
8TH ANNUAL
HOSTED BY NSTA

STEM

Forum & Expo 2019

San Francisco, CA
July 24–26, 2019

#STEMforum



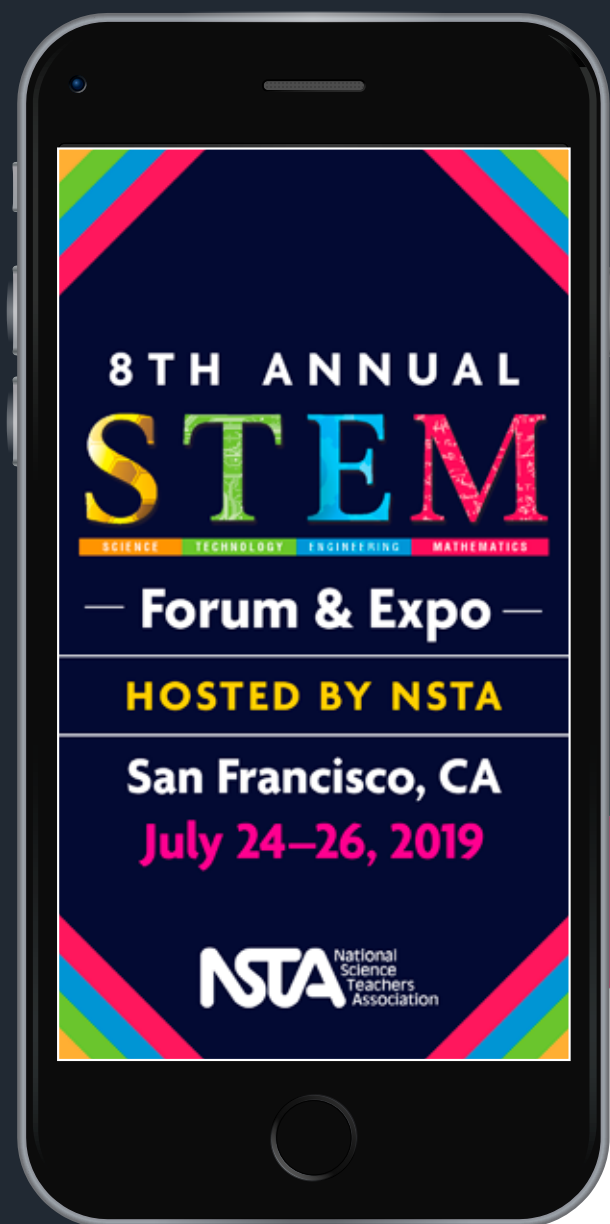
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With the app, you'll be able to:

- Search sessions, exhibitors, and speakers to build a schedule of your favorites
- Filter the sessions you're interested in by strand and type to customize an agenda that is just right for you
- Access maps of the Exhibit Hall, Convention Center, and Hotels while you are on the move
- Pull up the all-important WiFi information
- Learn more about the exhibitor and sponsors
- Find out where NSTA events are happening
- Tweet while you are in sessions or attending events
- Receive important updates and notifications



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NSTA National
Science
Teachers
Association



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

Wednesday starts with Program Partner Sessions at 10:30 AM

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

Visit: www.nsta.org/conferenceapp

National Science Teaching Association

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

NSTA Affiliates

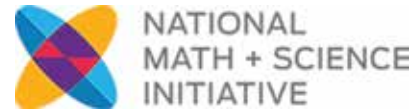
- Association for Multicultural Science Education (AMSE)
- Association for Science Teacher Education (ASTE)
- Association of Science-Technology Centers (ASTC)
- Council for Elementary Science International (CESI)
- Council of State Science Supervisors (CSSS)
- National Association for Research in Science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

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

NSTA and the STEM Forum Steering Committee are extremely grateful to the following companies and organizations for their generous support and contributions to the 8th Annual STEM Forum & Expo, *hosted by NSTA*.

Sponsors

Great Minds
National Math + Science Initiative
Pitsco Education
PlaySTEAM
STEMscopes—Accelerate Learning
TeacherGeek Inc.



STEM Partners

American Institute of Architects (AIA)
International Technology and Engineering Educators Association (ITEEA)
NCTM (National Council of Teachers of Mathematics)
STEMx



Contributors

American Institute of Architects Committee on Architecture for Education
The National Academies of Sciences, Engineering, and Medicine
National Science Foundation
Northrop Grumman
STEM3 Academy
STEMx



Welcome to the 8th Annual STEM Forum & Expo, hosted by NSTA



Jennifer C. Williams



Dennis Schatz

Dear STEM Forum & Expo Participants:

Welcome to San Francisco, “The City By the Bay.” This summer the National Science Teaching Association, along with our program partners, welcomes you to the 8th Annual STEM Forum & Expo. Like the bridges found throughout this fair city, the STEM Forum & Expo hopes to build bridges within STEM education between formal and informal educators, plus between institutions of learning, the public sector, and governmental agencies from around the world. We come together this week to learn, network, and share the best, and most innovative, practices in STEM learning.

In addition, this forum continues NSTA’s commitment to a deeper understanding of and greater participation in STEM learning for all learners.

Working collectively and in concert with all academic disciplines in formal and informal education settings, we strive with this STEM Forum to move forward and improve our world’s environment, culture, and quality of life for all individuals through STEM education. The STEM fields continue to play a key role in economic prosperity, global stability, and the advancement of global enterprise. By coming together and sharing our knowledge and expertise in STEM, we are able to help our students stay globally competitive in terms of innovation, while demonstrating real-life applications and relevance to the concepts we are teaching.

We hope this year’s forum will invigorate you, boost your energy and enthusiasm for STEM learning, and provide you with unparalleled opportunities to engage in dialogue, gather resources, and network with like-minded colleagues. This conference is designed to provide you with information and resources to become successful with the next steps of implementing STEM into your place of learning and teaching. We trust that you will take full advantage of all the opportunities this STEM Forum has to offer. We encourage you to embrace the potential that STEM can add to your educational settings by using the tools, knowledge, and resources you will accumulate.

In conclusion, we are thrilled to bring to you this highly specialized professional development event that enables us, as educators, to grow as professionals, inspire your youth, and foster inclusivity and diversity within STEM. We hope you find the presentations, workshops, panels, speakers, and exhibits informative and useful.

Do take some time this week to explore this amazing city, and visit some of the historic sites, museums, parks, and gardens. You will find STEM applications all around you in San Francisco. On behalf of the Steering Committee and NSTA, thank you for making STEM a priority by attending this forum. We wish you a productive and meaningful stay in San Francisco.

Jennifer C. Williams, Steering Committee Chair,
8th Annual STEM Forum & Expo, *hosted by NSTA*

Dennis Schatz, 2019–2020 NSTA President



2019 STEM Forum Steering Committee

Chair

Jennifer C. Williams

Department Chair, Lower School Science
Isidore Newman School
New Orleans, LA

Committee Members

**Lower Elementary/Early
Childhood Strand Leader**

Adriana Guerra

Kindergarten Teacher
E.P. Foster STEM Academy
Ventura, CA

**Upper Elementary
Strand Leader**

Brandi Leggett

Instructional Coach
Rosehill Elementary School
Lenexa, KS

**Middle Level
Strand Leader**

Kavita Gupta

AP Chemistry Teacher
Monta Vista High School
Cupertino, CA

**High School
Strand Leader**

Kerri Murphy

Computer Science and Math Teacher
Norton High School
Norton, MA

**Building STEM Ecosystems:
Community Partnerships
Strand Leader**

Karen Hays

Youth Programs Manager
Denver Zoological Foundation
Denver, CO

Postsecondary Strand Leader

Elizabeth Allan

NSTA President-Elect
Professor, Dept. of Biology
University of Central Oklahoma
Edmond, OK

Registration, Travel, and Hotels

Meeting Location and Times

The STEM Forum attendee and exhibitor services, the exhibits, the NSTA Store, and all sessions will be located at Moscone Center West. The STEM Forum & Expo will begin on Wednesday, July 24, at 10:30 AM, starting with Program Partner sessions, along with a First-Timers session from 1:30 to 2:30 PM, followed by the Student Panel, and an Opening Exhibits Reception. The Thursday keynote presentation will be given by Bernard A. Harris, Jr., former astronaut and CEO of the National Math + Science Initiative, 4:30 to 5:30 PM.

The STEM Forum & Expo will end on Friday with a Closing Session from strand leaders, 4:30 to 5:30 PM.

Express Check-In

Registration is required for participation in all forum activities and the exhibits. Express Check-In and Attendee Services are located in the Level 1 Lobby of Moscone Center West. 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., July 24	10:00 AM–6:30 PM
Thu., July 25	7:00 AM–5:30 PM
Fri., July 26	7:00 AM–5:30 PM

The NSTA Store is located in the Level 2 Lobby of Moscone Center West and will be open the following hours:

Wed., July 24	10:00 AM–6:30 PM
Thu., July 25	7:30 AM–4:30 PM
Fri., July 26	7:30 AM–4:30 PM

New Badge Reprint Fee

If you misplace or forget your badge, there will be a reprint fee of **\$20** for a replacement badge. To have a replacement badge printed, please proceed to Attendee Services and present your personal ID to be issued a replacement. *Note: Only ONE replacement badge will be issued.*

Transportation Discounts

SuperShuttle is offering **10% off** airport rides at San Francisco International Airport (SFO); Oakland International Airport (OAK); and Norman Y. Mineta San José International Airport (SJC).

To receive the NSTA discount, visit bit.ly/3IUBaqn (discount code is **JMGSK**).

For additional travel discounts, including airfare and car rental, visit www.nsta.org/stemtravel.



First-timers, Preservice Teachers and New Teachers Session

Come learn about the STEM Forum & Expo program and networking opportunities for registrants who are first-time attendees. Join us for tips on navigating the forum and learn how to make the most of the amazing opportunities available over the next few days.

