking	Using Classroom Inquiry to Promote Scientific Argumentation in Physical Science
Majestic G Marriott		Food Chains: Using Field Surveys That Give Real Results	Help! I'm Teaching Life Science to Middle Schoolers!	The Role of Field Experiences in Promoting Teaching Self-Efficacy ---------- Working Through the Fog: Engineering Fog Machines for Spooky Scenes
Majestic H Marriott		CESI Membership Meeting (10:00–11:00 AM)		
Portland/ Benton Marriott	Awaken Insightful Learning in Your Elementary Classroom Through Phenomena and Modeling	Assessing 3-D Learning Using Multiple Literacies in Project-Based Learning Resources		Elementary Science: Using Phenomena to Drive Instruction

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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon	12:30–1:30 PM
Parkview/ Aubert Marriott	Science Notebooks: Deepening Learning Through the Integration of Science and Literacy ---------- Using Children's Literature in Teaching Science	Invisible Technology: Integrating Digital Tools into Preschool Science	STEAMing Up Your Classroom	Who Talks in Science Class? Everyone!
Crystal Ballroom Marriott				
Gateway A Marriott	Demystifying the E in Engineering ---------- Engineering a Pancake Recipe: Connecting Chemistry to Everyday Life	Come Sail Away! Supporting English Language Learners Through Engineering Experiences	Igniting Literacy Through Engineering	Engaging Outdoor Learning Techniques for Student Success
Gateway B Marriott	AMSE-Sponsored Session: A Transformative Transmedia Framework for Early STEM Learners	AMSE-Sponsored Session: Literacy Instruction in the Secondary STEM Classroom		AMSE-Sponsored Session: Remembering the Dream and Preparing for the Future!

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:00 PM	3:30–4:30 PM
Westmore-land/ Kingsbury Marriott	Phenomena-Based Learning Experiences and Museums	Teach Basic Genetics to Elementary/Middle School Students Using Color Scratch Dragons
Landmark 1 Marriott	CESI-Sponsored Session: Integrating Science for Young Children with an Outdoor Focus	
Landmark 2 Marriott	The Best STEM Books for Kids: What Are They, How Are They Selected, How to Use Them!	Free Teacher Resources to Support the Use of Physical and Life Science Online 3-D Assessment Tasks
Landmark 3 Marriott		Using Lab Notebooks in the Preschool and Elementary Classroom
Landmark 4 Marriott	Using PBL to Incorporate Life Science into Elementary Math Curriculum	Growing Our Food on Mars with Hydroponics
Landmark 5 Marriott	The Importance of Constructing Good Science Models in the Elementary Classroom	No Textbook, No Problem
Landmark 6 Marriott		Not So Phenomenal Entry Points!
Majestic A Marriott	Thelma and Louise Take on STEM Integration in the Upper Elementary Classroom	Elementary Science with NOAA: Free K–5 Science Resources from the National Oceanic and Atmospheric Administration

LOCATION	2:00–3:00 PM	3:30–4:30 PM	6:30–8:00 PM
Majestic B Marriott	*Solar Science*—Applying 3-D Learning to the Study of the Sun's Daily and Annual Motion	Using Commonly Available Materials to Teach STEM in Inner City Classrooms	
Majestic C Marriott	Integration of Trauma-Informed Care and Practice with *NGSS* Lessons	Anchoring for Equity! ---------- Taking the Pain Out of Managing Long-Term Investigations	
Majestic F Marriott	Blurring the Lines of Traditional Science Education	Igniting Science Writers	
Majestic G Marriott	Designing Classroom Assessments to Address *NGSS* Performance Expectations	Integrating Health Content in All Domains of Science ---------- Embedded Phenomena: Classrooms as Sites of Community Inquiry	
Portland/ Benton Marriott	Claim, Evidence, and Reasoning with Schoolyard Bird Watching	Advance Science Learning Through Collaborative Conversations	
Parkview/ Aubert Marriott		Engaging Learners in Inquiry Through Shared Language Self-Authored Books ---------- Awesome Ideas to Incorporate Tic-Tac-Toe Menus to Teach Science	
Crystal Ballroom Marriott			NESTA Friends of Earth Science Reception
Gateway A Marriott	What Is Outside Our Classroom Window?	"Bee" an Engineer: A Grade 2 Integrated STEM Lesson (3:30–4:00 PM)	

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LOCATION	2:00–3:00 PM	3:30–4:30 PM
Gateway B Marriott	AMSE-Sponsored Session: Biological Equity for Special Education	AMSE-Sponsored Session: How to Be a DonorsChoose Rockstar—Using Crowdfunding to Get a Killer STEM Space!

