
Celebrating the Joy of Science
San Francisco
1
General Information
Wed., March 9
Thurs., March 10
NSTA National Science Teachers Association
2011 National Conference on Science Education

Nspired Learning

Explore wherever learning takes you

Science concepts are best understood by experiencing their real-world relevance. Students become actively involved in learning. They are engaged in how lessons apply beyond the classroom.

Introducing Nspired Learning, your own interactive experience supported by the new TI-Nspire™ Lab Station. Attach the TI-Nspire Lab Cradle to the TI-Nspire handheld or software and connect up to five sensors all at once. Collect and analyze data using the built-in Vernier DataQuest™ app for TI-Nspire. It's also portable for labs and field work.

TI-Nspire CX CAS handheld with attached TI-Nspire Lab Cradle and Vernier Force sensor.

Learn more at education.ti.com/us/labstation.

TI physics lesson: *Newton's Third Law*
Real-world experience: *Shuttle Launch*

Texas Instruments

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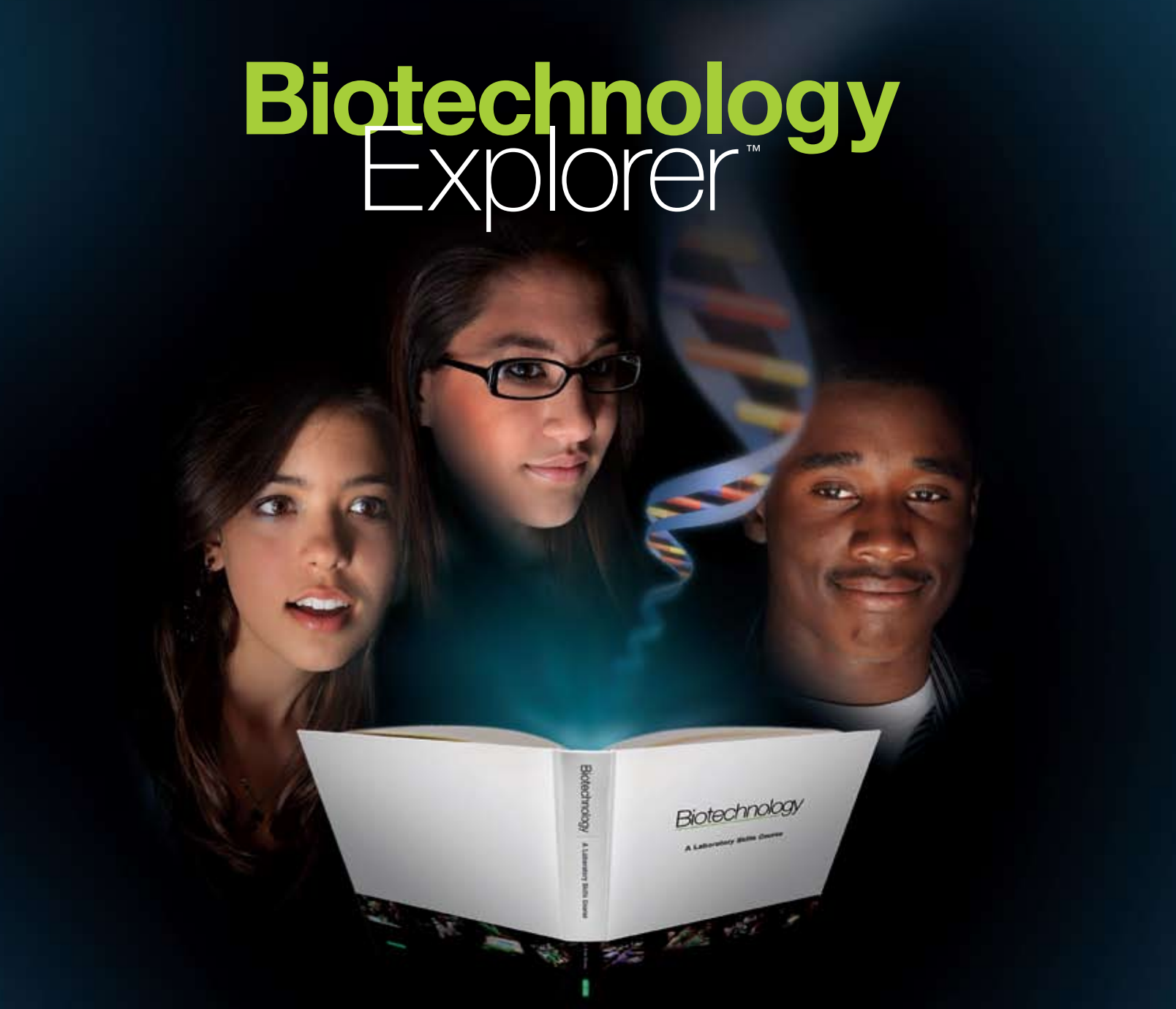
Biotechnology Explorer™



- *Curricula*
- *Laboratory equipment*
- *Classroom kits*
- *Professional development*
- *Workshops*
- *Expert technical support*

Biotechnology Laboratory Textbook

Empower your students to become tomorrow's leaders by giving them the skills they need to become independent thinkers!

Biotechnology: A Laboratory Skills Course blends textbook theory with hands-on laboratory activities with real-world applications for your biotechnology course. This laboratory textbook incorporates Bio-Rad's Biotechnology Explorer™ kits for easy implementation supported by expert technical support. The lab textbook is authored by J. Kirk Brown, a Nationally Board Certified Teacher, who has taught biotechnology at the K-12 and college levels and trained countless educators in biotechnology for more than 18 years.

