

NSTA National Conference on Science Education

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Science

LOS ANGELES

March 30–April 2 2017

CONFERENCE PREVIEW

#NSTA17

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Thursday, March 30 at 6 p.m.

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Los Angeles, CA, March 30-April 2

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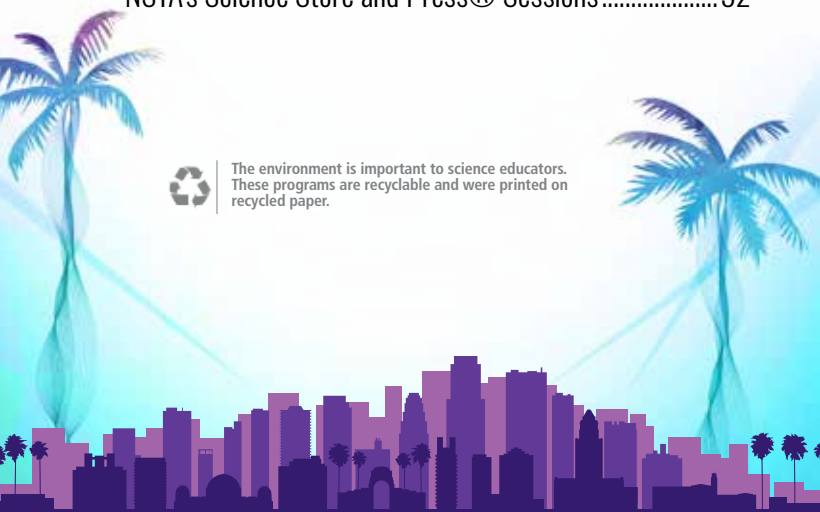
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Speakers

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Keynote Speaker

The Martian: The Story Behind the Story



Andy Weir @andyweirauthor

Author of *The Martian*, Mountain Valley, Calif.

Andy is author of the *New York Times* bestseller *The Martian* and a lifelong space nerd and devoted hobbyist of subjects like relativistic physics, orbital mechanics, and the history of manned spaceflight. He will share how he went from computer programmer to bestselling author. *Spoiler:* He did it mostly by mistake. Andy first began his career as a programmer for a national laboratory at age 15 and has been working as a software engineer ever since.

Speaker is sponsored by Penguin Random House.

THE PLANETARY SOCIETY LECTURE

Everything All at Once



Bill Nye @BillNye

Chief Executive Officer, The Planetary Society, Pasadena, Calif.

How nerds solve problems...is the crux of Bill Nye's talk.

Scientist, comedian, teacher, and author, Bill became a household name with his innovative, fast-paced television series, *Bill Nye the Science Guy*. His mission for many years is to turn on the general public, and kids in particular, to the "way cool" wonders of science. After earning a degree in mechanical engineering at Cornell University, Bill spent several years working as an engineer until he combined this dual love of science and comedy to create the Emmy award-winning *Science Guy*.

Bill is currently CEO of The Planetary Society. As a student at Cornell University, Bill was introduced to the wonders of astronomy in a class taught by Carl Sagan himself, one of the original founders of The Planetary Society. So for Bill it was like coming full circle.

He has also authored several books for kids, including *Bill Nye the Science Guy's Great Big Book of Tiny Germs*. His most recent publications, the *New York Times* bestselling *Undeniable: The Science of Creation*, and the forthcoming *Unstoppable: Harnessing Science to Change the World*, are Bill's effort to continue his mission of changing the world through science education.



—Photo courtesy of the California Science Center

On October 30, 2012, Space Shuttle Endeavour opened to the public in the California Science Center's newly built Samuel Oschin Pavilion. See page 23 for details about an educational trip to the California Science Center.

STRAND 2017: A STEM Odyssey (featured speaker to be announced)

Students' science learning has changed dramatically from learning in the past. In a STEM environment, students' understanding of the world around them is facilitated through the intentional connections between the four disciplines of science, technology, engineering, and mathematics. A STEM curriculum provides research-based instructional strategies that engage diverse learners and highlight career pathways in STEM-related fields. More importantly, STEM provides opportunities for all students to place themselves in a 21st-century world. In this strand, participants will connect and collaborate to increase their understanding and ability to teach STEM-based lessons and instructional sequences.

FEATURED PRESENTATION

NGSS...Now What?



Laura Henriques

Professor of Science Education, California State University, Long Beach

My state adopted *NGSS*. Now what I am supposed to do? Does this sound familiar? Laura will help you understand how to move forward as you modify your instructional decisions and practices to begin implementing *NGSS* in your classroom. Prior to joining the faculty at CSULB, she taught middle school and high school physics/physical science and served as a Lead Teacher for the Woodrow Wilson National Fellowship Foundation. Laura has been heavily involved in California's adoption, transition, and implementation efforts around *NGSS*.

STRAND NGSS: The Next Generation of Science Teaching

Celebrate the vision of 3D teaching and learning in the NRC *Framework* and *Next Generation Science Standards*. This strand provides engaging and collaborative examination of the *NGSS* architecture to allow teachers to implement the changes necessary to construct a coherent program, including classroom practice and instructional sequence, as well as to build student skills. This strand will focus on providing opportunities for students to collaborate as they develop and use science and engineering practices, communicate evidence of core scientific understanding, and apply real-world contexts.

FEATURED PRESENTATION

A New Era: Beyond Science and Literacy Integration



Jacqueline Barber @jqbarber

Associate Director, The Lawrence Hall of Science, and Director of the Hall's Learning Design Group, University of California, Berkeley

We used to call it integration of science and literacy. Now we recognize that reading science text, engaging in science talk, and constructing written and oral scientific arguments is simply part and parcel of science. Jacqueline will discuss this pivotal moment in science education, why it promises to transform how we think about teaching and learning science, and why that's a good thing! Her research interests include science and literacy integration and argumentation in the science classroom. She has co-designed the curriculum programs: *Seeds of Science/Roots of Reading* and *Amplify Science*, a new literacy-rich curriculum program addressing the NGSS.

Roots of Reading and *Amplify Science*, a new literacy-rich curriculum program addressing the NGSS.

STRAND Science & Literacy Reloaded

With the continued emphasis on mathematics and language arts, elementary teachers have not been encouraged or given opportunities to teach science. This strand will support these teachers in seeing the connections between science and literacy. Elementary science will be reenvisioned as an opportunity for authentic language learning and not just one more thing to squeeze into the curriculum. As students investigate natural phenomena, they collect data to then make claims from their evidence and explain their reasoning, arguing from their evidence. Teachers can then support their students' language and literacy through science notebooks, technical writing, interactive journals, and e-portfolios.

FEATURED PRESENTATION

Reenvisioning STEM Education: Transcending Boundaries to Realize the Vision of Inclusion, Diversity, and Equity in STEM Fields



Roni Ellington

Founder, Transforming STEM Network, and Associate Professor, Mathematics Education, and Coordinator, Graduate Programs in Mathematics and Science Education, Morgan State University, Baltimore, Md.

Join Roni as she presents a framework for STEM education that will transform the ways in which we conceptualize the aims and goals of STEM education with implications for curriculum, instruction, and pedagogy across all STEM disciplines. She will provide an alternative view of STEM education and transformative instructional strategies that can support and realize true equity, inclusion, and diversity in STEM.