Is This Your First NSTA Conference?
First-Timers Session
Wednesday, July 24
1:30–2:30 PM
Moscone Center West, 2024





Housing Questions or Concerns?

If you have questions or concerns regarding your housing, contact Orchid.Events (during business hours) Monday through Friday, 6:00 AM–5:00 PM (PT) at 877-352-6710 (toll-free) or 801-505-4611. After hours and on Saturday, call 801-243-4476.



- 1. Hotel Zelos San Francisco
12 4th St.
- 2. Intercontinental San Francisco Hotel
888 Howard St.
- 3. San Francisco Marriott Marquis Hotel
(Headquarters Hotel)
780 Mission St.

Shuttle service will not be provided as all hotels are within walking distance of Moscone Center West.

STEM Forum & Expo Resources

NSTA Exhibits

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

Go to **Express Check-In** to print your official badge. This badge is your "ticket of admission" to the Exhibit Hall and all non-ticketed forum activities. A map display of the Exhibit Hall is accessible via our Conference app. A complete list of exhibitors is on page 45.

Exhibit Hall Hours. Located in Level 1 Exhibit Hall of Moscone Center West, exhibits will be open for viewing during the following hours:

Opening Exhibits Reception

Wed., July 24 4:30–6:30 PM

Exhibits

Thu., July 25 9:15 AM–3:00 PM

Fri., July 26 9:15 AM–3:00 PM

Exhibitor Workshops. Exhibitor-sponsored workshops for STEM teachers are offered throughout the forum. 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, please check in at the Presenters/Presiders counter in the Attendees Services Area.

Wi-Fi at Moscone Center West

NSTA is pleased to announce that 2019 STEM Forum attendees will have access to a robust Wi-Fi service, available in the public/common areas and meeting rooms of Moscone Center West. However, this Wi-Fi is *not* accessible in the Exhibit Hall. There is no password.

Network: **NSTA19**

NSTA Community Hub

Also, be sure to stop by NSTA Community Hub, located at Booth 313 in the Exhibit Hall. Find out more about how we are celebrating our 75th anniversary and the benefits of becoming an NSTA member, including all the best professional development and resources a STEM educator needs.

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 Moscone Center West, the Marriott Marquis, and the 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 STEM content with sound teaching strategies for STEM educators of all grade ranges and disciplines.

Graduate-Level Credit Opportunity

8th Annual STEM Forum & Expo, hosted by NSTA attendees can earn one or two graduate-level credits/units in professional development through Dominican University of California (dominicancaonline.com) course **EDUO 9034**. Participants must attend the STEM Forum, 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/2I8pI2N or stop by the Dominican University of California booth located in the Level 1 lobby of Moscone Center West during the following hours:

Wednesday 8:00 AM–4:00 PM

Thursday 8:00 AM–4:00 PM

Friday 8:00 AM–5:00 PM

Register within three weeks of the STEM Forum ending date.

Special Offer for STEM Forum & Expo registrants

Westfield San Francisco Centre • 865 Market St., San Francisco, CA 94103

Located within walking distance of Moscone Center West, Westfield San Francisco Centre is a shopping destination with theaters, restaurants, and department stores. Westfield San Francisco Centre is extending its **Black Card Program** to STEM Forum & Expo registrants. It's as simple as showing your badge to the **Westfield Concierge, on centre's Level 1**, to redeem your Westfield San Francisco Centre Black Card. For more information, visit www.westfield.com/sanfrancisco/sfblackcardprogram.html.

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 **July 24–August 5, 2019**, while the session is fresh in your mind! During the STEM Forum, session evaluations can be completed on the computers at the Presenters/Presiders counter in the Attendee Services Area.

To evaluate a session using our online browser, attendees should follow these steps:

- Go to the STEM Forum web page: www.nsta.org/stemforum
- Click on the “**Attendee Info**” 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 **August 6, 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.

**ELEMENTARY
STEM
SHOWCASE**

SCIENCE TECHNOLOGY ENGINEERING MATHEMATICS

Thursday, July 25, 2019
10:30 – 12 Noon
Moscone Center West

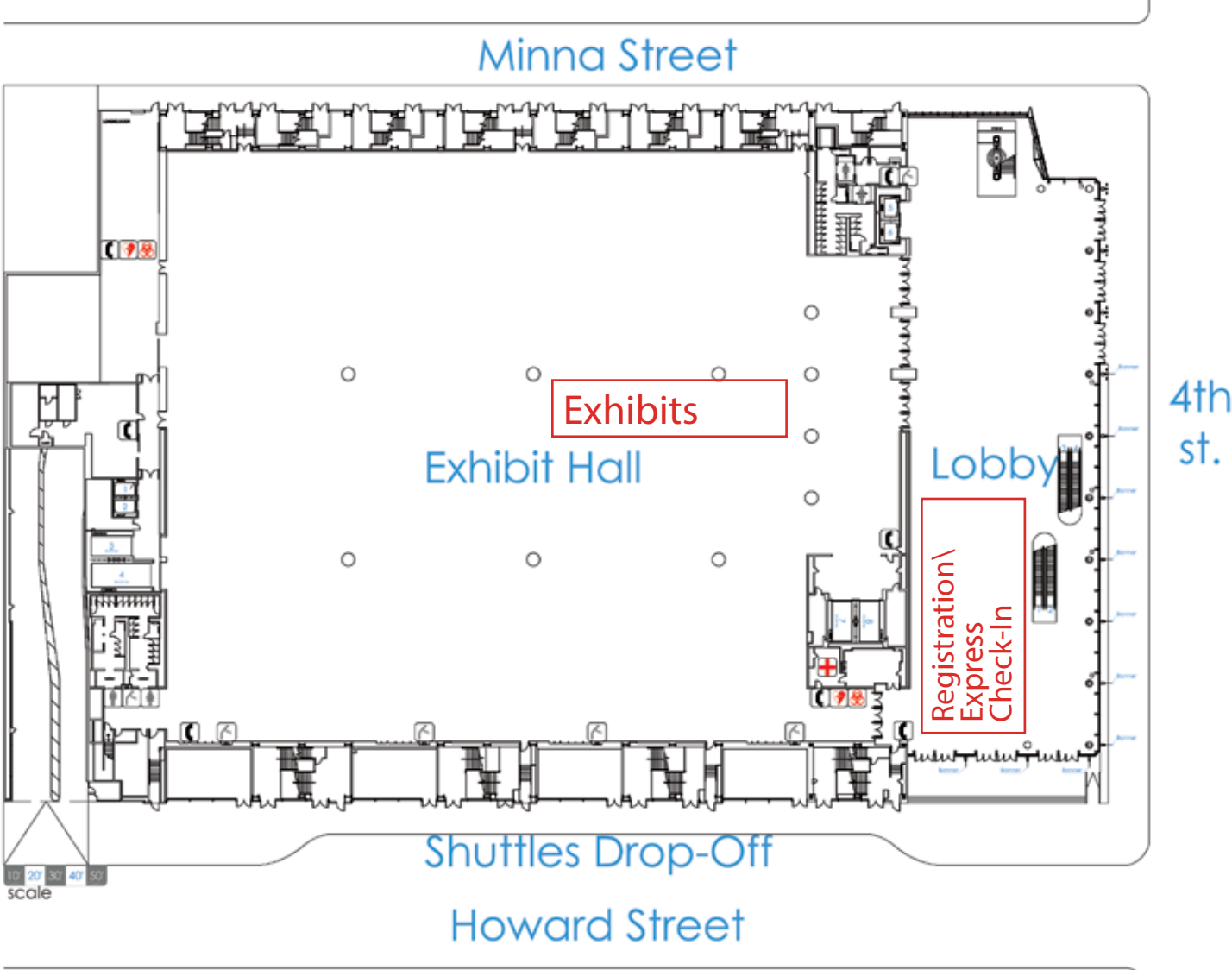
Join Us For:

- **Hands-on** STEM lessons and activities
- **Learn** from STEM authors, experts and educators
- **Leave** with a mindful of ideas and resources for early childhood and elementary classrooms
- **Win** door prizes

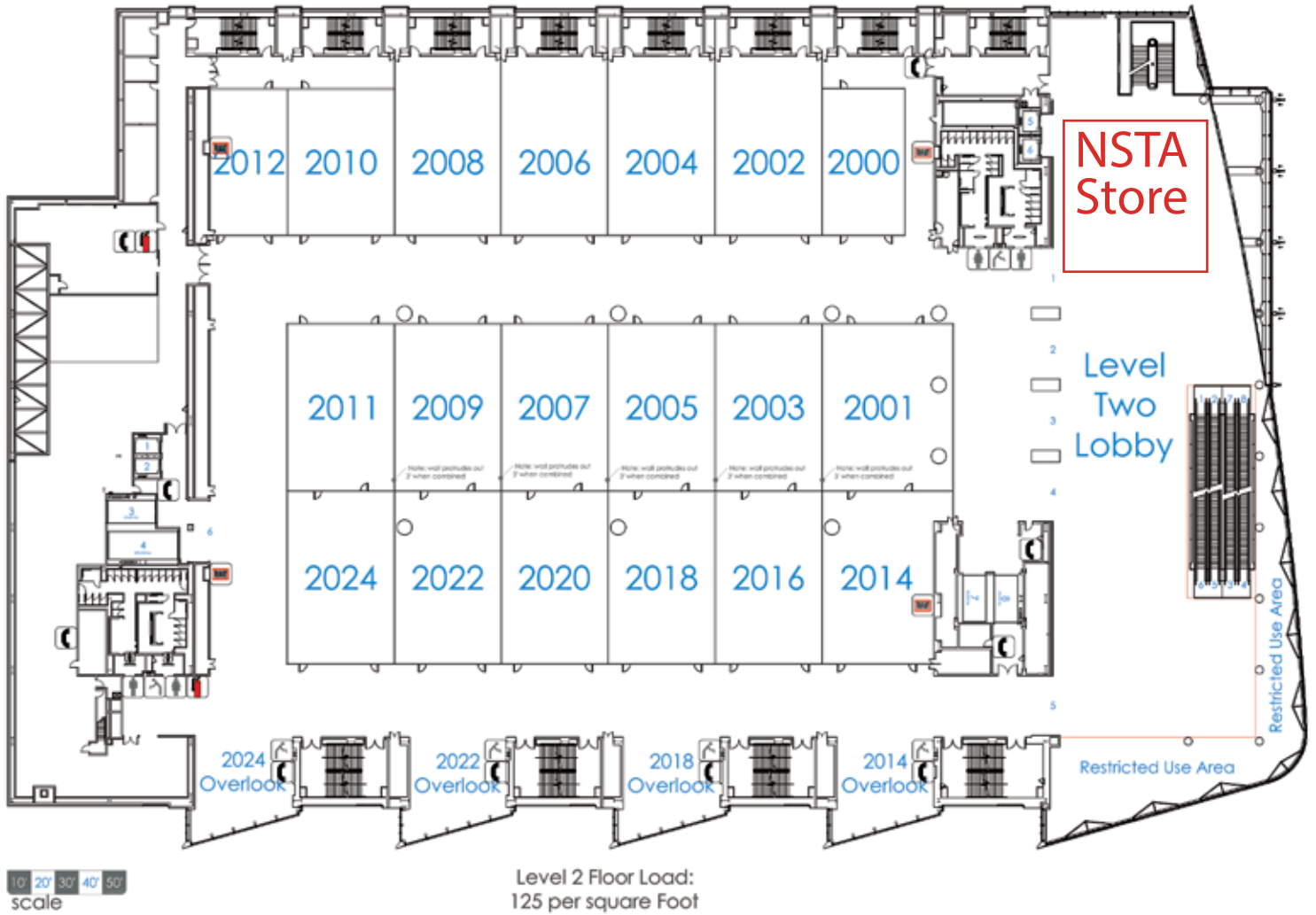
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75th ANIVERSARY NSTA