Available Summer 2011

To sign up for a preview – go to **www.bio-rad.com/ad/biotechlabtextbook04**

Bio-Rad. Captivating Science Education.

Visit us on the Web at **explorer.bio-rad.com**
Call toll free at 1-800-424-6723;
outside the U.S., contact your local sales office.

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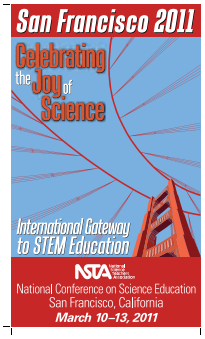


NSTA 59th National Conference on Science Education

San Francisco, California • March 10–13, 2011

Volume 1 Wed., Mar. 9/Thu., March 10

Registration, Travel, and Hotels

Conference Resources

Conference Resources, cont.

Conference Program

Indexes

Cover Photo

Brad Perks Lightscapes/Alamy

Volume 2 Fri., Mar. 11

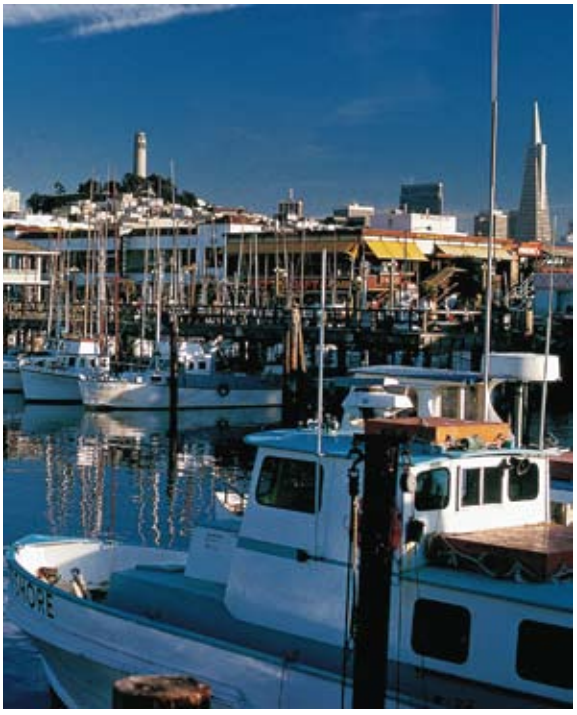
Volume 3 Sat., Mar. 12 /Sun., Mar. 13

Volume 4 Exhibitors

Mission Statement

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

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



—*San Francisco Convention &Visitors Bureau*

National Science Teachers Association

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E-mail: *conferences@nsta.org*
www.nsta.org

NSTA Affiliates

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

The environment is important to science educators. These programs are recyclable and were printed on recycled paper.

Workshops that Rock!

Sargent-Welch

Booth #1907

Thursday

- Cenco Physics: Put Me In Coach: Physics of Baseball (7:30 am, Room 274/276)
- ScholAR Chemistry's Got a Brand New Bag...and it's RED! (9:30 am, Room 274/276)

Friday

- ScholAR Chemistry Hands-on Hand Jive (8:00 am, Room 270/272)
- Stronger: New and Improved, Biotechnology: Science for the New Millennium (10:00 am, Room 274/276)
- Jumpin' Protein Flash: Protein Spectrophotometry in Biotech (2:00 pm, Room 274/276)
- ScholAR's Got a Brand New Bag...and it's RED! (2:00 pm, Room 270/272)

Saturday

- Mix it Up: Chromatography to Study Proteins (8:00 am, Room 270/272)
- Stronger: New and Improved Biotechnology: Science for the New Millennium (12:00 pm, Room 270/272)
- ScholAR Hands-on Hand Jive (2:00 pm, Room 270/272)
- Cenco Physics: Put Me in Coach: Physics of Baseball (4:00 pm, Room 270/272)

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Core Experience: Hands-on science

Science Kit & Boreal® Laboratories

Booth #1901

Thursday

- Paint it RED! Using Technology to Teach Physical Science (7:30 am, Room 270/272)
- Paint it RED! Using Technology to Teach Life Science (9:30 am, Room 270/272)
- All the Small Things: Teaching STEM with Digital Microscopes (11:30 am, Room 270/272)
- Paint it RED! Using Technology to Teach Middle School Science (1:30 pm, Room 270/272)
- Paint it RED! Using Technology to Teach Elementary Science (3:30 pm, Room 270/272)

Friday

- All the Small Things: Teaching STEM with Digital Microscopes (10:00 am, Room 270/272)
- Paint it RED! Using Technology to Teach Physical Science (12:00 pm, Room 270/272)

Saturday

- Paint it RED! Using Technology to Teach Life Science (10:00 am, Room 270/272)

Science Kit • 800 828-7777 • **sciencekit.com**

WARD'S Natural Science

Booth # 2005

Thursday

- Watching the Detectives: Blood Spatter (11:30 am, Room 274/276)
- There's A Whole Lot of Shakin' Goin' On! (1:30 pm, Room 274/276)
- Who Are You?: Blood Typing (3:30 pm, Room 274/276)

Friday

- Iron Teacher (8:00 am, Room 274/276)
- Who Are You?: Blood Typing (12:00 pm, Room 274/276)
- Watching the Detectives: Blood Spatter (4:00 pm, Room 274/276)
- Take Me to the River—Modeling Wetlands, Floodplains, and Risk Assessment (4:00 pm, Room 270/272)

Ward's Natural Science • 800 962-2660 • **wardsci.com**

Climate Change...
Education Is Part of the Solution

Half-day Symposia: Thursday, March 10: *Marriott Marquis San Francisco, Golden Gate C2*