STRAND Mission Possible: Equity for Universal Access

Access to science education is not a privilege; it is a right for students of all abilities, genders, languages, socioeconomic status, and geographic locations. A quality science education is essential in closing the skills gap in our current workforce. Science learning must start in early childhood and be sustained through postsecondary education to keep our nation as a leader in innovation. Current challenges provide opportunities for equitable access to science education.

FEATURED PANEL

Enhancing Teachers' Voices and Roles in Education Policy Making



Jay Labov



Donna Migdol



Margo Murphy

Organized by **Greg Pearson**, Scholar, K–12 Engineering Education and Public Understanding and Engineering, National Academy of Engineering, Washington, D.C.

Moderator: David Evans,
NSTA Executive Director, Arlington, Va.



K. Renae Pullen



Jose Rivas



Bruce Wellman

Panelists:

- Jay Labov, Senior Advisor for Education and Communication, The National Academies of Sciences, Engineering, and Medicine, Washington, D.C.
- Donna Migdol (@dmigdol123), Elementary STEM Teacher, Oceanside (N.Y.) School District
- Mary (Margo) Murphy (@marymargmurphy), Science Teacher, Camden Hills Regional High School, Rockport, Maine
- K. Renae Pullen (@krenaep), Science Teacher, Caddo Parish Public Schools, Shreveport, La.
- Jose Rivas, Physics and Engineering Teacher, Lennox Academy, Inglewood, Calif.
- Bruce Wellman (@BruceWellmanKS), Engineering Teacher, Olathe Northwest High School, Olathe, Kans.

Classroom teachers are used to having educational “innovations” thrust upon them, but rarely are they given opportunities to bring their wisdom of practice to inform decision-making about these changes, especially outside of their own classrooms or schools. However, given the current importance of STEM education, these kinds of opportunities may be possible. For example, a focus of reform is the *Next Generation Science Standards*, which set forth an ambitious model of three-dimensional learning and include a significant engineering component. Because the role of engineering in K–12 education is still unsettled, teachers of STEM may have unparalleled opportunities to have a voice in its development and implementation along with the education policies that will support such efforts. For this featured panel, teacher leaders will discuss the challenges and rewards associated with being an effective leader outside the classroom, including at the district, state, and national levels. Also, staff from the National Academies of Sciences, Engineering, and Medicine will report on efforts at the Academies to bring attention to the value of teacher involvement in STEM education leadership and policy.

Check out more than 1,200 sessions and other events with the Los Angeles Session Browser/Personal Scheduler (www.nsta.org/LAbrowser).

ROBERT H. CARLETON LECTURE

STEM-ing from the Box: Planning, Designing, and Constructing Safe, Sustainable Science Facilities Through STEM-Based Teaching and Learning



LaMoine Motz

1988–1989 NSTA President, and Managing Partner, The Motz Consulting Group, White Lake, Mich.

Join LaMoine as he discusses how the best science facilities can transform ways of teaching and learning. Without active, effective, and safe science labs, our students become “science soldiers without arms.” Learn about top-of-the-line science classrooms and labs that can transform mediocre student work into outstanding outcomes! Lead author of *NSTA’s Guide to Planning School Science Facilities*, he has served NSTA for over 40 years, notably as its president and as chair or team member of numerous committees, advisory boards, and task forces. Concern about the state of safe and efficient science facilities—and how to use them to strengthen science teaching and learning—prompted LaMoine, a former science teacher, to form The Motz Consulting Group.

ELEMENTARY EXTRAVAGANZA

Friday, March 31, 2017

**8:00–10:00 AM • West Hall B-1
Los Angeles Convention Center**

- 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—Win an iPad!
- 100+ presenters

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

 **NSTA** National Science Teachers Association

PAUL F-BRANDWEIN LECTURE

Nearby Wilderness, Novel Ecosystems, and Connecting to Nature



Emma Marris @Emma_Marris

Environmental Writer, Klamath Falls, Ore.

A recent study that showed more UK students could recognize Pokémon species than a sparrow provoked widespread horror, but don't forget that sparrows are the ultimate urban bird. Hear from Emma on how nearby nature and overlooked wild corners in urban and suburban spaces can be used to connect students to nature. Weedy patches can be hot spots of diversity and overgrown fields are rich with data about how nature will adapt to a changing climate and the pervasive influence of humankind. Emma has written for many magazines and newspapers, including

National Geographic, *Discover*, the *New York Times*, and *Slate*. She holds a master's degree in Science Writing from Johns Hopkins University and worked for many years as a reporter for the journal *Nature*. In 2011, she published her first book, *Rambunctious Garden: Saving Nature in a Post-Wild World*. In 2016, she gave a TED Talk about seeing the hidden nature that surrounds us.

MARY C. McCURDY LECTURE

Born to Be a Scientist



Kathy DiRanna @K12Alliance; @EarlyImplement

Statewide Director, K-12 Alliance/WestEd, Los Alamitos, Calif.

Elementary teachers are key to keeping the joy of discovery and learning open and available to each and every student. Celebrate your role in facilitating their education! Kathy DiRanna has helped shape California's science reform efforts for the past 30 years and she continues to be an advocate for the reform efforts actively serving on state committees for the implementation of NGSS and through the California Mathematics and Science Partnership Program. Nationally, she has also served as the mentor coordinator for the National Academy of Science and Mathematics Education, as well as on a variety of advisory boards.

Currently, Kathy is the statewide director of WestEd's K-12 Alliance, a professional development organization focused on improving science education in grades K-12 through content, instructional strategies, assessment, and leadership. She is director of the CA NGSS K-8 Early Implementation Initiative and has co-authored several publications, including *Assessment-Centered Teaching: A Reflective Practice* and *A Data Coaches Field Guide: Unleashing the Power of Collaborative Inquiry*.

AMERICAN GEOPHYSICAL UNION (AGU) LECTURE

The Fault Lies Not in Our Stars



Lucy Jones @DrLucyJones

Seismologist, Pasadena, Calif.

Known globally as an expert in earthquakes and resilience, Lucy Jones has dedicated her life to helping communities and leaders prepare for the inevitable. She retired from federal service in March 2016 after serving as a seismologist with the U.S. Geological Survey since 1983. She continues as a Visiting Research Associate at the Seismological Laboratory of Caltech and is developing programs to connect policy makers with scientists while supporting the use of science in community decision-making. In 2014, she led a partnership between the USGS and the City of Los Angeles to create solutions to four of the most significant seismic vulnerabilities in the city.

Author of over 100 papers on research seismology, Lucy's primary interest is in earthquake statistics and integrated disaster scenarios, especially in southern California. She holds a PhD in geophysics from the Massachusetts Institute of Technology.

FEATURED PRESENTATION

Classroom Assessment and the NGSS



Heidi Schweingruber

Director, Board on Science Education; The National Academies of Sciences, Engineering, and Medicine; Washington, D.C.

The NGSS are leading to major changes in classroom instruction. A new report from the National Academies of Sciences, Engineering, and Medicine's Board on Science Education provides guidance to teachers and professional development providers about how formative and summative classroom assessments will also need to change. Join Heidi as she highlights the key ideas in the report and explores ways that it can be used in professional development with K–12 teachers. Heidi is the director of the Board on Science Education at the National Research Council (NRC). She has been involved in many of the major projects of the board since it was formed in 2004. She co-directed the study that resulted in the report *A Framework for K–12 Science Education*. In addition, Heidi has co-authored two books that translate findings from the NRC reports for a broader audience: *Ready, Set, Science! Putting Research to Work in K–8 Science Classrooms* and *Surrounded by Science*. She holds a PhD in psychology (developmental) and anthropology, and a certificate in culture and cognition from the University of Michigan.