Level One

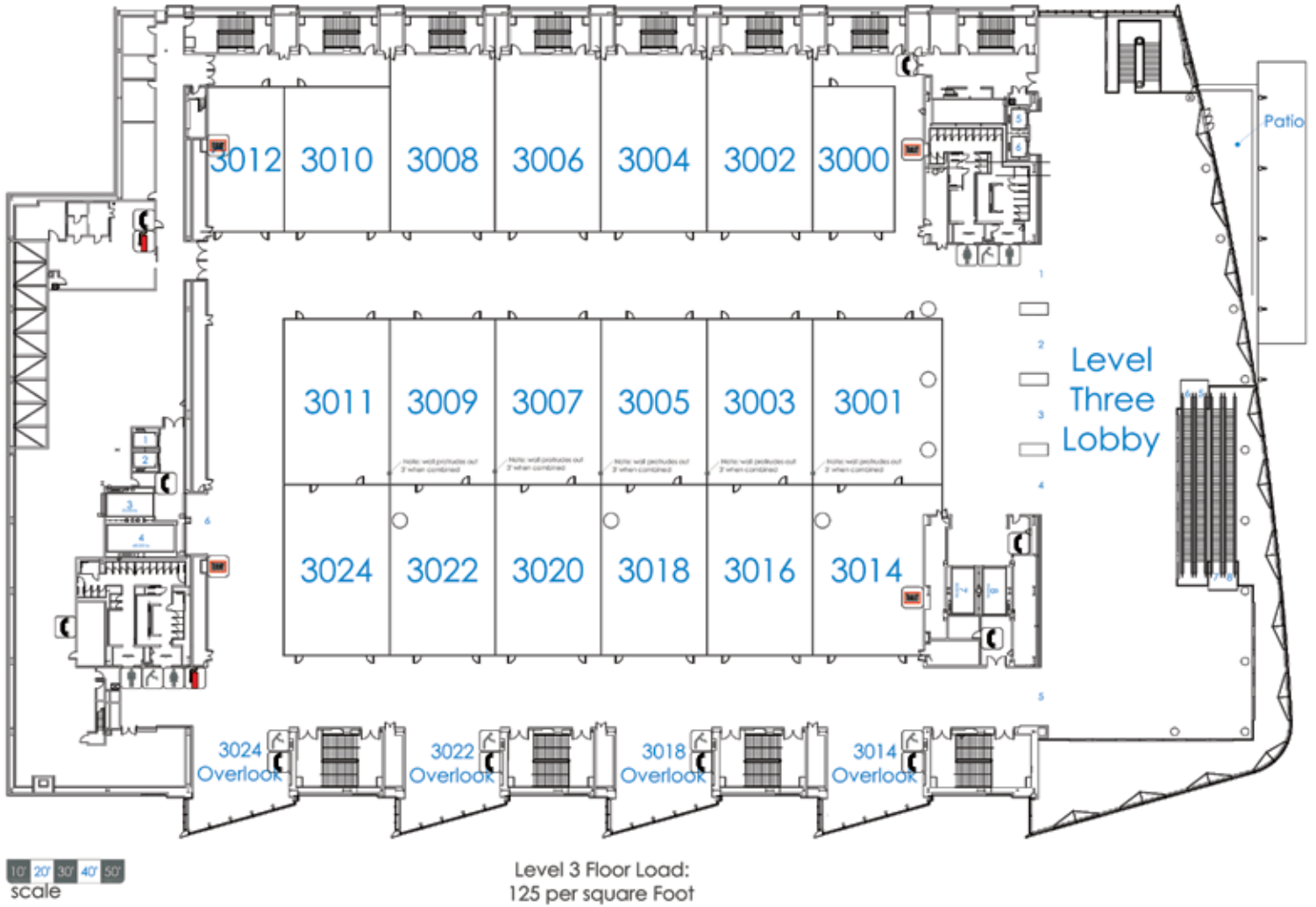


Level Two



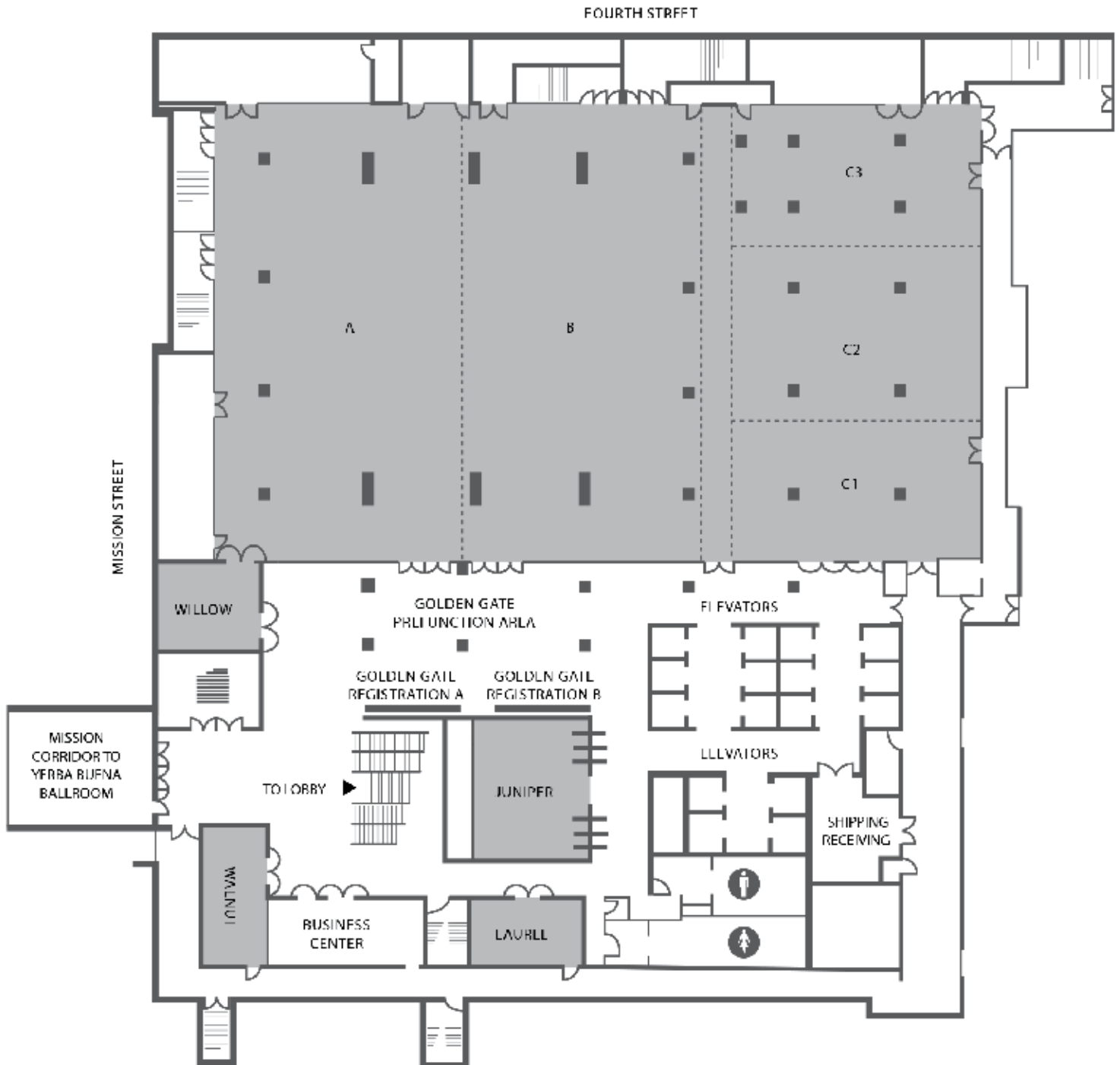
Moscone Center West

Level Three



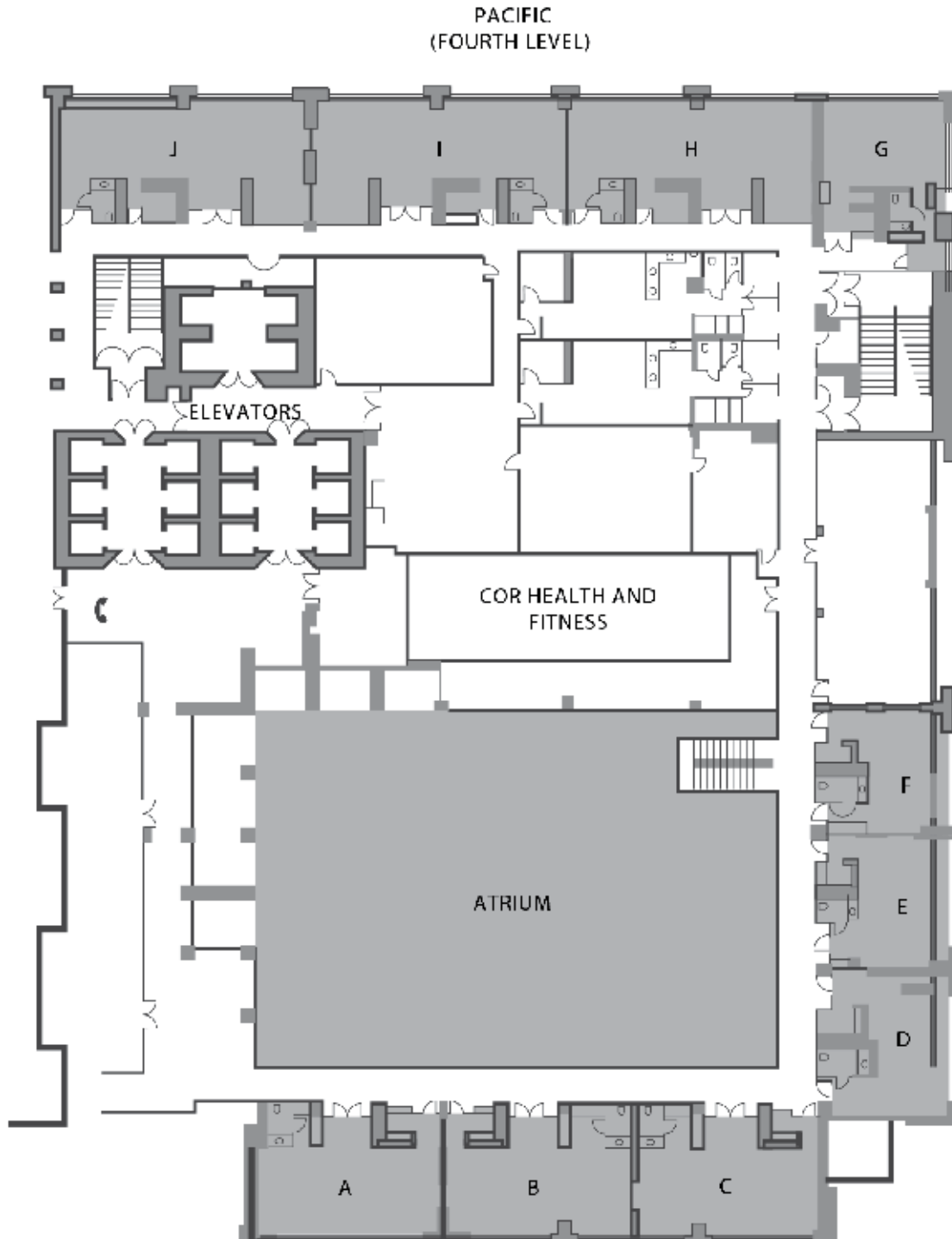
San Francisco Marriott Marquis

Golden Gate Ballroom B2 Level



San Francisco Marriott Marquis

Pacific Conference Suite Fourth Level





TODAY'S LABS CREATE TOMORROW'S LEADERS

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occupations in the
next decade will
require at least some
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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

Houston, Texas
March 31–April 3, 2022

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

Los Angeles, California—December 9–11



Keynote Presentation

Thursday, July 25, 4:30–5:30 PM



Bernard A. Harris, Jr.

Author, Former NASA Astronaut and Chief Executive Officer, National Math + Science Initiative

Dream Beyond

From modest beginnings to soaring to unbelievable heights, Bernard Harris’ maxim is that with the right attitude, your altitude has no limit. Author of the book, *Dream Walker: A Journey of Achievement and Inspiration*, Dr. Harris is currently the CEO of the National Math + Science Initiative, aimed at improving teacher effectiveness and student achievement in STEM education across the country.

The first African American to walk in space, Bernard Harris is a medical doctor, a former NASA scientist and astronaut, and former CEO and managing partner of successful venture capital firm. While at NASA, he conducted research in musculoskeletal physiology and clinical investigations of space adaptation and developed in-flight medical devices to extend astronaut stays in space.

NSTA wishes to thank National Math + Science Initiative for sponsoring this speaker.

(See page 29 for location.)

First-Timers Orientation

Come learn about the STEM Forum & Expo program and networking opportunities for registrants who are first-time attendees. See page 4 for details.

Wednesday, July 24

8:00 AM–4:00 PM	Assessing Three-Dimensional Learning Workshop (Ticket Required, separate registration)	23
10:30–11:30 AM	Program Partner Sessions	22–23
12 Noon–1:00 PM	Program Partner Sessions	22–23
1:30–2:30 PM	First-Timers Orientation	23
2:30–4:00 PM	Student Panel Discussion: The Power of STEM Education	22
4:30–6:30 PM	Opening Exhibits Reception	23

Thursday, July 25

8:00–9:00 AM	Featured Panels/Hands-On Workshops	24–25
8:00–9:00 AM	Exhibitor Workshops	26
9:15 AM–3:00 PM	Exhibits	28
9:30–10:30 AM	Sessions, Exhibitor Workshops	24–28
10:30 AM–12 Noon	Elementary STEM Showcase!	28
11:00 AM–12 Noon	Sessions, Exhibitor Workshops	24–28
1:30–2:30 PM	Sessions, Exhibitor Workshops	29–32
3:00–4:00 PM	Sessions, Exhibitor Workshops	29–32
4:30–5:30 PM	Keynote Presentation: Bernard A. Harris, Jr.	29

Friday, July 26

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9:30–10:30 AM	Sessions, Exhibitor Workshops	34–38
11:00 AM–12 Noon	Featured Hands-On Workshop	34
11:00 AM–12 Noon	Sessions, Exhibitor Workshops	34–38
1:30–2:30 PM	Sessions, Exhibitor Workshops	39–42
3:00–4:00 PM	Sessions, Exhibitor Workshops	39–42
4:30–5:30 PM	Closing Session: That’s a Wrap . . . a STEM-tastic Celebration	39