8am–12pm	Climate Change Here and Now: Impacts on Western Coasts, Ocean and Atmosphere Presented by NOAA
1:30–6:00pm	Climate Change Here and Now: Communicating and Teaching about Climate Change Presented by EPA, USDA Forest Service and NOAA

Presentations: Friday, March 11: *Marriott Marquis San Francisco, Golden Gate C2*

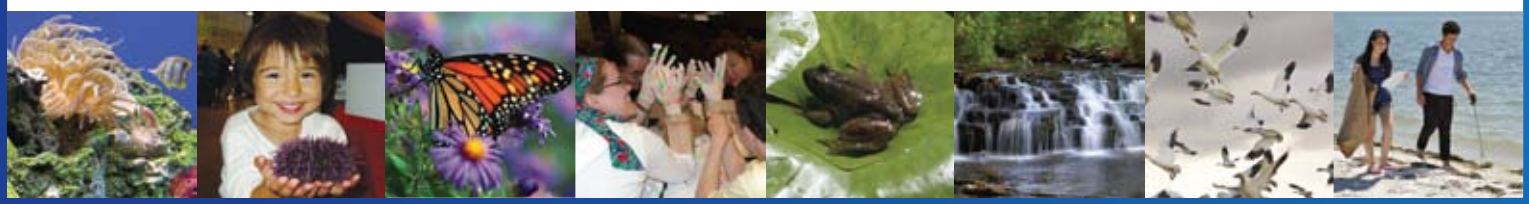
8:00–9:00am	Climate Change Research at USDA Forest Service: What We Have Learned over the last 20 Years
9:30–10:30am	Climate Change Education Resources Help You Bring Climate Change Education Home to Your Students
11:00–12:00pm	How EPA Communicates with the Public on the Climate Change Issue
2:00–3:00pm	Global Climate Change Impacts in the United States
3:30–4:30pm	NOAA: Highlights From On-going Climate and Wetland Research in San Francisco Bay and at other National Estuarine Research Reserves
5:00–6:00pm	NOAA: Impacts of Climate Change on Fisheries and Protected Marine

Presentations: Saturday, March 12: *Marriott Marquis San Francisco, Golden Gate C2*

8:00–9:00am	EPA Climate Change Action Updates
9:30–10:30am	NOAA Climate Toolbox: New Tools for Educators
11:00–12:00pm	NOAA Climate's Canary in a Coal Mine: Arctic Sea Ice
2:00–3:00pm	NOAA: Climate Change Impacts to the North-Central California Coast
3:30–4:30pm	NOAA: Teaching Ocean Acidification and Coral Reefs Using Real Data
5:00–6:00pm	NOAA Climate Change Here and Now: Impacts on the West from Drought and Severe Storms

Free Ongoing Climate Change Webinar Series: http://learningcenter.nsta.org/products/webseminars.aspx

Visit us at oceanservice.noaa.gov/education/pd and www.climate.gov



President's Welcome

Welcome to San Francisco, on the golden coast of California. How wonderful to hold this important science event in the shadow of American high technology—Silicon Valley—while being not far from the wonders of Yosemite and the Redwood forests. Be sure to enjoy the food and festivities at Fisherman's Wharf, Golden Gate Park, and Chinatown while you experience NSTA's 59th national conference.

Our conference theme, *Celebrating the Joy of Science: Imagine and Create,* promises some emotional recharging combined with inspiration to reinvigorate your teaching situation. Prepare to be moved to challenge your students to become more science absorbed, imaginative, and innovative.

The conference committee has organized the program around four strands: Building Scientific Minds: Inspiring Teaching and Effective Learning; Embracing Technology in the 21st-Century Classroom; Exploring Earth, Wind, and Fire; and Accessing Language Through Science and Mathematics Content. Each strand includes exciting, informative events designed to equip science teachers with the best teaching and learning practices currently available. Enjoy the keynote speaker, featured speakers, and exhibits of the latest science teaching equipment and curricula. Capitalize on a wealth of presentations you can use to make your classroom science program sparkle.

The conference planning committee deserves many kudos. They have spent countless hours selecting speakers, planning special events, and tending to the myriad details entailed in planning a conference of this magnitude. More than 1,700 sessions have been scheduled across all grade levels and scientific disciplines. In addition, choose from varied ticketed events, including NSTA symposia, short courses, and professional development institutes.

Again, welcome to San Francisco! Enjoy your time here and renew your spirit!

Alan McCormack, 2010–2011 NSTA President

Contributors to the San Francisco Conference

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

American Geophysical Union
Association for Science Education
California Academy of Sciences
California Science Teachers Association
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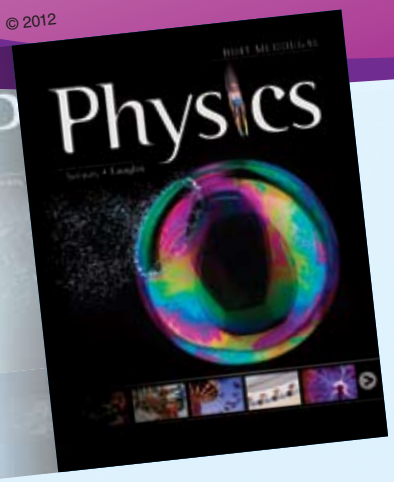
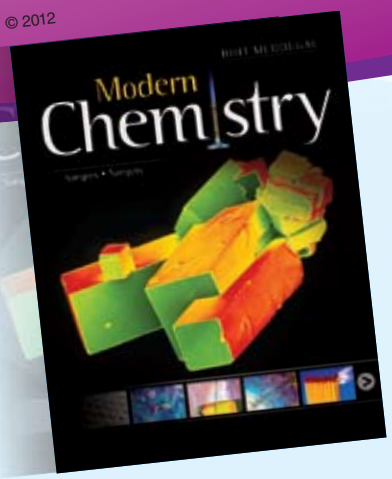
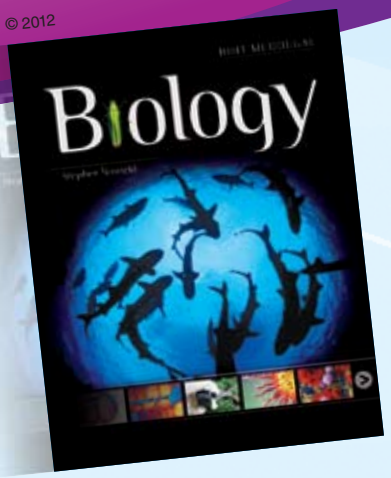
Shell
Sprout Energy Corp.
Tor-Forge Books
USS *Pampanito*