NSTA/ASE HONORS LECTURE

The Climate for Science Practical Work in UK Schools



Chris Colclough

2016–2017 Chairperson, The Association for Science Education, Hatfield, Herts. UK

Chris' mission over the coming year as ASE Chairperson is to promote the right of all science teachers to subject-specific professional development. The ASE provides many opportunities for members to engage with current issues that affect them professionally. She will outline key features in which ASE has

been active in supporting the development of guidance on effective practical work and its assessment. Prior to her role at ASE, Chris was the director of Science and Applied Learning from 2009 in Sunderland and in 2014 she retired from the schools as assistant principal. She has taught in four Secondary schools (equivalent to U.S. grades 6–12) in the City of Sunderland in North East England before becoming head of biology and then head of science in 1997. In 2008, Chris achieved Chartered Science Teacher (CSciTeach) status, which recognizes her excellence in science teaching and learning. She holds degrees in microbiology and biochemistry from the University of Dundee, Scotland.

CALLING ALL MIDDLE SCHOOL EDUCATORS

Friday, March 31, 2017 | 10:15 AM–4:30 PM
Diamond Ballroom Salons 4 & 5, JW Marriott

Must be registered for the conference to attend

Join us for a special **“Meet Me in the Middle Day,”** designed just for middle school educators, at **NSTA's 2017 National Conference in LA!**

The day's events will include a networking session, more than a dozen presentations specifically for middle school educators, and an afternoon share-a-thon featuring more than 100 presenters. You'll walk away with ideas you can put to use in your classroom next week!

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

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Attend for a
chance to win
an iPad mini and
other door prizes!

Science in the Community Events

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

Thursday, 3:30–5:30 PM	Creativity Forum: A Serious and Fun Aspect of Science
Friday, 8:00–10:00 AM	Models of Intersections That Connect Informal Institutions with Schools, Students, and Teachers to Support STEM
Friday, 2:00–4:00 PM	Science in the Community Share-a-Thon
Saturday, 12:30–2:30 PM	Using Informal Science Experiences to Explore Environmental Issues

Science in the Community Featured Presentation (Panel)

The Development of a Positive STEM Identity



Angela Calabrese Barton @calabresebarton

Professor, Dept. of Teacher Education, Michigan State University, East Lansing

Jeff Davis (@ca_afterschool), Executive Director, California After-School Network, Sacramento

Wendy Ward Hoffer (@wendywardhoffer), Senior Director of Education, PEBC, Denver, Colo.

Yeni Violeta Garcia (@DrVioletaGarcia), STEM Initiatives Consultant and Program Designer, STEM Learning By Design, Denver, Colo.

Informal science experiences are especially important for developing a positive STEM identity. Angela Calabrese Barton will moderate a panel discussion on the development of a positive STEM identity. A leader in the areas of equity and social justice in science education, Angela has authored *Teaching Science for Social Justice*, and her 2012 book, *Empowering Science and Math Education in Urban Schools*, co-authored with Edna Tan, won the AERA Division B Outstanding Book of the Year award. Her most recent project involves working with teachers to design teacher tools and materials to teach engineering for sustainable communities at the middle grade levels. In addition, she co-edited the *Journal of Research in Science Teaching* from 2011 to 2015.

FEATURED PRESENTATION

Engaging ALL in STEM



Louie Lopez @LouieRLopez; @USAEOP

Chief, STEM Education and Outreach Office, and AEOP Cooperative Agreement Manager, U.S. Army Research Development and Engineering Command, Aberdeen Proving Ground, Md.

Louie will share AEOP's collaborative, cohesive portfolio of Army-sponsored STEM programs that effectively engage, inspire, and attract the next generation of STEM talent through K–16 summer enrichment activities, competitions, and research apprenticeships. A former Marine, Louie currently serves as the chief of STEM and Education Outreach for the U.S. Army Research Development and Engineering Command's programs and Engineering Office at

Aberdeen Proving Ground. His responsibilities include the technical and fiscal oversight of the Army Educational Outreach Program (AEOP) cooperative agreement award on behalf of the Office of the Deputy Assistant Secretary of the Army for Research and Technology and coordination of the Army's national STEM efforts across the Army science and technology community and its academic partners. He earned his master's degree in Educational Technology from National University in San Diego, California.

FIRST NSTA CONFERENCE?

First-Timer Conference Attendees' Orientation

Thursday, March 30, 8:00–9:00 AM • 151, Convention Center

Join NSTA Board and Council members for this session for conference first-timers and those who haven't come for a while. Get tips on navigating and how to make the most of the amazing opportunities!



www.nsta.org/LA

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The Best Place to Explore Three-Dimensional Teaching and Learning

Take a deep dive into the *Next Generation Science Standards (NGSS)* with two special events that are free to all conference attendees!

NGSS@NSTA Forum Three-Dimensional Assessment

Friday, March 31
151, Convention Center

Come learn how new standards are changing the way students are assessed, both during instruction and with end-of-year exams. Attend just one session or stay for the whole day.

Sessions include:

- Designing and Using Classroom Assessments to Support Meaningful NGSS Investigations
- The Next Generation Science Assessments (NGSA) Project
- How Do You Know if an Assessment Is Measuring Three-Dimensional Reasoning?
- Grading in a Three-Dimensional Classroom
- The Next Generation of Statewide Assessments

NGSS@NSTA Share-a-Thon

Saturday, April 1 • 9:30–11:00 AM
151, Convention Center

Get tips and tools to implement three-dimensional standards from NSTA's NGSS Curators, NGSS writers, and other education experts. Leave with plenty of handouts and ideas you can use in your classroom right away!



NGSS@NSTA

STEM STARTS HERE

Professional Learning Institutes

Professional Learning Institutes (PLIs) are focused, content-based programs that explore key topics in science/STEM education in depth. Presented by experts in science/STEM education, professional learning, standards implementation, assessment, curriculum, and resources/materials development, PLIs are scheduled on Wednesday, March 29, 9:00 AM to 4:00 PM. PLI-4 and PLI-5 are each followed by one day of pathway sessions that offer further exploration of the topics covered. For complete descriptions and to purchase tickets, visit www.nsta.org/LAbrowser. (Tickets Required)

Disciplinary Core Ideas: Reshaping Teaching and Learning (PLI-1)

Ticket Price: \$150, by preregistration only

Like all enthusiastic teachers, you want your students to see the connections between important sciences concepts so they can grasp how the world works now—and maybe even make it work better in the future. But how exactly do you help them learn and apply these core ideas? Attendees will explore ways to reshape their approach to teaching and their students' way of learning. Building on the foundation provided by *A Framework for K–12 Science Education*, which informed the development of the *Next Generation Science Standards*, we will discuss the cores ideas across the four disciplines of NGSS through the exploration of diverse phenomena.

Helping Students Make Sense of the World Using Next Generation Science and Engineering Practices (PLI-2)

Ticket Price: \$150, by preregistration only

This session focuses on the role of science and engineering practices in the key shifts that underlie NGSS, transforming classrooms from places in which students “learn about” science ideas to ones where students “figure out” how phenomena work in order to build science knowledge. We will work with three-dimensional NGSS activities and experience science and engineering practices as learners. Then we will analyze examples of student work and video cases of teachers and students engaged in these same activities to see the practices in action in classrooms. Attendees will explore how storylines can be structured to elicit student questions about phenomena that elicit science and engineering practices in sensemaking, and how teachers support students' practices through classroom discourse by examining multiple examples drawn from elementary, middle school, and high school NGSS classrooms.