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

Visit: www.nsta.org/conferenceapp

STEM Forum & Expo Program • Program Partner Sessions

American Institute of Architects

Wednesday, July 24

10:30–11:30 AM	Reimagining Spaces for STEM and STEAM: An Architectural Design Workshop for Elementary Educators	2002, Moscone West
10:30–11:30 AM	Reimagining Spaces for STEM and STEAM: An Architectural Design Workshop for High School Educators	2003, Moscone West
10:30–11:30 AM	Reimagining Spaces for STEM and STEAM: An Architectural Design Workshop for Middle Level Educators	2014, Moscone West
12 Noon–1:00 PM	Imagining Makerspaces for STEM/STEAM: An Architecture Design Workshop for Elementary Educators	2002, Moscone West
12 Noon–1:00 PM	Imagining Makerspaces for STEM/STEAM: An Architecture Design Workshop for Middle Level Educators	2014, Moscone West
12 Noon–1:00 PM	Imagining Makerspaces for STEM/STEAM: An Architecture Design Workshop for High School Educators	2003, Moscone West

International Technology and Engineering Educators Association

Wednesday, July 24

10:30–11:30 AM	Elementary STEM Building Blocks: EbD TEEMS PreK–6	2001, Moscone West
10:30–11:30 AM	Secondary STEM Design-Driven Problem Solving: EbD for Grades 6–12	2016, Moscone West
10:30–11:30 AM	Jump-Starting I-STEM for All Children	3006, Moscone West
12 Noon–1:00 PM	The Computer Science and Computational Thinking of STEM	2001, Moscone West
12 Noon–1:00 PM	Engineering for Social Good: EbD™ PreK–12	2016, Moscone West
12 Noon–1:00 PM	So Now You're a STEM Teacher...Now What?	3006, Moscone West

National Council of Teachers of Mathematics

Wednesday, July 24

10:30–11:30 AM	Bring the “M” in STEM to Life! Considerations, Challenges, and Opportunities!	2006, Moscone West
10:30–11:30 AM	Geometry Project: “Design a School”	2018, Moscone West
12 Noon–1:00 PM	Catalyzing Change in High School Mathematics and How It Relates to STEM	2006, Moscone West
12 Noon–1:00 PM	High-Quality Mathematics Instruction Is STEM Education	2018, Moscone West

STEMx

Wednesday, July 24

10:30–11:30 AM	Advancing Computer Science in Your State...What Is Your Plan?	2008, Moscone West
10:30–11:30 AM	Recognizing Excellent STEM Teaching Through Micro-credentials	2020, Moscone West
10:30–11:30 AM	Strength in Numbers—Building an Effective STEM Ecosystem	2022, Moscone West
12 Noon–1:00 PM	Leveraging Partnerships to Create Authentic Learning Experiences for Students and Teachers	2008, Moscone West
12 Noon–1:00 PM	Innovative Strategies for Engaging Parents/Families Teachers, Guidance Counselors, Higher Education, and Business Partners to Expand Pathways to STEM Careers	2020, Moscone West
12 Noon–1:00 PM	Ensuring Equity and Access in STEM for ALL	2022, Moscone West

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2019

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**SALT LAKE CITY, UT
OCT. 24-26**

**CINCINNATI, OH
NOV. 14-16**

**SEATTLE, WA
DEC. 12-14**



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Josh Stowers
Program Coordinator
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Dawn Monson
Local Arrangements Coordinator
Utah Science Teachers Association