We at NSTA wish to express our heartfelt thanks to the members of the California Science Teachers Association and the San Diego Science Educators Association for the many hours of time they volunteered in planning this conference.

New and Better than Ever







9-12

K-8

360° of Inquiry

New Energy for Science!

Learn more about these exciting new programs at our workshops:

- **Misconception Mania – Exciting and Engaging Ways to Address Common Misunderstandings in K-8 Science** with Michael DiSpezzio
- **Biology in the Real World** with Dr. Stephen Nowicki
- **Sparking Interest and Learning with Chemistry: A Part 1 Experience** with Mickey and Jerry Sarquis
- **Reflections on Teaching Introductory Physics** with Raymond Serway
- **21st Century Literacy for Budding Scientists** with Donna Ogle

And many more...

Check the program or come by our booth (#2200) for workshop times, in-booth signings, and presentations.

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Welcome to San Francisco

Natalie Yakushiji, Jerry Valadez, and Lisa Ernst

Welcome to the 2011 NSTA San Francisco National Conference on Science Education. San Francisco is a unique and breathtaking metropolis with a rich history and geological location surrounded on three sides by water. We are thrilled that you have joined us in one of the world's most modern and romantic cities to Celebrate the Joy of Science! As the International Gateway to STEM Education, San Francisco will be the perfect host.

Whether a first-timer or veteran conference attendee, you are sure to find everything you need to help you grow both professionally and personally. NSTA President Alan J. McCormack and the conference committee have worked hard to provide sessions and presentations that will highlight emerging issues, link resources to your needs, build advocacy, and renew our professional learning community within the context of high-quality science education. The conference strands will focus on *Embracing Technology in the 21st-Century Classroom*; *Accessing Language Through Science and Mathematics Content*; *Exploring Earth, Wind, and Fire*; and *Building Scientific Minds: Inspiring Teaching and Effective Learning*. We believe you will not find such a unique and rich collection of experts and practitioners in one place for a very long time.

Personally, I am thrilled to have had the opportunity to work with the most committed and experienced group of science educators I have ever met. For me, it is also returning to my roots in a sense—the very first NSTA conference I ever attended was here in San Francisco in 1986. Despite no funding to attend, a lost hotel reservation, and the usual rookie mistakes, the experience catapulted me into state and national involvement that found me never looking back.

The opportunities are here again for you, in what may be considered the "crossroads" for the future of science education in America. Thank you.

Jerry Valadez along with
Natalie Yakushiji and Lisa Ernst

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Fisher Science Education

Visit us in Room 236/238, Friday and Saturday (see schedule below) Attend our dynamic hands-on workshops and learn about some amazing products!

Day/Date	Time	Title
Friday	8:00 a.m. – 9:00 a.m.	Innovating Science: Chemistry Demonstrations that Really Get a Reaction!
Friday	9:30 a.m. – 10:30 p.m.	Learn How to Develop a S.T.E.M. Challenge Competition using K'NEX
Friday	11:00 a.m. – 12:00 p.m.	Improving Standardized Test Scores with Engaging Learning Systems for Middle and High School Students
Friday	1:00 p.m. – 2:30 p.m.	Art vs. Science - The Role of Science in the Winemaking Process
Friday	3:30 p.m. – 5:00 p.m.	Art vs. Science - The Role of Science in the Winemaking Process
Saturday	8:00 a.m. – 9:30 a.m.	Art vs. Science - The Role of Science in the Winemaking Process
Saturday	10:30 a.m. – 12:00 p.m.	Art vs. Science - The Role of Science in the Winemaking Process
Saturday	1:30 p.m. – 2:30 p.m	Creating Tests Can be Easy! Let Examgen Show You How
Saturday	3:30 p.m. – 4:30 p.m.	Roller Coaster Physics – Putting Physics Principles in Action

Innovating Science: Chemistry Demonstrations that Really Get a Reaction!

This workshop will show you how to incorporate exciting, engaging chemical demonstrations into your chemistry curriculum. These demonstrations are guaranteed to grab your student's attention, enhance their learning experience all while teaching fundamental science concepts.

Improving Standardized Test Scores with Engaging Learning Systems for Middle and High School Students

Experience how game-based learning reinforces key concepts and helps middle and high school students prepare for standards-based tests. Multi-faceted games are perfect for individual or group learning; the digital version allows the entire class to participate and is ideal for differentiated instruction, after-school programs and parental involvement programs. At the conclusion of the workshop, attendees will receive samples of the Curriculum Mastery Games for use in their own classroom.