Uncovering Students' and Teachers' Ideas with Three-Dimensional Formative Assessment Probes and Techniques (PLI-3)

Ticket Price: \$150, by preregistration only

Using K–12 examples from life, physical, Earth, and space sciences, learn how to use formative assessment to support three-dimensional learning in the classroom or professional learning setting. This session will take participants through a process using the *Uncovering Student Ideas in Science* formative assessment probes and formative assessment classroom techniques (FACTs) to elicit students' (and teachers') ideas and use science practices and crosscutting concepts to support their thinking. Participants will also develop their own probe using a feedback cycle.

Argument-Driven Inquiry: Transforming Laboratory Experiences so Students Can Use Core Ideas, Crosscutting Concepts, and Science Practices to Make Sense of Natural Phenomena (PLI-4)

Ticket Price: \$150, by preregistration only

This PLI is an introduction to a new approach to lab instruction called Argument-Driven Inquiry (ADI). ADI is an innovative instructional model that is based on current research about how people learn science and is designed to foster the development of science proficiency. ADI gives students an opportunity to learn how to use the core ideas, science practices, and crosscutting concepts of science to make sense of natural phenomena.

Moving Standards into Practice: Five Tools and Processes for Translating the NGSS into Instruction and Classroom Assessment (PLI-5)

Ticket Price: \$150, by preregistration only

The *Next Generation Science Standards (NGSS)* challenge teachers to think deeply about learning and teaching with the goal of developing a clear vision of science education that is coherent, focused, and rigorous. This PLI will share a set of tools and processes that can help deepen teachers' knowledge and enable them to translate the *NGSS* into instructional sequences that engage students in using science and engineering practices and that highlight the crosscutting concepts. The Five Tools and Processes are designed to help professional development leaders' work with science teachers on curriculum, instruction, and assessment as they achieve this vision.

District-Level Administrators: You Are Not Alone in the NGSS Universe! (PLI-6)

Ticket Price: \$150, by preregistration only

When facing paradigm shifts in STEM education policy, district-level administrators often face challenges in providing professional development, aligning curriculum, and implementing new science standards. NSTA empathizes with your needs and has developed this PLI especially for you. Come share solutions with your peers while walking away with tangible resources, tools, and ideas from leading NSTA authors and experts.

Equity in Science Education (PLI-7)

Ticket Price: \$150, by preregistration only

This PLI will address key principles of equity and diversity in STEM education, including Appendix D of the *NGSS*: "All Standards, All Students: Making the *Next Generation Science Standards* Accessible to All Students." Participants will learn about many of the assumptions, values, and practices that hinder the learning of students of color, and use proven strategies to enhance their own cultural competency, diversity awareness, and perspectives on racism and prejudice. Be prepared to share, learn, and meet other "equity-minded" colleagues as we develop supportive alliances and tools to assist us in providing a more equitable—and effective—STEM educational system.

Integrating Science and Literacy with Picture Books (PLI-8)

Ticket Price: \$150, by preregistration only

Authors and former elementary teachers Karen Ansberry and Emily Morgan know you're short on time...so they've integrated science and reading in a natural way to help you teach both subjects at once. In this interactive workshop, you'll take part in several model lessons, learn the benefits and cautions of using children's picture books in science, become familiar with the BSCS 5E learning model, and learn how to incorporate the *Common Core State Standards, ELA* into standards-based science lessons. A copy of the NSTA Press® book *Picture-Perfect Science* will be provided to each attendee.

Networking Events

Join your colleagues at one of these networking events. For complete descriptions and to purchase tickets, visit www.nsta.org/LAbrowser. (Tickets Required)

12th Annual NSTA Global Conversations in Science Education Conference (M-1)

Enhancing Global Workforce Skills Through Literacy, STEM, and Equity

Date: Wednesday, March 29, 12 Noon–5:30 PM

Registration Fee: \$10, by preregistration only

NSTA has planned an afternoon dedicated to sharing science education from an international perspective. This mini-conference begins and ends with plenary talks by distinguished international scholars and includes roundtable discussions on specific topics relevant to the international science educator community and poster presentations providing opportunities for networking and idea exchange.



For more information, please visit www.nsta.org/international.

NSTA Teacher Awards Gala (M-2)

Date: Friday, March 31, 6:00–8:45 PM

Registration Fee: \$75 advance; \$80 on-site

Come enjoy a fabulous evening celebrating with this year's teacher award recipients! ALL of the teacher awards will be presented in one grand evening. Join your colleagues in recognition of this year's winners. Evening attire is requested to honor our teacher award recipients. A limited number of tickets are available for this social event.



JOIN US

6TH ANNUAL

S **T** **E** **M**

SCIENCE

TECHNOLOGY

ENGINEERING

MATHEMATICS

Forum & Expo

HOSTED BY NSTA

Kissimmee/Orlando

July 12–14, 2017

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

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

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

#STEMforum

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—Photo courtesy of Los Angeles Tourism & Convention Board

Graduate Credit Opportunity

Graduate Credit Sponsored by Dominican University of California

Earn one (1) or two (2) graduate-level credit/s in professional development through Dominican University of California. To obtain credit/s, you must be registered for the NSTA Los Angeles National Conference, complete the required assignments, and pay a fee of \$95 for one credit or \$175 for two credits. An NSTA transcript is also required. Grade method: A–F. Deadline is April 17, 2017.

Full details will be available at bit.ly/2hEBPI2 in late January.

Committee Leaders

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Conference Chairperson
Instructor and Science
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Sample Conference Schedule

Make your own conference schedule using the Los Angeles Session Browser/ Personal Scheduler (www.nsta.org/LAbrowser). Browse events by day, format, subject, grade level, conference strand, sponsor, or keyword.