Angela McMurry
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Leslie Silbernagel
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Northwest Local School District

John P. McNamara
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Bob Sotak
Program Coordinator
Sotak Consulting Services

Lisa Chen
Local Arrangements Coordinator
Shoreline School District

Learn more about the NSTA Area Conferences at
www.nsta.org/conferences

#NSTA19

Use Code 5for4 to Get 5 Registrations for the Price of 4



Wednesday, July 24

1:30–2:30 PM **First-Timers Orientation**

NSTA Board and Council • Room 2024, Moscone Center West

2:30–4:00 PM **Student Panel Discussion: The Power of STEM Education**

Panel Moderator: **Matt Hartman**, eCYBERMISSION Content Manager • Room 2006, Moscone Center West

Thursday, July 25

8:00–9:00 AM **Featured Panels/Hands-On Workshops**

- **Connecting the STEM Pipeline from K to Career** (*Sponsored by Northrop Grumman*)
Panel Moderator: **Steve Wallis**, Da Vinci High School • Room 2003, Moscone Center West
- **The Federal STEM Plan: A Starting Point for State STEM Initiatives** (*Sponsored by STEMx*)
Panel Moderator: **Regina Schofield**, Battelle • Room 2008, Moscone Center West
- **Using 3D Printers and Design Thinking to Create Career Pathways Workshop**
Room 2002, Moscone Center West
- **English Language Learners in STEM Subjects** (*Sponsored by The National Academies of Sciences, Engineering, and Medicine*)
Panel Moderator: **K. Renae Pullen**, Caddo Parrish Public Schools • Room 2006, Moscone Center West
- **NSTA/NCTM STEM Ambassadors: STEM Up Your Classroom** (*Sponsored by National Science Foundation*)
Panel Moderator: **Brian Langley**, Novi High School • Room 2014, Moscone Center West
- **STEM and Special Needs—Strategies for Success** (*Sponsored by STEM3 Academy*)
Room 2001, Moscone Center West
- **Trends in STEM Education and Their Impact**
Panel Moderator: **Kavita Gupta**, Monta Vista High School • Room 2016, Moscone Center West

10:30 AM–12 Noon **Elementary STEM Showcase!** (*sponsored by Great Minds, Pitsco Education, and PlaySTEAM*)

Exhibit Hall, Moscone Center West



Keynote Presentation: Dream Beyond

Thursday, July 25

4:30–5:30 PM Keynote Presentation: Bernard A. Harris, Jr.

(Sponsored by National Math + Science Initiative)

Room 2001/2003/2014/2016, Moscone Center West

Friday, July 26

8:00–9:00 AM Featured Panels/Hands-On Workshops

- **Connecting the STEM Pipeline from K to Career** *(Sponsored by Northrop Grumman)*
Panel Moderator: Steve Wallis, Da Vinci High School • Room 2003, Moscone Center West
- **The Federal STEM Plan: A Starting Point for State STEM Initiatives** *(Sponsored by STEMx)*
Panel Moderator: J. Wesley Hall, STEMx at Battelle • Room 2008, Moscone Center West
- **Using 3D Printers and Design Thinking to Create Career Pathways Workshop**
Room 2002, Moscone Center West
- **English Language Learners in STEM Subjects** *(Sponsored by The National Academies of Sciences, Engineering, and Medicine)*
Panel Moderator: K. Renae Pullen, Caddo Parrish Public Schools • Room 2006, Moscone Center West
- **NSTA/NCTM STEM Ambassadors: STEM Up Your Classroom** *(Sponsored by National Science Foundation)*
Panel Moderator: Brian Langley, Novi High School • Room 2014, Moscone Center West
- **STEM and Special Needs—Strategies for Success** *(Sponsored by STEM³ Academy)*
Room 2001, Moscone Center West
- **Trends in STEM Education and Their Impact**
Panel Moderator: Kavita Gupta, Monta Vista High School • Room 2016, Moscone Center West

9:30–10:30 AM 2018 NSTA/NCTM STEM Ambassador Share-a-Thon

Lobby #3, Moscone Center West

11:00 AM–12 Noon Featured Workshop: Designing, Inspiring, Resilient Settings for STEM/STEAM/STREAM

(Sponsored by American Institute of Architects Committee on Architecture for Education)

Room 2002, Moscone Center West

4:30–5:30 PM Closing Session: That's a Wrap...A STEM-tastic Celebration

Room 2006, Moscone Center West

- Jennifer Williams, Steering Committee Chair, 8th Annual STEM Forum & Expo, Isidore Newman School
- Adriana Guerra, Teacher, E.P. Foster STEM Academy
- Brandi Leggett, Instructional Coach, Rosehill Elementary School
- Kavita Gupta, AP Chemistry Teacher, Monta Vista High School
- Kerri Murphy, Teacher, Norton High School
- Karen Hays, Youth Programs Manager, Denver Zoo
- Elizabeth Allan, NSTA President-Elect, and Professor of Biology, University of Central Oklahoma

Lower Elementary/Early Childhood

LE Students in the lower elementary grades are beginning to understand the world around them and the role they play in it. They are instinctively curious and want to make sense of their surroundings. By providing students with inquiry-based experiences in Science, Technology, Engineering, and Mathematics, we can unlock each student's natural curiosity and help them understand the world in an engaging way. The foundational skills learned and mastered through the integration of STEM during the early years, if done right, will help these students become critical thinkers and makers who can innovate the future they will be a part of. Sessions in this strand will emphasize open-ended and active exploration, learning through play, and hands-on investigation of the real world through the lens of NGSS.

Upper Elementary

UE 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? To reverse this trend and ignite their interest in future STEM careers, elementary students need quality learning activities and experiences that spark curiosity, promote confidence, support the rigor of current standards, and develop a solid foundation in the STEM areas so that they are prepared to both work and live in the 21st century. 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

M Engaging students through opportunities to explore STEM fields of study that support the NRC Framework and the Next Generation Science Standards is a top priority at the middle school level. A successful middle school STEM program allows students to create, innovate, communicate, collaborate, and iterate projects that are driven by their own interests. The sessions in this strand showcase learning environments where Science, Technology, Engineering, and Mathematics interconnect to serve as a vehicle for discovery, innovation, and independent problem solving while also meeting rigorous content standards.

High School

HS In preparation for entry to college and industry, students must be able to apply their understanding in the context of real-world problem solving. In STEM for grades 9–12, educators help students succeed and progress through the pipeline, as they gain access to pathways for rewarding and productive careers. Here, STEM is integrated in classroom-based practices that highlight innovative, hands-on, student-centered approaches that seek to nurture curiosity, motivation, and achievement in these fields. See how educators are impacting student interest and teacher instruction and hear what is required to scale this across subject areas, schools, and districts. 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

CP 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. School and district leaders cannot create these opportunities on their own. They need to leverage the resources and expertise of experts by building partnerships to create STEM ecosystems to assist educators and to provide students with these prospects. Building partnerships with community organizations—including: business/industry, informal educators, home school educators, after-school programming, and education-focused entities—help to provide STEM experiences and connect preK–16 schools and universities to valuable resources needed to support the development of these skills. Leveraging those partnerships can be the key to preparing students and supporting teachers to meet the needs of a dynamic workforce that is constantly changing. The sessions in this strand highlight select preK–16 partnership initiatives that have been successfully implemented and have demonstrated positive outcomes. In addition, school administrators will learn ways to assess the effectiveness of these partnerships on student and teacher performance.

Postsecondary

P Join our community of postsecondary educators as important and relevant topics in STEM education are discussed and debated in this unique *Edcamp/unconference* format. Participation in STEM research and research on STEM teaching and learning is a primary focus for college and university faculty. Interdisciplinary research in the STEM fields provides both the mode for the NGSS science and engineering practices as well as the foundation for the disciplinary core ideas. STEM research is, by nature, interdisciplinary and crosscutting. Sessions in this strand will highlight pedagogical and discipline-based research on STEM teaching and learning as well as research in the areas of effective professional development, preservice education, and STEM fields of study.



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Great Minds[®] curriculum ranks among the top performers in independent reviews, and district leaders highly recommend it.

82%

of administrators say *Eureka Math[®]* improves student achievement

Source: Education Week Research Center

**Join us at
Booth # 213**
to find out why.

Elementary STEM Showcase

Thursday | 10:30 a.m.–12:30 p.m.

Hands-on Workshop

Rising Flood Waters:
Engineering Design
Challenge

Thursday | 3:00 p.m.–4:00 p.m.

greatminds.org

**PhD
SCIENCE[™]**

Inspiring students to wonder about the world and **empowering** them to make sense of it.