Learn How to Develop a S.T.E.M. Challenge Competition using K'NEX

Academic competitions help to motivate students, encourage peer interaction, creativity and team building skills. This unique competition was developed to include a focus on key S.T.E.M. concepts using K'NEX. The kick-off challenge, which took place in Pittsburgh, PA, hosted 43 student teams representing 35 school districts. Each team was given a challenge problem and together planned, designed, built and presented their solutions to a panel of judges. Additionally, each team was required to bring a blueprint of their solution and present a narrative outline to the judges. Come and learn how you can create this same program at your school.

Improving Standardized Test Scores with Engaging Learning Systems for Middle and High School Students

Experience how game-based learning reinforces key concepts and helps middle and high school students prepare for standards-based tests. Multi-faceted games are perfect for individual or group learning; the digital version allows the entire class to participate and is ideal for differentiated instruction, after-school programs and parental involvement programs. These game-based learning systems won a 2009 Teacher's Choice Award Winner in *Learning Magazine*. At the conclusion of the workshop, attendees will receive samples of the Curriculum Mastery Games for use in their own classroom.

Art vs. Science - The Role of Science in the Winemaking Process

From the vineyard to the table, modern wine makers employ a multitude of scientific techniques to help them control every stage of the wine making process. Learn how contemporary wine makers use biology, chemistry and physical science to help them face the challenges of producing the highest quality wines, while still maintaining the integrity of their art. Activity guides will be provided. Attendees will be entered into a drawing to win science equipment, which will be awarded during a drawing at the completion of the workshop. This is a hands-on workshop and seating is limited to 30 attendees per presentation so get there early!

Creating Tests Can Be Easy! Let Examgen Show You How

How many hours per week do you spend developing tests? We understand that it takes a large amount of time to write and create questions and then format them into exams, quizzes, homework and review material. Learn how we can help you minimize the time you spend creating all these materials. Our software content is aligned to state standards and curricula, and it is so simple to use.

Roller Coaster Physics – Putting Physics Principles in Action

Keep your hands and legs inside the car at all times while we explore some of the physical principles behind the modern rollercoaster. This workshop will demystify difficult to understand concepts including eddy currents, induction of a magnetic field and the Lorentz force. The basic mechanics of roller coasters, such as gravity propulsion and friction braking, will also be presented. 3B Scientific equipment will be used to help demonstrate these concepts and experiment guides will be available.

NSTA Conferences Go Green!

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

Conference Previews

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

Online Conference Information and Personal Scheduler

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

Final Conference Programs by E-Mail

Conference registrants are now given the option of receiving an electronic version (PDF) of the final conference program by e-mail approximately two weeks prior to the conference, further reducing print and shipping requirements.

Recycled Paper and Sustainable Print Services

Conference previews and final conference programs are now printed on recycled paper. In addition, IPC Print Services, the printer for our conference materials, is in strict compliance with all environmental laws and exceeds these standards in many areas. Wherever possible, IPC Print Services works to reduce and recycle waste, use reduced or low-VOC chemicals, increase the recycled content of raw materials, and use soy- and/or vegetable-based inks. IPC Print Services has also obtained chain-of-custody certification for paper products to ensure they are being harvested from environmentally responsible sources.

Environmentally Friendly Exhibition Practices

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

Green Initiatives at the Moscone Center

The Moscone Center is committed to reducing the environmental impact of operations and services by providing the following:

- **Waste Reduction/Recycling.** The Moscone Center recycles a wide range of materials, from foam core signage and vinyl banners to cardboard, broken wooden pallets, and scrap metal. Nearly two million pounds is diverted annually from San Francisco's landfill. For those efforts, it has received the California Governor's Environmental and Economic Leadership Award, a Special Congressional Recognition from the U.S. House of Representatives, and the Environmental Leadership Award of Excellence from the U.S. Environmental Protection Agency.
- **Food Composting.** The Moscone Center has initiated a food-composting program aimed at capturing all organic material from food service operations. For instance, the center has served more than 25,000 meals in compostable containers in place of plastic, and more than 12 tons of food scraps have been composted to date.
- **Energy Efficiency.** Installed in 2004, the Moscone Center's rooftop solar system and retrofit of exhibit hall lighting to more energy-efficient fixtures, such as compact fluorescent lamps, displaces 1,933 tons of carbon dioxide annually.
- **Restroom Upgrades.** In 2007, high-efficiency flush valves were installed.

"Go Green" at the San Francisco Conference!

- Recycle your conference programs in the clearly marked recycle bins located throughout the Moscone Center.
- Recycle or re-use your plastic badge holders—you can either turn them in at the NSTA Registration Counter or use them at future conferences.
- Use double-sided printing and/or recycled paper for session handouts and other conference materials.
- Walk or use public transportation when possible at the conference.
- Bring your own refillable water bottle to the conference.
- In advance of the conference, presenters are encouraged to post their presentations and handouts on the Session Browser/Personal Scheduler.

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Discovery-Based 21st Century Science Learning Environment

2010 SIIA CODiE WINNER

Booth #1300

SPARKscience combines powerful, highly intuitive software with state of the art data collection to create interactive and discovery-based science learning environments.

NEW!

SPARKvue for iPad®, iPhone® & iPod touch®.

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$5,000 Value!