		Life Science	Physical Science	Earth and Space Science	Engineering and Technology	General Science Education	Informal Science Education	PRESENTATION	HANDS-ON WORKSHOP
Elementary	Thu., 8:00–9:00 AM—The “How Tos” of an X-STREAM Family Night						•		•
	Thu., 12:30–1:30 PM—The Power of Picture Books to Engage Girls in STEM					•		•	
	Thu., 2:00–3:00 PM—Future Worlds: Storm Survival Shelters STEM Challenge		•						•
	Thu., 3:30–4:30 PM—Batology: An Integrated STEAM Unit on Bat Structure, Diversity, and Their Vital Role in the Ecosystem	•							•
	Fri., 8:00–9:00 AM—EcoTech	•						•	
	Fri., 12:30–1:30 PM—Science Learning at Your Window!						•	•	
	Fri., 3:30–4:30 PM—Middle School Chemistry and Engineering Design in the NGSS		•						•
	Sat., 8:00–9:00 AM—Exploring STEM Across the Curriculum				•				•
	Sat., 9:30–10:00 AM—Literacy and the Engineering Design Process				•			•	
	Sat., 11:00 AM–12 Noon—Promoting Elementary Science Literacy in Three Dimensions with the 2017 U.S. Total Solar Eclipse			•				•	
Sun., 9:30–10:30 AM—Tides Around the World			•					•	
Middle Level	Thu., 8:00–9:00 AM—Blue Marble Matches			•					•
	Thu., 12:30–1:30 PM—Ecology Unit: Restructuring for NGSS3D Learning	•						•	
	Thu., 3:30–4:30 PM—STEM Engagement at a STARBASE Near You!						•		•
	Fri., 8:00–9:00 AM—Bioengineering Challenges and Middle School Life Science	•							•
	Fri., 11:00–11:30 AM—Using Simulations to Engage Middle School Learners in Physical Science		•					•	
	Fri., 2:00–3:00 PM—Middle School Chemistry and Engineering Design in the NGSS		•						•
	Sat., 8:30–9:00 AM—Robotics: A Pathway to Get Ready for the Real World						•	•	
	Sat., 12:30–1:00 PM—Integrating Science and Engineering Using the 5E Instructional Model				•			•	
	Sat., 2:00–3:00 PM—STEM Road Map, 6–8: Integrated STEM Teaching in Middle School			•				•	
High School—College	Thu., 12:30–1:30 PM—Bridge DATA Activity: Examining Juvenile Oyster Disease	•							•
	Thu., 2:00–2:30 PM—Using the Case Studies as a Cumulative Review	•						•	
	Thu., 3:30–4:30 PM—Connect Chemistry to Your World with ChemClub		•						•
	Fri., 8:00–9:00 AM—Supporting Student Independence and Metacognition in Problem-Solving		•					•	
	Fri., 5:30–6:00 PM—Space Explorers: 25 Years of Inner-City Students Out-of-School-Time Explorations						•	•	
	Sat., 8:00–9:00 AM—Supporting Leadership Development in Science Educators					•			•
	Sat., 9:30–10:30 AM—Pitt-Bridge: Empowering Students Through STEM Research and Advocacy in Community Health						•		•
	Sat., 12:30–1:30 PM—Earthquakes: From Paper to ArcGIS			•				•	
	Sun., 8:00–9:00 AM—Underwater Robotics in the Classroom and Beyond				•				•
	Sun., 10:00–10:30 AM—STEM for ALL: Dream IT, Design IT, Develop IT				•			•	
	Sun., 11:00 AM–12 Noon—Building, Evaluating, and Using Systems Models			•					•

Educational Trips

Discover what Los Angeles has to offer on one of our ticketed educational trips. For complete descriptions and to purchase tickets, visit www.nsta.org/LAbrowser. (Tickets Required)

NASA'S JET PROPULSION LABORATORY MORNING TOUR (T-1)

Date: Thursday, March 30, 8:30 AM–12:45 PM

Ticket Price: \$35 advance, preregistration only

NASA'S JET PROPULSION LABORATORY AFTERNOON TOUR (T-3)

Date: Thursday, March 30, 12 Noon–4:15 PM

Ticket Price: \$35 advance, preregistration only

The Jet Propulsion Laboratory is a place where science, technology, and engineering intermix in unique ways: to produce iconic robotic space explorers sent to every corner of the solar system, to peer deep into the Milky Way galaxy and beyond, and to keep a watchful eye on our home planet. Tour participants will receive an overview of the Laboratory's activities and accomplishments by watching *Journey to the Planets and Beyond*. There will also be opportunities to visit the von Karman Visitor Center, the Space Flight Operations Facility, and the Spacecraft Assembly Facility. See how scientists at JPL conduct research and help develop instruments and missions to characterize and understand the atmosphere, land, and oceans on our home planet to make better predictions of future changes. *Note:* The tour involves a considerable amount of walking so wear comfortable shoes. Wheelchair access can be accommodated with advance notice.

Special Note: JPL requires that all U.S. citizens, 18 years of age or older, present official government-issued photo identification (driver's license or passport) before being allowed entry. All non-U.S. Citizens 18 years of age or older must present a passport or resident visa (green card) before being allowed entry.



—Photo courtesy of NASA's Jet Propulsion Laboratory



—Photos courtesy of Aquarium of the Pacific

LA's Teaching Aquarium: Cabrillo Marine Aquarium (T-2)

Date: Thursday, March 30, 11:30 AM–6:15 PM

Ticket Price: \$35 advance; \$40 on-site

Come tour one of the most requested school field trips in the Los Angeles area. Located just steps from the ocean, Cabrillo Marine Aquarium (CMA) is part of the City of Los Angeles Recreation and Parks Department. Join CMA staff educators as they share “LA’s Teaching Aquarium’s” most popular programs for schools and see why CMA is a trusted resource that inspires exploration, respect, and conservation of southern California marine life. Our tour includes the Exploration Center, Aquatic Nursery and Research Lab, and Cabrillo Beach tide pools. Be sure to dress casual and in layers (could be cool at the beach!) and bring sunscreen and a hat for our tour of the Cabrillo Coastal Park ocean habitats within easy walking distance. Wear pants and closed-toed shoes appropriate for tide pooling. Don’t forget to bring your camera. *Note:* This trip is for adults only.

More Than Just a Fish Tank—Aquarium of the Pacific (T-4)

Date: Thursday, March 30, 12:15–5:00 PM

Ticket Price: \$28 advance; \$33 on-site

The Aquarium of the Pacific is a think tank! This guided tour includes behind-the-scenes access, conversations about data and Earth systems science, as well as opportunities to explore the Aquarium on your own. We will check out the Aquarium’s Ocean Science Center and NOAA’s Science On a Sphere®, a six-foot spherical display presenting images about Earth in a unique and captivating way. From sea surface temperature, satellite tracks, ocean currents, primary productivity, and more, the Science on a Sphere data sets connect Aquarium guests to larger systems beyond the animal collection. Through a facilitated discussion, participants will consider how we know what we know about the planet, and how to connect an animal collection to big stories about our world. Aquarium staff will guide participants through a behind-the-scenes tour of our facility to share how habitats are maintained, how food is prepared, and how 12,000 animals live in the Aquarium of the Pacific.

Get Hands On at Discovery Cube Los Angeles (T-5)

Date: Thursday, March 30, 1:45–4:45 PM

Ticket Price: \$28 advance; \$33 on-site

Discovery Cube’s mission is to inspire and educate young minds through engaging science-based programs and exhibits to create a meaningful impact on the communities we serve. Plan for hands-on experiences at the unique, innovative, and award-winning exhibits developed by and on display at Discovery Cube LA. Explore the multimedia role-playing exhibits, such as the Discovery Market, which uses computers, scanning guns, animated characters, and self-selected shopping lists to learn about nutrition and eco-friendly behaviors. Investigate the 1,000 square-foot house using electronic tablets, a GPS system, and mechanical devices to learn how to save water and power. Become a member of the LA Kings hockey team while learning the physics and math behind this incredibly fast sport...and much more! Other amenities include Bean Sprouts restaurant and a gift shop. Be sure to wear comfortable shoes. For more information, visit www.discoverycube.org/la.

Griffith Observatory: Gateway to the Cosmos (T-6)

Date: Thursday, March 30, 6:00–10:45 PM

Ticket Price: \$35 advance; \$40 on-site

When Griffith Observatory opened in 1935, it was one of the first institutions in the U.S. dedicated to public science and possessed the third planetarium in the U.S. Today, visitors can look through telescopes, explore exhibits, see live shows in the Samuel Oschin Planetarium, and enjoy spectacular views of Los Angeles and the Hollywood Sign. The observatory is split up into six sections: The Wilder Hall of the Eye, the Ahmanson Hall of the Sky, the W.M. Keck Foundation Central Rotunda, the Cosmic Connection, the Gunther Depths of Space Hall, and the Edge of Space Mezzanine. In addition, a complimentary 24-minute film narrated by Leonard Nimoy typically runs at the beginning of every hour. There is also a gift shop open daily until 9:00 PM.