LOCATION	10:30–11:30 AM	12 Noon–1:00 PM	2:30–4:00 PM
2001 Moscone West	ITEEA Session: Elementary STEM Building Blocks: Ebd TEEMS PreK–6	ITEEA Session: The Computer Science and Computational Thinking of STEM	
2002 Moscone West	AIA Session: Reimagining Spaces for STEM and STEAM: An Architectural Design Workshop for Elementary Educators	AIA Session: Imagining Makerspaces for STEM/STEAM: An Architecture Design Workshop for Elementary Educators	
2003 Moscone West	AIA Session: Reimagining Spaces for STEM and STEAM: An Architectural Design Workshop for High School Educators	AIA Session: Imagining Makerspaces for STEM/STEAM: An Architecture Design Workshop for High School Educators	
2006 Moscone West	NCTM Session: Bring the “M” in STEM to Life! Considerations, Challenges, and Opportunities!	NCTM Session: Catalyzing Change in High School Mathematics and How It Relates to STEM	Opening Session: Student Panel Discussion: The Power of STEM Education
2008 Moscone West	STEMx Session: Advancing Computer Science in Your State...What Is Your Plan?	STEMx Session: Leveraging Partnerships to Create Authentic Learning Experiences for Students and Teachers	
2014 Moscone West	AIA Session: Reimagining Spaces for STEM and STEAM: An Architectural Design Workshop for Middle Level Educators	AIA Session: Imagining Makerspaces for STEM/STEAM: An Architecture Design Workshop for Middle Level Educators	
2016 Moscone West	ITEEA Session: Secondary STEM Design-Driven Problem Solving: Ebd for Grades 6–12	ITEEA Session: Engineering for Social Good: Ebd™ PreK–12	
2018 Moscone West	NCTM Session: Geometry Project: “Design a School”	NCTM Session: High-Quality Mathematics Instruction Is STEM Education	
2020 Moscone West	STEMx Session: Recognizing Excellent STEM Teaching Through Micro-credentials	STEMx Session: Innovative Strategies for Engaging Parents/Families, Teachers, Guidance Counselors, Higher Education, and Business Partners to Expand Pathways to STEM Careers	

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00 AM-4:00 PM	10:30-11:30 AM	12 Noon-1:00 PM
2022 Moscone West		STEMx Session: Strength in Numbers—Building an Effective STEM Ecosystem	STEMx Session: Ensuring Equity and Access in STEM for ALL
3006 Moscone West		ITEEA Session: Jump-Starting I-STEM for All Children	ITEEA Session: So Now You're a STEM Teacher... Now What?
3010 Moscone West	Assessing Three-Dimensional Learning Workshop <i>Ticket Required; By Preregistration Only</i>		

LOCATION	1:30-2:30 PM	4:30-6:30 PM
2024 Moscone West	First-Timers' Orientation	
Level 1 Exhibit Hall Moscone West		Opening Exhibits Reception

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Post-Secondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
2000 Moscone West		Exhibitor Workshop Shape Determines How Objects Function to Solve a Problem <i>(Sponsor: Carolina Biological Supply Co.)</i>	Exhibitor Workshop Implementing AR/VR in District STEAM Programs <i>(Sponsor: zSpace)</i>
2001 Moscone West	Featured Hands-On Workshop STEM and Special Needs—Strategies for Success <i>(Sponsored by STEM³ Academy)</i>	Starting a School Garden with a Shoestring Budget	
2002 Moscone West	Featured Hands-On Workshop Using 3D Printers and Design Thinking to Create Career Pathways		Bridging the STEM Acronym: Seamless Integration of Science and Math
2003 Moscone West	Featured Panel Connecting the STEM Pipeline from K to Career <i>(Sponsored by Northrop Grumman)</i>	One, Two, Three, Four... First-Graders Love to Explore... with Sound!	
2004 Moscone West		Exhibitor Workshop Make Any Classroom a Makerspace <i>(Sponsor: Pearson)</i>	Exhibitor Workshop Using the Chemistry Lab for STEM Exploration Before Explaining (Grades 6–12) <i>(Sponsor: Pearson)</i>
2005 Moscone West		Exhibitor Workshop NGSS—Designing Ocean Breakwaters <i>(Sponsor: Lab-Aids, Inc.)</i>	Exhibitor Workshop NGSS—Exploring Energy Efficiency <i>(Sponsor: Lab-Aids, Inc.)</i>
2006 Moscone West	Featured Panel English Language Learners in STEM Subjects <i>(Sponsored by The National Academies of Sciences, Engineering, and Medicine)</i>	Using Shadow Puppets to Create a Cross-Curricular STEAM Unit	
2007 Moscone West		Exhibitor Workshop Robots, Coding, and Science: A Complete STEM Experience <i>(Sponsor: Vernier Software & Technology)</i>	Exhibitor Workshop Quick and Easy Experiments Using the Latest Technology <i>(Sponsor: Vernier Software & Technology)</i>
2008 Moscone West	Featured Panel The Federal STEM Plan: A Starting Point for State STEM Initiatives <i>(Sponsored by STEMx)</i>		Gender Equity and Small Group Participation in a Laser Security System STEM Unit

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
2009 Moscone West		Exhibitor Workshop STEMinar: Let’s Improve Student Achievement Through STEM Teacher Actions and STEM Certification <i>(Sponsor: STEMscopes)</i>	Exhibitor Workshop STEMinar: Let’s Engage Students Through Phenomena-Based Science Instruction <i>(Sponsor: STEMscopes)</i>
2010 Moscone West		Exhibitor Workshop Are You Moody? <i>(Sponsor: Texas Instruments)</i>	Exhibitor Workshop Come on Over and Code a Rover! <i>(Sponsor: Texas Instruments)</i>
2011 Moscone West		Exhibitor Workshop Complementing Phenomena-Driven Instruction with Visible Thinking Routines <i>(Sponsor: Activate Learning)</i>	Exhibitor Workshop Creating Learning Experiences That Are Inclusive and Fun! <i>(Sponsor: Activate Learning)</i>
2014 Moscone West	Featured Panel NSTA/NCTM STEM Ambassadors Featured Panel: STEM Up Your Classroom <i>(Sponsored by National Science Foundation)</i>	WIDA-Sponsored Session: Bringing ELLs into STEM, New Resources from the NSTA-WIDA Affiliation	
2016 Moscone West	Featured Panel Trends in STEM Education and Their Impact		
2018 Moscone West			Pascal’s Pyramid: Visited (and Revisited)!
2020 Moscone West		Systems and System Models and Dance	
2022 Moscone West		How Tinkering Can Grow Imagination and Creativity in STEM	Maker Racers
2024 Moscone West		How Far Can Two Wheels Take You?	Using a Web-Based Graphing Tool to Analyze and Interpret Local and National Weather and Climate Data for Patterns and Change

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
3000 Moscone West		Exhibitor Workshop Beginner Forensics: A Murder in the Art Room! <i>(Sponsor: Edvotek, Inc.)</i>	Exhibitor Workshop STEM Education at the Molecular Level: 3D Visualization and More <i>(Sponsor: Wavefunction, Inc.)</i>
3001 Moscone West		Sea Otters, More Than a Pretty Face: An Inquiry into Trophic Cascades	A Greening STEM Place-Based Learning Approach
3002 Moscone West		Engineering Fidget Toys: An Integrated Science and ELA Unit	
3003 Moscone West	Exhibitor Workshop Dynamic DNA: One Model to Teach It All <i>(Sponsor: 3D Molecular Designs)</i>	Exhibitor Workshop Attract Students to Water Concepts with Magnetic Water Molecule Models <i>(Sponsor: 3D Molecular Designs)</i>	Exhibitor Workshop Modeling the Flow of Genetic Information! <i>(Sponsor: MSOE Center for BioMolecular Modeling)</i>
3004 Moscone West	Exhibitor Workshop Designing and Building Batteries <i>(Sponsor: Nasco Education)</i>	Exhibitor Workshop Building Classroom Equity Through Curiosity <i>(Sponsor: Project Lead The Way, Inc.)</i>	Exhibitor Workshop Awesome STEM Activities! <i>(Sponsor: Flinn Scientific, Inc.)</i>
3005 Moscone West		Fail Often, Succeed Sooner: Assessment in Project-Based Learning	Building STEM PBL with Research Experiences for Teachers and Students
3006 Moscone West		STEM: Human Learning at Its Best	How to Code Your H ₂ O!
3007 Moscone West			
3008 Moscone West		Creating and Navigating the Classroom Culture Maze	STEMulating PBL

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
3009 Moscone West		El Niño-La Niña: The Atmosphere-Ocean Connection	
3010 Moscone West		Access for All Strategies in Teaching Computer Science	Mission: NASA's Mars 2020 Name the Rover Student Essay Contest
3011 Moscone West		The "M" in STEM: Could It Mean Statistics?	Turning Misinformation into Educational Opportunities
3012 Moscone West		Integrating STEM and MWEE: A Multidisciplinary Approach to Teaching Project-Based Environmental Education	Build San Francisco
3014 Moscone West		Do You Need a Science Lab? Win a Shell Science Lab Makeover (\$20,000 Value) for Your School	Building a Vibrant STEM Ecosystem Through Manufacturing Apprenticeships
3016 Moscone West			Using National Science Olympiad STEM Classroom Materials to Address NGSS Crosscutting Concepts and Content
3018 Moscone West		Family STEM Night: The Ultimate Community Outreach	
3020 Moscone West		Partnering Through Practices	
3022 Moscone West		Preparing Students for Actual Science	A Cross-Disciplinary Pedagogic Field Laboratory for Exploring Teaching and Learning of Heat, Temperature, and Energy

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00 AM–5:00 PM	9:30–10:30 AM	11:00 AM–12 Noon
3024 Moscone West		Embedding Claims, Evidence, Reasoning, and Rebuttal in Inquiry-Based Labs	How to Use the Orton-Gillingham Method in the STEM/STEAM Science Classroom
Level 1 Exhibit Hall Moscone West		NSTA Exhibits! (9:15 AM–3:00 PM)	
Exhibit Hall Moscone West			Elementary STEM Showcase! (10:30 AM–12 Noon) (See sponsors on page 7)
Pacific H-I Marriott Marquis	Shell Science Lab Regional Challenge Winners Workshop (By Invitation Only)		

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM	4:30–5:30 PM
2000 Moscone West	Exhibitor Workshop Criteria and Constraints: Raising the Bar for Rigor <i>(Sponsor: Carolina Biological Supply Co.)</i>		
2001 Moscone West			Keynote Presentation Dream Beyond <i>(Speaker: Bernard Harris, Jr.)</i> Location: 2001/2003/2014/2016 <i>(Sponsored by National Math + Science Initiative)</i>
2002 Moscone West	Animals Are Engineers	Investigating Properties of Water with Paper Clips	
2003 Moscone West			
2004 Moscone West	Exhibitor Workshop Make Science Real with Problem-Based Learning <i>(Sponsor: Pearson)</i>		
2005 Moscone West	Exhibitor Workshop Teaching Science Through Conservation <i>(Sponsor: U.S. Fish and Wildlife Service)</i>		
2006 Moscone West	Robotics, Coding, Engineering, Oh My!	Materials, Equipment, Phenomena: Indispensable Links to Teaching and Learning Science	
2007 Moscone West	Exhibitor Workshop Student Performance of Content-Rich Literature, The Power of STEAM <i>(Sponsor: Southern Science Supply)</i>	Exhibitor Workshop Climate Change Hands-On Investigations with Real-World Data <i>(Sponsor: PocketLab by Myriad Sensors)</i>	
2008 Moscone West	NSTA Press® Session: A Head Start on Life Science		