FREE - Hands-On Workshops

Join PASCO for one of our **FREE hands-on workshops** and see how **SPARKscience™** can help you create a 21st century **discovery-based science learning environment** for your school. PASCO offers workshops for everyone including **elementary, middle school** - featuring **Sally Ride Science™**, and **high school** science; including **AP and IB.**

Thursday, March 10 - Room 132

8:00-9:30 - Rise above the storm: Introducing STEM in High School
10:00-11:30 - Investigating Mitochondrial Genetics
12:00-1:30 - AP Environmental Science: Modeling an Ecosystem
2:00-3:30 - IB Biology with PASCO Datalogging Technology
4:00-530 - Renewable Energy Exploration: Solar and Wind Power

Thursday, March 10 - Room 133

8:00-9:30 - Rise above the storm: Introducing STEM in Middle School
10:00-11:30 - AP Physics: Momentum & Impulse
12:00-1:30 - Middle School Life Science: Learning key concepts through hand-on, probeware-based activities - Featuring Sally Ride Science™
2:00-3:30 - IB Chemistry with PASCO Datalogging Technologyy
4:00-530 - Tough Topics in Physics & Physical Science: Circuits

Friday, March 11 - Room 132

8:00-9:30 - Tough Topics in Earth Science: Plate Tectonics with My World GIS
10:00-11:30 - Measuring Reaction Time to a Visual Stimulus (Guided Inquiry Lab)
12:00-1:30 - Tough Topics in Physics & Physical Science: Motion
2:00-3:30 - Voltaic Cells (Guided Inquiry Lab)
4:00-530 - Middle School Physical Science: Learning key concepts through hands-on, probeware-based activities - Featuring Sally Ride Science™

Friday, March 11 - Room 133

8:00-9:30 - Classroom Weather Station with PASCO probeware (K-5 Science)
10:00-11:30 - AP Chemistry: Determination of the Rate of Reaction and its Order
12:00-1:30 - Tough Topics in Earth Science: Greenhouse Gases
2:00-3:30 - Middle School Earth Science: Learning key concepts through hands-on, probeware-based activities - Featuring Sally Ride Science™
4:00-530 - Renewable Energy Exploration: Solar and Wind Power

Friday, March 11 - Room 102

5:00-6:30 PM Just Physics Evening Event

Saturday, March 12 - Room 132

8:00-9:30 - Investigating Mitochondrial Genetics
10:00-11:30 - Rise above the storm: Introducing STEM in High School

Saturday, March 12 - Room 133

8:00-9:30 - Middle School Physical Science: Learning key concepts through hands-on, probeware-based activities - Featuring Sally Ride Science™
10:00-11:30 - Rise above the storm: Introducing STEM in Middle School

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PASCO

NSTA Membership

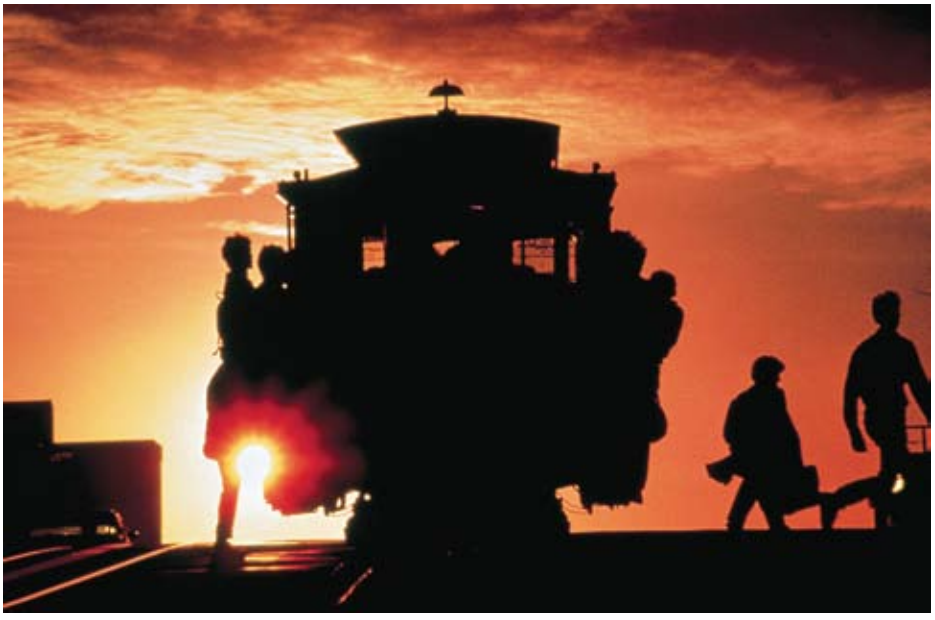
Become the Best Teacher You Can Be

Members enjoy the best teaching resources, plus online and face-to-face professional development to build skills and improve performance.

- Award winning journals, grade-specific and filled with teaching strategies.
- National and regional conferences for the best face-to-face, hands-on learning across the nation—institutes, symposia, workshops, and presentations.
- Online Learning Center, interactive and topical, to build content knowledge and teaching skills.
- E-newsletters and listservs—stay informed and current, daily, weekly and monthly.
- Web seminars and short courses to build your science knowledge.
- NSTA books just for science educators—topical, strategic, and pedagogical.
- Get connected with NSTA Communities—a unique networking platform developed just for science educators. Create your profile today and meet colleagues, friends and professional contacts that share your passion.

For more information or to become a member, visit *www.nsta.org/membership* or call 1.800.722.6782

NSTA National Science Teachers Association



—Mark Gibson/San Francisco Convention & Visitors Bureau

Meeting Location and Times

The conference co-headquarters hotels are the Hilton San Francisco Union Square and the San Francisco Marriott Marquis. Conference registration, the exhibits, and the NSTA Science Bookstore will be located at the Moscone Center. Most sessions will be held at the Moscone Center, the Hilton, and Marriott. Most short courses will be at the Grand Hyatt San Francisco.

The conference will begin on Thursday, March 10, at 7:30 AM and end on Sunday, March 13, at 12 Noon.