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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

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Built in 1960, the Climatron greenhouse at the Missouri Botanical Garden has more than half an acre of enclosed space with no interior support or columns, allowing more sunlight per square foot for plants than conventional designs.

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
Room 145 America's Center	"Talk Science" Focus Group to Enrich Cultural Responsiveness and Relevance in the Classroom		A System for Systems Thinking
Room 151 America's Center		Nature of Science in Your Classroom… Without Starting Over	Create, Communicate, Coalesce
Room 152 America's Center	Island Ecosystem Disrupted	Equitable By Design: Planning Intentionally for the Success of ALL Students	
Room 160 America's Center	Using Stations in the Middle School Science Classroom (8:00–8:30 AM)		Easy, Effective Apps to Investigate Phenomena (11:30 AM–12 Noon)
Room 161 America's Center	Are We Doing a Good Job? Evaluating *NGSS* Implementation		
Room 162 America's Center			Activating Empathy in to Action: Project Hero
Room 220 America's Center	Assessing 3-D Learning: You Can Do It! (3-D strand)	When the Performance Expectations Aren't Enough: Unpacking the *NGSS* Evidence Statements to Plan for Three-Dimensional Science Instruction (3-D strand)	
Room 221 America's Center	Engaging Early Learners Through Cross-Curricular Integrated STEM Experiences (CONNECTIONS strand)	STEM and *NGSS* No Longer Separate, But Still Equal (CONNECTIONS strand)	Learning from Nature: STEAM Investigations for the Elementary Classroom (CONNECTIONS strand)

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
Room 222 America's Center		**Supporting All Students to Make Sense of Phenomena by Building All of Their Intellectual Resources** (EQUITY strand)	***CEREBROedu/BRAINedu:* Education and Family Engagement Around Brain Health in Latinx Communities** (EQUITY strand)
Room 223 America's Center	**Jurassic Mystery: Using Real Research to Teach Critical-Thinking Skills** (PHENOMENA strand)	**Phenomenon-Based Learning: The Other PBL Approach to STEM Instruction** (PHENOMENA strand)	**Biophilia and Young Scientists** (PHENOMENA strand)
Room 224 America's Center	**Solids: The Neglected "State" of Chemistry**	**Exploring Visible and Invisible Light and Energy in a 3-D Learning Setting**	**Redox Practical, Relevant, Engaging, and Fun Corrosion Chemistry!**
Room 225 America's Center		**NESTA and UNAVCO: Hands-On Demonstrations and Models for Your Earth Structure, Earthquake, and Plate Tectonics Unit**	
Room 226 America's Center	**Coasting Through Physics: Bring the Thrill of Roller Coasters to Your Classroom!**	**Explore Chemistry Beyond the Classroom with ChemClubs**	
Room 227 America's Center			**Exploring the STEM Landscape: Helping Students Reflect on Science, Engineering, and Math Practices**
Room 228 America's Center	**How to Code Your H_2O!**	**Earth Is Flat? No Way!**	**Developing and Analyzing Scale Models of Our Solar System**
Room 229 America's Center	**Using Design Thinking and Sustainable Design to Build Student Agency**		**Water Wars: Making Sense of Human Activity and Earth Systems Through Models**