On our trip, we will explore the Observatory, star gaze, as well as watch the 8:30 PM *Centered in the Universe* show (which is included in the ticket price). While the Observatory does have a café, it will not be able to accommodate the volume of people participating on the trip. It is recommended that you eat before departing on the trip. You may not bring food and drinks to the Observatory as they are not allowed in the building.



—Photo courtesy of Discovery Cube LA



—Photo of Griffith Observatory courtesy of Los Angeles Tourism & Convention Board

Science and *Endeavour* Up Close at California Science Center (F-1)

Date: Friday, March 31, 9:00 AM–1:15 PM

Ticket Price: \$29 advance; \$34 on-site

Experience the excitement of the California Science Center, the most attended museum in the nation outside of New York and Washington, D.C. From the moving tranquility of our 188,000-gallon kelp forest exhibit to the wonder inspired by the travels of the Space Shuttle *Endeavour*, our world-class exhibits are helping educators inspire the next generation of scientists, innovators, and explorers. Come enjoy a guided tour by Science Center education staff and then have free time to explore the exhibits.

The Columbia Memorial Space Center: Exploring 21st-Century STEM at a Historic NASA Site (F-2)

Date: Friday, March 31, 9:30 AM–1:30 PM

Ticket Price: \$31 advance; \$36 on-site

Experience STEM learning at a site where NASA sent humans to the moon! The Columbia Memorial Space Center's mission is to ignite a community of creative and critical thinkers. We are located on the site where NASA designed and developed the *Apollo* missions to the moon and all of the space shuttles. Our space-age facility houses Southern California's only Challenger Learning Center and LA's only public Robotics Lab. This educational trip will walk you through the history of the site and give you hands-on experience in how the Space Center is transforming its history as a springboard into 21st-century STEM learning for all ages.

EXHIBITORS

The NSTA Exhibit Hall, with more than 350 of the leading science education companies and organizations in the world, has the newest products to show and share with educators.

THIS IS A PARTIAL LIST OF EXHIBITORS.

- 3D Molecular Designs
A+ STEM Labs
ABRAMS
Academy of Model Aeronautics
ACT, Inc.
Activate Learning
Adam Equipment Inc.
AEOP eCYBERMISSION and GEMS
Aircraft Owners and Pilots Association
Albert Einstein Distinguished Educator Fellowship (AEF) Program
Aldon Corp.
Alpine Camp and Conference Center
American 3B Scientific
American Association for Laboratory Animal Science
American Association of Physics Teachers
American Educational Products LLC
American Farm Bureau Foundation for Agriculture
American Lab Design
American Meteorological Society
American Museum of Natural History
American Physical Society
American Society of Plant Biologists
American Statistical Association
Amplify
ANATOMY IN CLAY® Learning System
Animal Jam
Animalearn
Aquarium of the Pacific/NMEA
Arbor Scientific
ArduSat
Bedford, Freeman, & Worth High School Publishers
Benchmark Education Co.
Bio Corp.
Bio-Rad Laboratories, Inc.
The Boeing Co.
BIOZONE International Ltd.
Bone Clones, Inc.
Bright Schools Competition
Capstone
Carl Zeiss Microscopy, LLC
Carolina Biological Supply Co.
Case History: *Murder at Old Fields*
Cedar Fair Entertainment Co.
Celestron, LLC
Cell Zone, Inc.
CELLTREAT Scientific Products
Center for the Advancement of Science in Space (CASIS)
Civil Air Patrol
Claire Lynn Designs
Clemson University
Cognitive Surplus
The Cornell Lab of Ornithology
CPO Science/School Specialty
Creative Discovery Museum
Delta Education/School Specialty
Digitalis Education Solutions, Inc.
Dinah.com
Discovery Agents
Disney Youth Programs
Diversified Woodcrafts
Dobot
Dynalon Labware
Educational Innovations, Inc.
Edvotek Inc.
EF Explore America
Elbit Systems of America
Energy Concepts Inc.
Enovative Technologies, LLC
ePlanetarium—Home of Discovery Dome
Esri
ETA hand2mind
ExploreLearning
Explorica Inc.
FDA
Firefly Books Ltd.
FIRST (For Inspiration & Recognition of Science & Technology)
Fisher Science Education
Flinn Scientific, Inc.
FLIR® Systems, Inc.
Forestry Suppliers, Inc.
Frey Scientific/School Specialty
Getting Nerdy, LLC
Gibberish
Grand Classroom
Great Minds
Hanna Instruments, Inc.
Hayden-McNeil, LLC
Healthmate International, LLC
Heinemann Publishing
Horizon Educational c/o MC2
Houghton Mifflin Harcourt
HHMI BioInteractive
Impact Science Education
Infinite Trading
Infobase Learning
Inq-ITS
International Baccalaureate
IPG
Iridescent
IRIS
It's About Time
IXL Learning
K'NEX Education
Ken-A-Vision Mfg. Co., Inc.
The Knowledge Factory, Inc.
JASON Learning
The John Hopkins Center for Talented Youth
LAB-AIDS, Inc.
Lab Rat Gifts
Lakeshore Learning Materials
LaMotte Co.
Learning A-Z
Learning Bits
Legends of Learning
LEGO Education
Liberty Science Center
Lockheed Martin
LW Measurements, LLC
Macmillan Children's Publishing Group
Macmillan Trade
Magnitude.io Inc.
The Markerboard People, Inc.
Math for America (M²A)
McGraw-Hill Education
Measured Progress
Measurement Incorporated®
Mentoring Minds
The MiniOne™ System
miniPCR™
Modular Robotics
molymod®, Spiring Enterprises Ltd.
Monsanto Co.
NADA Scientific Ltd.
Nanolive SA
NaRiKa Corp.
NASA Office of Education
Nasco
The National Academies of Science, Engineering, and Medicine
National Assessment of Educational Progress



—Photo courtesy of Mike Weiss

EXHIBIT HOURS

THU., MAR. 30 11:00 AM–6:00 PM*

FRI., MAR. 31 9:00 AM–5:00 PM

SAT., APR. 1 9:00 AM–3:00 PM

EXHIBIT LOCATION

The exhibits are located in Hall H/J of the Los Angeles Convention Center.

www.nsta.org/LAvirtualshow

Preview and create your own list of Los Angeles exhibitors before the conference using this link.

*Exclusive Exhibit Hall and Exhibitor Workshop Hours • Thu., 11:00 AM–12:30 PM

National Center for Science Education
 National Coalition for Aviation and Space Education
 National Energy Education Development Project
 National Geographic
 National Geographic Learning/Cengage Learning
 National Institute of Neurological Disorders and Stroke
 National Inventors Hall of Fame/Camp Invention
 National Nanotechnology Initiative
 NatureBridge
 NewPath Learning
 North American Association for Environmental Education
 Northrop Grumman Foundation
 Novagrade
 Nutrients for Life Foundation
 oddWires
 OHAUS Corp.
 Olympus Corp.
 OpenEd
 Origami Organelles
 Orkin
 Ozobot
 PASCO scientific
 PBS Educational Media/WGBH
 PBS LearningMedia
 Pearson Education
 PHET Interactive Simulations

Pitsco Education
 PlayMada Games
 PocketLab by Myriad Sensors
 Population Connection
 Project Lead The Way, Inc.
 Project Learning Tree
 Project WET Foundation
 Publisher Spotlight
 SAE International
 Safari Club International Foundation
 Savannah College of Art and Design
 Scholastic Library Publishing
Scholastic Magazine
 Science, Naturally!
 ScienceWiz
 SE3D
 Sensavis – The 3D Co.
 Shape of Life
 Sheldon Laboratory Systems
 Shell Science Lab Challenge
 Simulation Curriculum Corp.
 Skulls Unlimited International, Inc.
 Smithsonian Science Education Center
 Society for Neuroscience
 Society for Science & the Public
 Soil Science Society of America
 Sonic Supply
 South Dakota State University
 Southern Science Supply
 Spectrum Chemical Manufacturing Corp.