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM	4:30–5:30 PM
2009 Moscone West	Exhibitor Workshop STEMinar: Let’s Use the 5Es to Provide Equity and Access for All Students in STEM <i>(Sponsor: STEMscopes)</i>		
2010 Moscone West	Exhibitor Workshop Zombie Apocalypse <i>(Sponsor: Texas Instruments)</i>	Exhibitor Workshop This IS Rocket Science! <i>(Sponsor: Estes Industries)</i>	
2011 Moscone West	Exhibitor Workshop Creating “Coherence and Science Storylines” for Middle School <i>(Sponsor: Activate Learning)</i>		
2018 Moscone West			Bring Back the Bees!
2020 Moscone West			Using Children’s Literature to Integrate Science and Engineering
2024 Moscone West	Block It Out: Coding Robots in STEM Classes		STEM: Teaching Across Disciplines
3000 Moscone West	Exhibitor Workshop Electricity and Magnetism from Impact Science— A Middle School NGSS Unit <i>(Sponsor: Impact Science Education, Inc.)</i>	Exhibitor Workshop Rising Flood Water: Engineering Design Challenge <i>(Sponsor: Great Minds)</i>	
3001 Moscone West	STEM Is a State of Mind: Start with a Good Book		Phenomena to Scenario: Intentionally Moving from Inquiry to STEM Application
3002 Moscone West	Equity: Building the Foundation		Presenting Wetland Research Using Basic Circuitry and Paper Circuits

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM
3003 Moscone West	Exhibitor Workshop 5 E’sy Ways to Investigate Proteins and Enzyme Action <i>(Sponsor: 3D Molecular Designs)</i>	Exhibitor Workshop A Microscopic to Molecular Perspective in Modeling Chromosomes <i>(Sponsor: MSOE Center for BioMolecular Modeling)</i>
3004 Moscone West	Exhibitor Workshop NASA Educator Professional Development Collaborative: Exploring the Connection Between Makerspaces and X-Planes <i>(Sponsor: Texas State University)</i>	Exhibitor Workshop Conductive Tape and You: Creating Paper-Based Circuitry Projects <i>(Sponsor: Nasco Education)</i>
3005 Moscone West		STEM Up Math Class with a LEGO® MINDSTORMS® EV3 Robot
3006 Moscone West	Making It Better! Moving from Science to STEM	
3007 Moscone West		Advancing STEM Concepts and Engagement
3008 Moscone West	Teaching Environmental Sustainability Using a Free Place-Based Watershed Model	Using Anatomy to Explain Orthopedic Special Tests and Postural Dysfunction
3009 Moscone West	Moving Past 18th-Century Standards to 21st-Century Space Science	San Francisco’s NGSS Chemistry Curriculum
3010 Moscone West	City on the Delta: Engaging Students in STEM Learning with River Investigations and Flood Protection Engineering Projects	Teaching Science Through Hands-On Programming Tasks, No Experience Necessary
3011 Moscone West	Insurance Institute for Highway Safety in the Classroom: Investigating the Dangers of Distracted Driving	Dumpster Dive with STEM

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM
3012 Moscone West	Water Like Wine—Reflects the Region Where It’s Produced	
3014 Moscone West	NGSS—Engineering with Electromagnet	
3016 Moscone West	Localize, Leverage, and Learn—Tennessee’s Rural STEM Collaborative	
3018 Moscone West	Creating Diverse Community Outreach Opportunities Through Immersive Games	Micro-Credentialing Urban Science Teachers’ Action Research to Improve Student Learning
3020 Moscone West	Preparing the Next Generation of STEM Teacher Leaders	Community-Centered STEM: Use a Botanic Garden as Your University Field Site
3022 Moscone West	Interested in Science? So Are Our Students—Using the Virtual Environment to Connect	
3024 Moscone West	Two, Four, Six, Eight... This Is How We Integrate!	

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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NSTA National
Science
Teachers
Association

LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
2000 Moscone West		Exhibitor Workshop A Lesson in Engineering— Building the Ultimate Classroom Electrophoresis System <i>(Sponsor: MiniOne Systems)</i>	Exhibitor Workshop Implementing AR/VR in District STEAM Programs <i>(Sponsor: zSpace)</i>
2001 Moscone West	Featured Hands-On Workshop STEM and Special Needs— Strategies for Success <i>(Sponsored by STEM³ Academy)</i>	Introducing Engineering Through Play: Opportunities to Engage Primary Students in STEM	Give the Ocean a Voice: A Marine Debris Inquiry
2002 Moscone West	Featured Hands-On Workshop Using 3D Printers and Design Thinking to Create Career Pathways		Featured Hands-On Workshop Designing, Inspiring, Resilient Settings for STEM/STEAM/ STREAM <i>(Sponsored by AIA Committee on Architecture for Education)</i>
2003 Moscone West	Featured Panel Connecting the STEM Pipeline from K to Career <i>(Sponsored by Northrop Grumman)</i>	Exploring the Everyday STEM Connections Encountered in the Young Child’s World	Critical Thinking Through Crosscutting Concepts
2004 Moscone West	Exhibitor Workshop Using Phenomena and Data Analysis to Explore Population Dynamics <i>(Sponsor: HHMI BioInteractive)</i>	Exhibitor Workshop Teaching NGSS Science and Engineering Practices Using HHMI Data Points <i>(Sponsor: HHMI BioInteractive)</i>	Exhibitor Workshop Constructing Scientific Explanations with HHMI BioInteractive) <i>(Sponsor: HHMI BioInteractive)</i>
2005 Moscone West		Exhibitor Workshop NGSS—Designing Better Chemical Batteries <i>(Sponsor: Lab-Aids, Inc.)</i>	Exhibitor Workshop NGSS—Waves: Make an Abstract Concept Become Visible! <i>(Sponsor: Lab-Aids, Inc.)</i>
2006 Moscone West	Featured Panel English Language Learners in STEM Subjects <i>(Sponsored by The National Academies of Sciences, Engineering, and Medicine)</i>	Digital Humanity: The Familiar and Unfamiliar	Preschool/Kindergarten: Starting Science Early
2007 Moscone West		Exhibitor Workshop Establishing an Orangutan Reserve: Investigating Weather Patterns to Design Solutions <i>(Sponsor: Amplify)</i>	Exhibitor Workshop Embedded and Immersive Engineering <i>(Sponsor: Amplify)</i>
2008 Moscone West	Featured Panel The Federal STEM Plan: A Starting Point for State STEM Initiatives <i>(Sponsored by STEMx)</i>	Bringing the Joy of STEM Cooking to the Classroom	Entry into Innovation: Engineering for Early Learners

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
2009 Moscone West		Exhibitor Workshop STEMinar: Let's Examine the New CAST (California Science Test) Assessments in Grades 3–12 <i>(Sponsor: STEMscopes)</i>	Exhibitor Workshop STEMinar: Let's Use Claim-Evidence-Reasoning (CER) to Frame Scientific Explanations in Your Classroom <i>(Sponsor: STEMscopes)</i>
2010 Moscone West		Exhibitor Workshop Genes in Space: Genetics on the Space Station, Free Loaner Equipment, Curricula, and More! <i>(Sponsor: miniPCR Bio)</i>	Exhibitor Workshop STEMulating the Heart with Code! <i>(Sponsor: Texas Instruments)</i>
2011 Moscone West		Exhibitor Workshop Engage ALL Students by Integrating Engineering and Science into Daily Life <i>(Sponsor: Activate Learning)</i>	Exhibitor Workshop Making the Invisible Visible <i>(Sponsor: Houghton Mifflin Harcourt)</i>
2014 Moscone West	Featured Panel NSTA/NCTM STEM Ambassadors Featured Panel: STEM Up Your Classroom <i>(Sponsored by National Science Foundation)</i>	Implementing Meaningful Passion Projects	STEM Day: Bring STEM to ALL Students
2016 Moscone West	Featured Panel Trends in STEM Education and Their Impact	Explore How STEM Helped in the Hunt for Typhoid Mary	
2018 Moscone West		Modeling Precipitating Change While Embedding Computational Thinking into the Middle School Science Classrooms	
2020 Moscone West			Sensing Science Through Modeling Matter for Kindergartners
2022 Moscone West		Mentoring of STEM Students of Color	Teaching STEAM Through a Problem-Based Paleontology Exploration
2024 Moscone West			WIDA-Sponsored Session: Doing and Talking Science with English Language Learners

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
Lobby (3rd Floor) Moscone West		2018 NSTA/NCTM STEM Ambassador Share-a-Thon	
3000 Moscone West	Exhibitor Workshop Awesome STEM Activities! <i>(Sponsor: Flinn Scientific, Inc.)</i>	Exhibitor Workshop Earthquake Towers: A Middle School STEAM Project from Impact Science <i>(Sponsor: Impact Science Education, Inc.)</i>	Exhibitor Workshop Teaching with Virtual Specimens: Venture into the AR/VR Science Class <i>(Sponsor: Animalearn)</i>
3001 Moscone West		Teaching Ecosystems? Blend Interactive Technology, Hands-On Activities, Along with Going Outdoors	Taking STEM Outside
3002 Moscone West		Planning with a Purpose: Connecting Math and Science Through the Practices in Grades 3–5 Classrooms	
3003 Moscone West	Exhibitor Workshop Exploring DNA Structure and Function with Physical Models <i>(Sponsor: 3D Molecular Designs)</i>	Exhibitor Workshop Connecting CRISPR Biotechnology to What You Already Teach <i>(Sponsor: MSOE Center for BioMolecular Modeling)</i>	Exhibitor Workshop Using Models in Formative Assessments to Uncover Chemistry Misconceptions <i>(Sponsor: 3D Molecular Designs)</i>
3004 Moscone West	Exhibitor Workshop Ink Chromatography and Invisible Inks <i>(Sponsor: Nasco Education)</i>	Exhibitor Workshop One Device to Collect Force, Pressure, and Temperature Data! <i>(Sponsor: Nasco Education)</i>	Exhibitor Workshop Building Classroom Equity Through Curiosity <i>(Sponsor: Project Lead The Way, Inc.)</i>
3005 Moscone West		Beyond Spaceship Earth	Leveraging Technology to Promote Powerful STEM Learning
3006 Moscone West			STEAM Rising: Beyond the Buzzwords!
3007 Moscone West		Socio-Scientific Reasoning: Develop Higher-Order Thinking Skills in STEM Classroom	Integrating Fear-Free Hands-On Programming into STEM and Agriculture Classes