Registration

Registration is required for participation in all conference activities and the exhibits. The lapel badge mailed to you with your confirmation, or issued to you at registration on-site, is your "ticket of admission" to the Exhibit Hall and all conference activities except ticketed events for which a separate fee is stated.

The NSTA Registration Area, located in Hall D of the Moscone Center, will be open during the following hours:

Wed., March 9	5:00–8:00 PM
Thu., March 10	7:00 AM–6:00 PM
Fri., March 11	7:00 AM–5:00 PM
Sat., March 12	7:00 AM–5:00 PM
Sun., March 13	7:30 AM–12 Noon

If you misplace your badge or tickets, present your personal ID at the Badge Reprint Counter in the Registration Area and you will be issued replacements. Only one replacement badge will be issued.

Purchasing Ticketed Events

The San Francisco Conference Committee has scheduled a variety of ticketed events (e.g., professional development institutes, symposia, short courses, field trips, and meal functions). Each of these events requires a separate fee and ticket. You may purchase tickets, space permitting, in the NSTA Registration Area. See the Conference Program section (starting on page 38) for details.

Airlines/Amtrak

The toll-free numbers to contact NSTA-designated airlines and Amtrak are as follows:

AirTran	800-247-8726	NSTA11*
American	800-433-1790	6331DG
Continental	800-468-7022	ZJZE606816
	($25 fee per ticket for phone reservations)	
United	800-521-4041	510CK*
Amtrak	800-872-7245	X39F-919

**For phone reservations only*

Ground Transportation to/from Airport

The ground transportation system at the airport consists of taxi, shuttle bus, limousine, and van operations. An average taxi fare from the airport to downtown is about $37. NSTA has joined with BART (Bay Area Rapid Transit) to promote Green travel to and from the airport and the conference. Each rider who takes BART will keep 22 lbs. of emissions out of the San Francisco air. For more information on airport transportation options, visit the San Francisco International Airport website at *www.flysfo.com.*

Getting Around Town

San Francisco provides plenty of opportunities for visitors to stroll and take in the sights. And, if you want to stay on the move, hop aboard a cable car. There is also BART, an extensive network of buses and regional rail lines throughout the city and the surrounding region. For more information, visit the San Francisco Convention and Visitors Bureau at *www.onlyinsanfrancisco.com.*

Discounted Rental Cars

The toll-free numbers to contact NSTA-designated car rental companies are as follows:

Enterprise	800-593-0505	32H7476
Hertz	800-654-2240	CV#031C0016

NSTA Shuttle Bus Service

Free shuttle service is provided between the Moscone Center and most NSTA hotels during registration and session hours. Hotels within walking distance of the Convention Center are not part of the service. See page 18 for a schedule.

Conference Hotels

See pages 16–17 for a complete list of hotels and a map of the downtown area. A Housing Bureau representative will be available at the NSTA Program Pickup Kiosk during registration hours to assist with housing questions.

—Sandor Balatoni, San Francisco Convention & Visitors Bureau

NSTA Conference Hotels

Numbers correspond to map on facing page.

1. Grand Hyatt San Francisco
   345 Stockton St.
   415-398-1234

2. Handlery Union Square Hotel
   351 Geary St.
   415-781-7800

3. Hilton San Francisco Union Square
   Co-Headquarters Hotel
   333 O'Farrell St.
   415-771-1400

4. InterContinental San Francisco
   888 Howard St.
   415-616-6500

5. Palace Hotel
   Two New Montgomery St.
   415-512-1111

6. Parc 55 Wyndham Union Square Hotel
   55 Cyril Magnin St.
   415-392-8000

7. San Francisco Marriott Marquis
   Co-Headquarters Hotel
   55 Fourth St.
   415-896-1600

8. Serrano Hotel
   405 Taylor St.
   415-885-2500

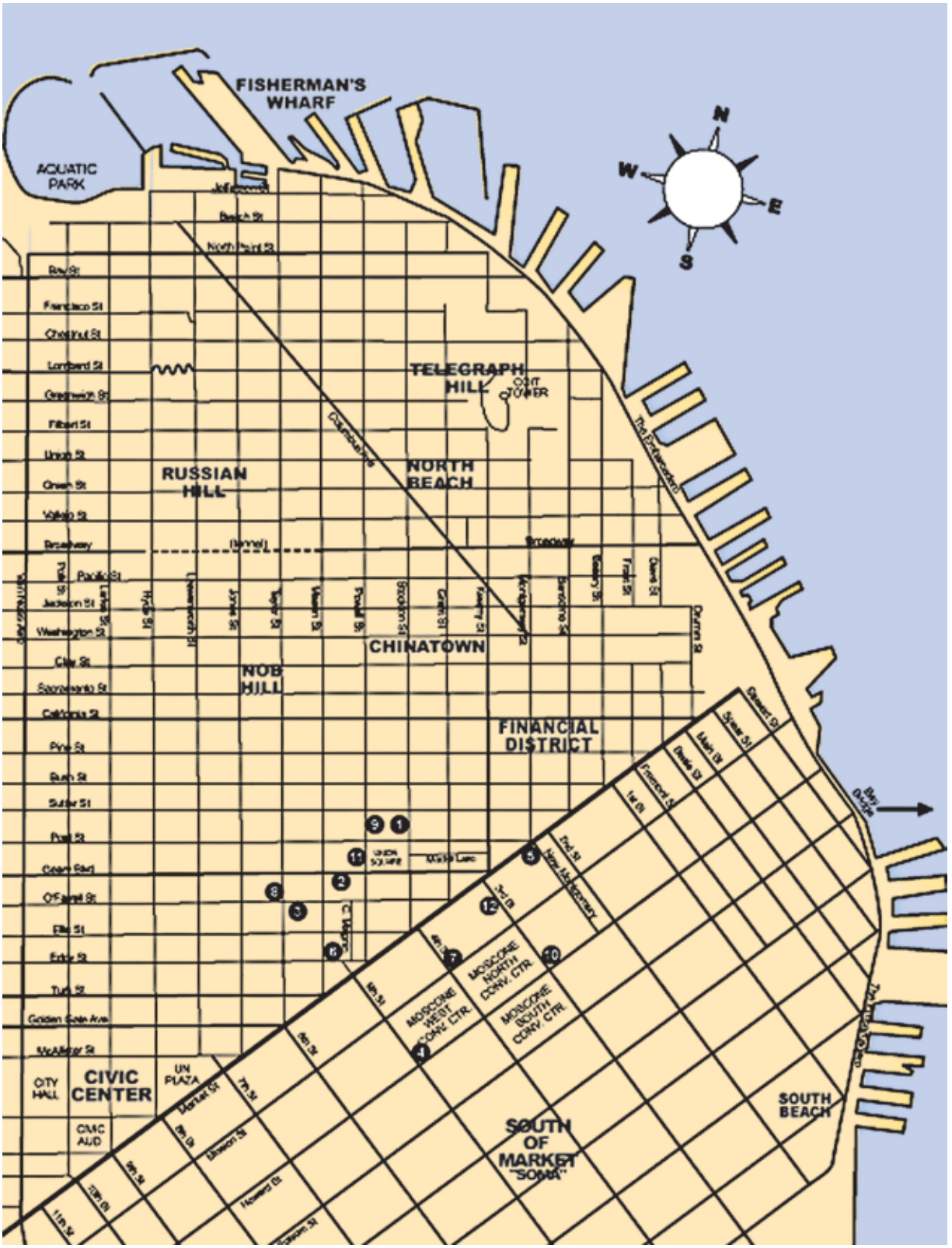
9. Sir Francis Drake Hotel
   450 Powell St.
   415-392-7755