St. George's University, Grenada, West Indies
 STEMscopes
 Studica, Inc.
 Studies Weekly
 Swift Optical Instruments
 Teachers Curriculum Institute
 Team America Rocketry Challenge
 Texas Instruments Inc.
 Through My Window
 Toshiba/NSTA ExploraVision
 Toyota Motor Sales, USA, Inc. c/o MC2
 TPS Publishing Inc.
 Trees for Little People
 U.S. Geological Survey
 U.S. National Library of Medicine
 UO Real Solutions
 Vaccine Education Center at Children's Hospital of Philadelphia
 Vernier Software & Technology, LLC
 Virginia Tech College of Science
 W.W. Norton & Co., Inc.
 WeatherHawk
 WestEd
 Western Governors University
 WhiteBox Learning
 Wikki Stix Co.
 Wiley
 Wisconsin Fast Plants® Program
 WorldStrides
xUmp.com

Short Courses

All short courses are filled on a first-come, first-served basis, so act now! For complete descriptions and to purchase tickets, visit www.nsta.org/LAbrowser. (Tickets Required)

The Instructional Leader's Guide to NGSS (SC-1)

Date: Thursday, March 30, 1:30–4:30 PM

Ticket Price: \$27 advance; \$32 on-site

The NGSS are changing how science is taught. Instructional leaders (whether department chairs, content coaches, principals, or curriculum coordinators) are essential to the success of teachers as they make this important shift. Join in for the fundamentals of three-dimensional instruction and a view of what an NGSS-based classroom looks like. Participants will also receive a copy of *NSTA's Quick-Reference Guide to the NGSS, K–12*. With these tools in hand, instructional leaders will be able to guide their teachers on a path toward successful implementation of the new standards.

Lessons Learned: The California NGSS K–8 Early Implementation Initiative (SC-2)

Date: Thursday, March 30, 3:00–6:00 PM

Ticket Price: \$26 advance; \$31 on-site

Strand: NGSS: The Next Generation of Science Teaching

The California NGSS K–8 Early Implementation Initiative is a K–12 Alliance/WestEd project working with eight districts and two charter organizations to implement NGSS district/charterwide in grades K–8. Administrators and teachers leaders from the Initiative will tell their story of their journey toward full implementation districtwide.

A Short Course on Analyzing and Adapting Three-Dimensional Assessment Tasks (SC-3)

Date: Thursday, March 30, 3:00–6:00 PM

Ticket Price: \$28 advance; \$33 on-site

Strand: NGSS: The Next Generation of Science Teaching

Common assessment tasks will be adapted to assess a bundle of performance expectations, such as defining what you will assess, brainstorming scenarios to elicit student understanding, using task formats to develop multicomponent tasks, and imagining a range of possible student responses to develop rubrics. While not required, a laptop/tablet is recommended. *Note: No Wi-Fi provided.*

A PEEC into Evaluating NGSS Instructional Materials Programs (SC-4)

Date: Friday, March 31, 8:00–11:00 AM

Ticket Price: \$23 advance; \$28 on-site

If you're looking for materials designed for the NGSS, the Primary Evaluation of Essential Criteria (PEEC) is the tool for you. Lots of materials make claims about the degree to which they are "aligned" to NGSS, but the new version of PEEC uses the criteria of the EQuIP Rubric to dig deep into evaluating whether or not materials are really designed for the NGSS. Please bring a laptop/tablet with PEEC and NGSS appendices downloaded. Visit bit.ly/2gSNljf for links to documents.

Ocean Plastic Pollution: Issues and Solutions (SC-5)

Date: Friday, March 31, 8:00–11:00 AM

Ticket Price: \$38 advance; \$43 on-site

Enrich your classroom with NGSS-based activities surrounding plastic pollution issues and solutions. Activities will highlight plastic's properties including density and buoyancy. Emphasis

will be not just looking at the impacts of prolific plastic use but also exploring solutions to plastic pollution, alternatives to single-use plastics, and empowering students to tackle environmental problems. Door prizes and resources!

Writing in Science: A Research-Based Approach That Enhances Learning in Both Domains (SC-6)

Date: Friday, March 31, 8:00–11:00 AM

Ticket Price: \$27 advance; \$32 on-site

Strand: Science & Literacy Reloaded

Explore research-based strategies for using scaffolding to increase diverse elementary students' achievement in science and writing, as described in *NGSS* and *CCSS ELA*. Learn how to use word banks, graphic organizers, and writing frames so that students learn how to think, talk, and write as scientists do. Handout with blackline masters and annotated student notebook entries for grades K–6 students included.

Stretch Your Legs for Science: An Outdoor STEM Adventure (SC-7)

Date: Friday, March 31, 9:45 AM–5:45 PM

Ticket Price: \$103 advance; \$108 on-site

Strand: 2017: A STEM Odyssey

This off-site short course at Madrona Marsh Preserve will include basic information and hands-on activities to help build bird identification skills through the eBird global citizen science project. We will take a 60- to 90- minute bird walk within Madrona Marsh and submit and explore eBird data. Take home materials (a BirdSleuth “Most Wanted Birds” kit, a pair of high-quality binoculars, bird feeder, and several apps). *Note:* Be sure to dress for the weather. Lunch included.



—Photo courtesy of BirdSleuth

NSTA Press® Short Course: Phenomenon-Based Learning: Fun, Hands-On, Cooperative Learning of Both Science and Language Arts (SC-8)

Date: Friday, March 31, 10:30 AM–4:00 PM

Ticket Price: \$95 advance; \$100 on-site

Strand: Science & Literacy Reloaded

Experience the kind of learning that propelled Finland to international leadership in education. With Phenomenon-Based Learning, you teach broader concepts and useful thinking and performance skills (as with the *NGSS* and *CCSS*) rather than asking students to simply memorize facts and formulas. Participants will engage in hands-on activities and leave with a copy of one of the NSTA Press PBL books along with one or two of the fascinating gizmos that go with the book.

NGSS: Three Dimensions in Action in a California Early Implementer Classroom (SC-9)

Date: Friday, March 31, 3:00–6:00 PM

Ticket Price: \$50 advance; \$55 on-site

Strand: *NGSS: The Next Generation of Science Teaching*

In this short course, experience a hands-on upper elementary “learning sequence” that bundles performance expectations in a conceptual flow designed to provide a framework for linking science and *CCSS ELA*. The integrations are being practiced by California Early Implementer *NGSS* teachers. This sample conceptual flow uses bundled performance expectations to provide a model for how an upper elementary teacher (grades 3–5) can build the learning sequence for three-dimensional science and use the science as a context for reading, writing, listening, and speaking.