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
Room 230 America's Center	Using a Socio-Scientific Issues-Based Approach to Teach *NGSS* in High School Biology (8:30–9:00 AM)	Glaciers: Traveling Time Capsules	
Room 231 America's Center			Integrating Multiple Concepts in Biology Using Cyanogenic Clover ---------- Immersing in Our Senses: Using Phenomena to Teach Neurobiology
Room 232 America's Center	Darwin's Response to His Objectors and Its Relevance for Today	Using a Lab Squad to Engage All Learners ---------- When XY No Longer Means Boy: Suggestions for a GLBTQ-Friendly Biology Class	Biological Equity for Special Education
Room 240 America's Center		Cross-Curricular Connections for a Sustainable Planet	
Room 242 America's Center	How Far? Measuring the Distance to Geostationary Satellites by Triangulation	Cross-School Collaboration to Build an Interdisciplinary Water Quality Unit	Extend the Classroom Beyond Four Walls: Earth Science Outdoor Learning
Room 255 America's Center		Problem-Solving Through the Years: Engineering Design from an Historical Standpoint	
Room 260 America's Center	Seeing Is Believing…or Is It? *NGSS* Investigations into Human Perception	It's Flu Season!	
Room 261 America's Center	Connecting the Wonder of STEM and Language Learning for ALL Learners	Engineering Challenges and the Power of Analyzing Failure	Get Them THINKING! Critical Thinking, the Nature of Science, and Logic in Engineering and Crosscutting Concepts

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
Room 262 America's Center	Vertically Aligned Lower School and Middle School Evolution Curriculum	Connecting Science, Mathematics, and Engineering with the Concept of Scale and Proportion (9:30–10:00 AM)	
Room 263 America's Center	Are You Normal? A Statistical Investigation of Body Temperature		These Kids Can: Achieving in World of High Standards and Differing Abilities
Room 264 America's Center	You Started with a Phenomenon! Now What?		
Room 267 America's Center	Engage, Explore, Energize: An Adventure on Owl Island		Argumentation in Context to Enhance Students' Three-Dimensional Learning
Room 276 America's Center	NSTA Press® Session: *Eureka!* K–2 and 3–5 Science Activities and Stories	NSTA Press® Session: *Once Upon an Earth Science Book*	

Earth and Space Science | Engineering & Tech | Life Science | Physical Science | Informal Science Ed | General Science Ed

LOCATION	2:00–3:00 PM	9:30–10:30 AM	11:00 AM–12 Noon
Landmark 5 Marriott		Using Nonfiction Historical Trade Books to Teach About Scientists and Social Studies	Developing Science Provocations
Landmark 6 Marriott	Integrated Curriculum and Instruction: Using Crosscutting Concepts and Inquiry Practices to Leverage Elementary Teaching and Learning	Creating Models Through the Use of Learning Centers in the Elementary Classroom	Integrating PBL and STEM to Enhance Lessons and Maximize Student Achievement
Landmark 7 Marriott	Full Steam Ahead with Super STEM iPad Apps and Trade Books		

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8TH ANNUAL

STEM

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

Forum & Expo

HOSTED BY NSTA

San Francisco, CA

July 24–26, 2019

If you are searching for ways to immediately and effectively apply STEM education in a preK–16 setting or to implement STEM as a best practice, you should plan to attend this dynamic event. Educators and organizations who are actively implementing STEM programs in their school and districts will come together to share tactics that work.

NSTA Members receive a deep discount, and if you register before the Earlybird deadline, you'll enjoy the maximum savings.

#STEMforum

This year's STEM Forum offers the following strands of programming:

Lower Elementary/Early Childhood

Students in the lower elementary grades are beginning to understand the world around them and the role they play in it. Sessions in this strand will emphasize open-ended and active exploration, learning through play, and hands-on investigations of the real world through the lens of *NGSS*.

Upper Elementary

How do we respond to research that indicates that by the time our students reach the fourth grade, a third of them will lose interest in science? The sessions in this strand showcase hands-on, interactive programs and instructional strategies that support STEM and have been successfully integrated into the elementary core curriculum.

Middle Level

Engaging students through opportunities to explore STEM fields of study is a top priority at the middle school level. The sessions in this strand showcase how STEM learning environments interconnect to serve as a vehicle for discovery, innovation, and independent problem solving.