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
3008 Moscone West		Explore Building Mousetrap Vehicles to Integrate Science, Technology, Engineering, and Mathematics (STEM)	When the Wheels Are Turning, the Students Are Learning!
3009 Moscone West		Anatomy of Saving a Life	STEM Up Math Class with Computing
3010 Moscone West			A Socially Conscious Electrical Design Unit
3011 Moscone West			Starting and Maintaining a Successful Robotics Program
3012 Moscone West		Yes, You Can! Tips and Tricks for Presenting at an NSTA Conference	Transforming University-District STEM Ecosystems to Promote Equity and Access for English Language Learners
3014 Moscone West			Storyline Redesign: Upcycling Science Kits to Support NGSS
3016 Moscone West		An Innovative Model for the Role of Nonprofits in Building STEM Ecosystems	Oil Spill: Calling All Environmental Engineers!
3018 Moscone West			What Is the State of STEM in America? Establishing Community and Corporate Partnerships to Grow the STEM Talent Pipeline
3020 Moscone West		NSTA Press® Session: Argument-Driven Inquiry in Grades 3–5: Three-Dimensional Investigations That Integrate Literacy and Mathematics	

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	8:00–9:00 AM	9:30–10:30 AM	11:00 AM–12 Noon
3022 Moscone West		Activism in the Science Classroom: Where to Draw the Line?	
3024 Moscone West		NASA Aeronautics: Meeting the Standards Through Real-World Applications	Scaffolding STEM Identity Exploration During the Easley Space Camp
Level 1 Exhibit Hall Moscone West		NSTA Exhibits! (9:15 AM–3:00 PM)	

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM	4:30–5:30 PM
2000 Moscone West			
2001 Moscone West		The Pteranodon Inquiry... or How I Learned to Love Paper Clips and Modeling Clay	
2002 Moscone West	Hands On: Feats of Engineering!	Elephant Trunks and Dolphin Tales: Engineering for Animals? Oh My!	
2003 Moscone West	Making Math Invitational		
2004 Moscone West	Exhibitor Workshop “Anchoring” Your Life Science Course with HHMI BioInteractive Lactase Activities <i>(Sponsor: HHMI BioInteractive)</i>		
2005 Moscone West	Exhibitor Workshop Get Your Game On: Game-Based Learning with Legends of Learning! <i>(Sponsor: Legends of Learning)</i>		
2006 Moscone West	Narrative: The Link to Learning Science	Building a Culture of Collaboration for STEAM Integration	Closing Session That’s a Wrap... A STEM-tastic Celebration
2007 Moscone West	Exhibitor Workshop Six Benefits of Using Robotics with Young Learners— Play with KIBO! <i>(Sponsor: KinderLab Robotics, Inc.)</i>		
2008 Moscone West	Picture This: Teaching STEM Through StoryTime	Learning Scientific Inquiry and Reading Strategies Through Storytelling	

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM
2009 Moscone West	Exhibitor Workshop STEMinar: Let's Create a STEM Ecosystem to Support Campus Improvement in a Community <i>(Sponsor: STEMscopes)</i>	
2010 Moscone West	Exhibitor Workshop Save a Nickel and Learn to Trickle <i>(Sponsor: Texas Instruments)</i>	
2011 Moscone West	Exhibitor Workshop Creating Challenges for Middle School and High School Science <i>(Sponsor: Houghton Mifflin Harcourt)</i>	
2014 Moscone West		Science Through Social Justice— The Brooklyn Way!
2016 Moscone West	Use Design Thinking to Navigate Cross-Curricular Collaboration	Making the Argument: How Connecting Science and Mathematics Practices Can Improve Student Discourse
2018 Moscone West	How Big? The Crucial Importance of Proportional Reasoning	Applications of Global Collaborative STEM Education
2020 Moscone West		Energize Your Middle School Classroom with eesmarts NGSS-Focused Lessons
2022 Moscone West		Engendering Science Conceptual Understanding Within STEM-Related Project-Based Challenges
2024 Moscone West	Creating Effective STEM-Focused Makerspaces: Integrated STEM and Robotics—What and How?	Solar Car Design Project

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM
3000 Moscone West	Exhibitor Workshop Wire a Toy House: A Middle School STEAM Project from Impact Science <i>(Sponsor: Impact Science Education, Inc.)</i>	
3001 Moscone West		Making Sense of Science Through Songwriting
3002 Moscone West	Using Meaningful 3D Design when Creating a STEM Unit	Engineering for Social Impact
3003 Moscone West	Exhibitor Workshop UrbanEngineers: Building a Resilient and Adaptive 21st-Century City <i>(Sponsor: HouseStories, Inc.)</i>	
3004 Moscone West	Exhibitor Workshop Creating Circuits on LEGO®: Crazy Circuits Curriculum <i>(Sponsor: Nasco Education)</i>	
3005 Moscone West	Teaching STEM with Weather in Grade 3	
3006 Moscone West	Teaching Engineering, Motion, and Energy Through Rube Goldberg	STEM Team Challenges in the Elementary Classroom
3007 Moscone West		The Good Life-DC: A Simulation of Project-Based Learning in the Classroom
3008 Moscone West	Connecting Math and Science Through Technology: Making Data Analysis Easy	Order Up a Helping of Forensics, with a Side of Maggots

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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LOCATION	1:30–2:30 PM	3:00–4:00 PM
3010 Moscone West	How to Support Teachers for Successful STEM Implementation	Using Python to Enhance Teaching Algebra 2
3012 Moscone West	STEM in the Urban Community	Coasting with Newton’s Laws
3014 Moscone West		Crash into STEM with the Insurance Institute for Highway Safety in the Classroom
3016 Moscone West	Creating Sustainable Partnerships for Your School	Introducing Cyber and STEM Curricula into the Classroom
3018 Moscone West	Teaching with Technology: Using EPA’s EnviroAtlas in the Classroom to Empower Tomorrow’s Decision-Makers	Design a Better World: Engaging Students Through Community Design Challenges
3020 Moscone West	NSTA Press® Session: Argument-Driven Engineering in Grades 6–8: Three-Dimensional STEM Design Challenges	NSTA Press® Session: Argument-Driven Inquiry in Biology, Chemistry, and Physics: Lab Investigations for Grades 9–12
3022 Moscone West	Nontraditional Students: New Prospects for Qualified STEM Educators at Rider University	Why Professional Educators Need to Connect with Innovation Technology Communities
3024 Moscone West	Systematically Engaging in Systems: System Thinking and Learning	

Lower Elementary	Upper Elementary	Middle Level	High School	Partnerships	Postsecondary	Exhibitor Workshops
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3Doodler Inc.	#500
Activate Learning	#111
AeroRacers Inc.	#110
Algae Research Supply	#211
American Epoxy Scientific	#229
Amplify	#210
Anatomology	#320
Animalearn	#405
Army Educational Outreach Program (AEOP)	#311
Astronomical Society of the Pacific	#319
Beyond Labz	#113
Bio-Rad Laboratories	#204
Blue communication	#105
Bone Clones, Inc.	#214
California Science Teachers Association	#328
Carolina Biological Supply Co.	#222
CELLINK	#527
Discovery Education™	#509
Edvotek Inc.	#300
Estes Industries	#429
Flashforge USA, Inc.	#218
Flinn Scientific, Inc.	#401
Foldscope Instruments, Inc.	#507
Foundation for Family Science & Engineering	#420
GRACE Communications Foundation	#120

Great Minds LLC	#213
Green Ninja	#414
Hager Sharp	#506
HHMI BioInteractive	#201
HouseStories	#219
Idaho National Laboratory	#121
Impact Science Education, Inc.	#406
Innovative Genomics Institute	#525
International Technology and Engineering Educators Association	#314
K12IRC.org	#100
Kid Spark Education	#520
KinderLab Robotics, Inc.	#407
Lab-Aids, Inc.	#301
LAXCO, Inc.	#124
Legends of Learning	#324
Lux Blox LLC	#524
Make School	#514
MakeCrate	#207
Mand Labs	#502
McGraw-Hill Education	#522
Microduino, Inc.	#413
MiniOne Systems	#332
miniPCR Bio	#206
MSOE Center for BioMolecular Modeling	#503
Museum of Science, Boston – EiE	#302
Nasco	#419
National Council of Teachers of Mathematics	#312
National Geographic Learning Cengage	#510
National Institute for STEM Education	#307
National Institute of Biomedical Imaging and Bioengineering, NIH	#318

National Integrated Cyber Education Research Center	#220
National Inventors Hall of Fame/ Camp Invention	#125
National Math + Science Initiative	#106
NatureBridge	#402
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NOAA Office of Education	#118
Nomad Press	#415
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Science Connected	#322
Southern Science Supply	#418
STEM Supplies	#321
STEMscopes – Accelerate Learning	#304
STEMtaught Foundation	#400
TeacherGeek, Inc.	#329
Texas Instruments	#411
Texas State University	#107
Twig Education, Inc.	#102
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