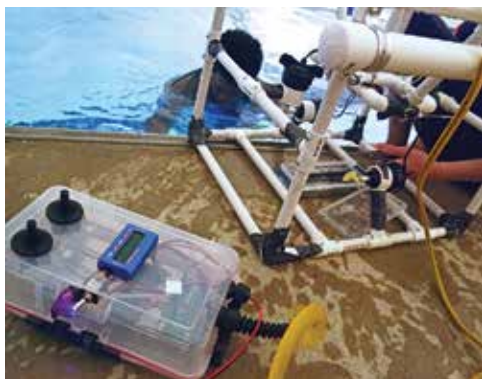
Reaching Extremes! Blending Climate Science and Mathematics to Reach All Learners (SC-10)

Date: Friday, March 31, 3:00–6:00 PM

Ticket Price: \$93 advance; \$98 on-site

Strand: Mission Possible: Equity for Universal Access

Come explore the connections between climate science and mathematics! In this short course, participants will engage in STEM projects using coding, microcontrollers, sensor technology, and more to engage all students. Get practical tools for meeting the needs of SPED, ELL, gifted, and economically or culturally diverse learners. No previous coding experience required. Bring a laptop/tablet to connect to the internet.



—Photo courtesy of Carmen Mallard/SeeMallardMedia

Fostering a Science-Driven Language and Literacy Learning Environment (SC-11)

Date: Saturday, April 1, 8:00–11:00 AM

Ticket Price: \$26 advance; \$31 on-site

Strand: Science & Literacy Reloaded

Learn to strategically include integrated and designated language acquisition instruction into three-dimensional science lessons. Engage in a hands-on science and language learning experience, and receive a toolkit for developing science/language acquisition lessons that meet the rigors of NGSS, the National Framework for English Language Proficiency Standards, and the California ELD standards.

Hands-On/Minds-On STEM: An Integrated Engineering Design Challenge (SC-12)

Date: Saturday, April 1, 8:00–11:00 AM

Ticket Price: \$50 advance; \$55 on-site

Strand: 2017: A STEM Odyssey

This is an introductory short course for those educators interested in moving toward an integrative STEM approach to learning. Experience an engaging and academic hands-on engineering design challenge, effortlessly applying the 5 C's (creativity, critical thinking, communication, collaboration, and citizenship), as well as understanding how hands-on engineering design challenges address the CCSS and NGSS. Bring your laptop/tablet to connect to the internet.

Elementary Curriculum Development for the NGSS: How to Integrate the Three Dimensions of Learning into an Elementary Classroom (SC-13)

Date: Saturday, April 1, 8:00–11:00 AM

Ticket Price: \$53 advance; \$58 on-site

Strand: NGSS: The Next Generation of Science Teaching

We will explore the Understanding by Design model as an approach to curriculum development for elementary classrooms by using the performance expectations to inform assessment development. Then we will organize lessons that support those assessments, using a unit organization plan. Not required but recommended that you bring a copy of the NGSS, the *K–12 Framework*, and a laptop/tablet connected to the internet.

NGSS Meets the Outdoors: Teaching Elementary Science Outside (SC-14)

Date: Saturday, April 1, 8:00–11:00 AM

Ticket Price: \$8 advance; \$13 on-site

Participants will practice inquiry-based learning in a local urban park exploring the Heads-On, Hands-On, Hearts-On framework in instruction. Discussions will explore applications, challenges, and ideas for school yard improvements in the school setting. *Note:* Be sure to wear good walking shoes as we will be walking to a nearby park (nearly a mile each way). It is helpful, but not required, that you bring a smartphone/tablet and binoculars.

Kids Love Rocks and So Will You: Introducing Physical Science BIG IDEAS (SC-15)

Date: Saturday, April 1, 3:00–6:00 PM

Ticket Price: \$53 advance; \$58 on-site

Strand: 2017: A STEM Odyssey

Rocks and other natural objects are wonderful resources to teach children observation, sorting, measuring, and communication skills in the context of Science BIG IDEAS. Three of those BIG IDEAS—properties of matter, properties of Earth materials, and characteristics of organisms—are the major science topics addressed in this short course. This short course is designed for those who work with young preK–K learners. Take home materials, including sorting sets, books, and equipment appropriate for teaching the lessons.

Hands-On Mathematics in Science Education (SC-16)

Date: Saturday, April 1, 3:00–6:00 PM

Ticket Price: \$25 advance; \$30 on-site

Strand: Mission Possible: Equity for Universal Access

This short course focuses on four modules that showcase an integrated STEM process in which mathematics takes central stage. The modules follow a similar frame and rhythm and fully meet the *NGSS* and *CCSS Mathematics*. The mathematics is necessary to construct a design decision and check how well the proposed solutions meet criteria and constraints. Collaborative aspects between math and science are discussed and participants will leave with a pathway to incorporate mathematics into other STEM units.



— NSTA Press® Short Course: Phenomenon-Based Learning: Photo courtesy of Olivia Bobrowsky

Registration & Travel

1

REGISTER



The fastest way to register 24 hours a day—register online at www.nsta.org/confreg with a credit card.



Fax your registration form* with purchase order information to 703-243-3924.



Mail your registration form* and payment to:
NSTA Conference Department
PO Box 90214
Washington, DC 20090-0214

* Registration forms are available as PDFs at www.nsta.org/confreg.

PRICE LIST

	EARLYBIRD	ADVANCE	ON-SITE
	FEB. 3	FEB. 24	After FEB. 24
FULL REGISTRATION (TWO TO FOUR DAYS)			
NSTA Member	\$275	\$305	\$330
CSTA members	\$275	\$305	\$330
Nonmember	\$365	\$395	\$420
Retired NSTA Member	\$170	\$185	\$210
Full-time Student	\$100	\$115	\$140
ONE DAY ONLY (THU, FRI, OR SAT)			
Nonstudent (member or nonmember)	\$180	\$200	\$220
Full-time Student	\$70	\$75	\$90
ONE DAY ONLY (SUN)**			
Nonstudent (member or nonmember)	\$100	\$105	\$115
Full-time Student	\$50	\$55	\$65
NONTEACHING SPOUSE/GUEST	\$100	\$125	\$145

Save \$90 on your registration when you become an NSTA member!

Arrangements

2

TRAVEL



NSTA has made arrangements with several airlines and Amtrak to offer discounted fares to NSTA conference attendees. For complete details on these discounts as well as the best way to get around town, visit:

www.nsta.org/LAtravel

REGISTRATION CATEGORIES

The **Member rate** applies to the following:

- Current NSTA members
- Nonmembers who submit an NSTA membership application and membership fee along with the registration form
- CSTA members (California Science Teachers Association)—*CSTA members receive the NSTA member rate for the 2017 LA National Conference only*

NSTA members who are fully retired and have been an NSTA member for at least five years may register at the **Retired rate**.

Full-time students 18 years of age or older may register at the **Student rate** if the registration form is accompanied by a copy of a current university ID or a letter from the university indicating full-time enrollment.

Your nonteaching spouse/guest and children must be registered in order to visit the Exhibit Hall but do not need to submit separate registration forms. Please provide their names on your own registration form. Children of high school age and younger can be registered for free. **A fee is required for your spouse/guest.** College students and teaching spouses must submit separate registration forms and payment.

3

HOUSING

LA Housing Deadline: February 27, 2016

Make your hotel reservations now and save! NSTA has negotiated special discounted room rates with 17 hotels near the Los Angeles Convention Center.



Visit:
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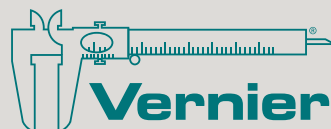
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