High School

In preparation for entry to college and industry, students must be able to apply their understanding in the context of real-world problem solving. Workshops in this strand showcase the creative ways educators are addressing the challenges of engaging students in STEM while meeting the *NGSS* and *Common Core* Math standards.

Building STEM Ecosystems: Community Partnerships

Successful STEM programs incorporate hands-on and real-life applications where students develop the skills and mind-sets needed to answer complex questions, investigate global issues, and develop solutions to real-world challenges. The sessions in this strand highlight select successful preK–16 partnership initiatives.

Post-Secondary

Join our community of post-secondary educators as they discuss important and relevant topics in STEM education in this unique *Edcamp/unconference* format. Sessions in this strand will highlight pedagogical and discipline-based research on STEM teaching and learning.

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

NSTA National Science Teachers Association

Complete Exhibitor listings, as well as Exhibitor Workshops are available on the NSTA Conference App. To download, visit:

www.nsta.org/conferenceapp

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3D Molecular Designs	#1269
3Dux/ design	#1713
8th Annual STEM Forum & Expo, *hosted by NSTA*	#1796
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Bayer Corp.	#1632
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National Inventors Hall of Fame/ Camp Invention	#1717
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Nova Education	#1618
NSTA 2019 Cincinnati Area Conference	#1895
NSTA 2019 Salt Lake City Area Conference	#1894
NSTA 2019 Seattle Area Conference	#1994
NSTA 2020 Boston National Conference	#1794
NSTA Community Hub	#1068
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PocketLab by Myriad Sensors, Inc.	#1687
Population Connection	#1434
Presidential Awards for Excellence in Mathematics and Science Teaching	#888
Project Lead The Way	#1087
Project Learning Tree	#1321
Publisher Spotlight	#1873
Qinghua Science and Education Equipment Company	#889
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Sheldon Laboratory Systems	#1785
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Skulls Unlimited International, Inc.	#1486
Smithsonian Science Education Center	#1951
Society for Neuroscience	#1932
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Soil Science Society of America	#1743
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Southern Science Supply	#1433
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Space Station Explorers/ISS National Lab	#1917
Speak Agent	#1971
St. Louis College of Pharmacy	#1309
St. Louis Zoo, Science Center and Missouri Botanical Garden	#694
StarLab	#1405
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Touch of Life Technologies	#1623
TPS Publishing Inc.	#1952
trees for little people	#887
Tumblehome, Inc.	#1288
Twig Education	#1305
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U.S. Dept. of Energy, Office of Fossil Energy	#1788
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The University of Southern Mississippi–Marine Education Center	#1972
Unruly Studios	#1950
USDA Natural Resources Conservation Service	#1638
Vaccine Education Center at Children's Hospital of Philadelphia	#781
Van Andel Education Institute	#1180
Vernier Software & Technology	#1551
VictoryVR, Inc.	#1589
W.W. Norton	#1488
Ward's Science	#1470
Webster University	#791
WestEd	#1864
Wikki Stix	#1831
Wisconsin Fast Plants Program	#1423
Work Training Center, Inc.	#1190
World Wildlife Fund	#1295
WorldStrides	#1742
XYZprinting	#1944

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2019 NSTA AREA CONFERENCES ON SCIENCE EDUCATION

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SALT LAKE CITY, UT
OCT. 24–26

Science: The Bridge to Endless Possibilities

CINCINNATI, OH
NOV. 14–16

Fostering a Culture for Science

SEATTLE, WA
DEC. 12–14

PROFESSIONAL DEVELOPMENT STRANDS

Navigating Phenomenal Landscapes: Using Phenomena as a Way to Guide Science Instruction

Forming Natural Bridges: Integrating Science Across Content Areas

Hook 'Em for Life: Sustaining Science Teaching and Learning

Bridging the Three Dimensions of Science Teaching and Learning: Practices, Core Ideas, and Crosscutting Concepts

Constructing Bridges: Building Lifelong Appreciation and Passion for Science

Building Strong Bridges: Reinforcing the Connection Between Science and Literacy

Providing STEM Pathways for the Future

Building Partnerships for Effective Science Education

Finding Joy in Experiencing Science

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75th NSTA ANNIVERSARY

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