10. W San Francisco
    181 Third St.
    415-777-5300

11. The Westin St. Francis
    335 Powell St.
    415-397-7000

12. The Westin San Francisco Market Street
    50 Third St.
    415-974-6400

—Craig Buchanan, San Francisco Convention & Visitors Bureau


FISHERMAN'S WHARF
AQUATIC PARK
N
W
E
S
TELEGRAPH HILL
COIT TOWER
RUSSIAN HILL
NORTH BEACH
CHINATOWN
NOB HILL
FINANCIAL DISTRICT
SOUTH BEACH
SOUTH OF MARKET SOMA
CIVIC CENTER
CITY HALL
UN PLAZA
CIVIC AUD
MOSCONE NORTH CONV. CTR.
MOSCONE WEST CONV. CTR.
MOSCONE SOUTH CONV. CTR.

NSTA Conference Shuttle Service to/from Moscone Center

Shuttle buses will depart from the driveway outside of Moscone North on Howard Street.

Hours of Operation

(Please see flyers and signs for updates)

Peak Service—Shuttles depart every 10–15 minutes
Off-Peak Service—Shuttles depart every 20–30 minutes

ROUTE 1
Handlery (shuttle stop at Westin St. Francis)
Hilton Union Square (Taylor Street white zone)
Parc 55 (Cyril Magnin white zone)
Serrano (shuttle stop at Hilton)
Westin St. Francis (Post Street white zone)

ROUTE 2
Grand Hyatt (Stockton Street white zone)
Palace (New Montgomery St. at lower white zone)
Sir Francis Drake (Shuttle stop at Grand Hyatt)

WALKING HOTELS
InterContinental San Francisco
Marriott Marquis
W San Francisco
Westin Market

Wednesday, March 9

All Routes	6:30–8:30 AM	Off-peak service between route hotels and Moscone Center for Field Trip (W-1 ticket required) and Professional Development Institutes (PDI-1 through PDI-9 ticket required).
All Routes	4:30–9:30 PM	Off-peak service between route hotels and Moscone Center.

Thursday, March 10

All Routes	6:30 AM–6:30 PM	Peak service between route hotels and Moscone Center.
All Routes	4:30–9:30 PM	Off-peak service between route hotels and Moscone Center and the Marriott for Science Kit's "ReallyEasyData Launch Party" (preregistration required).

Friday, March 11

All Routes	6:30 AM–6:30 PM	Peak service between route hotels and Moscone Center.
All Routes	6:30–9:30 PM	Off-peak service between route hotels and Moscone Center for Sargent-Welch, Science Kit, and WARD'S Natural Science "Sci-A-Palooza VIP Night of Science" (preregistration required).

Saturday, March 12

All Routes	6:30 AM–6:30 PM	Peak service between route hotels and Moscone Center.
All Routes	6:30–10:00 PM	Off-peak service between route hotels and Hilton for the President's Banquet (Ticket M-12 required).

Sunday, March 13

All Routes	6:30 AM–6:30 PM	Off-peak service between route hotels and Moscone Center.

24 FREE WORKSHOPS

VERNIER DATA-COLLECTION TECHNOLOGY

Vernier

CELEBRATING 30 YEARS

THURSDAY | March 10th | Workshop Room 301		
8:00 - 9:30 a.m.	Chemistry with Vernier	
10:00 - 11:30 a.m.	Physics with Vernier	
12:00 - 1:30 p.m.	K-8 Science with Vernier	
2:00 - 3:30 p.m.	Biology with Vernier	

THURSDAY | March 10th | Workshop Room 302		
8:00 - 9:30 a.m.	Introducing Vernier DataQuest Data Collection for TI-Nspire™ Technology	DEMO
10:00 - 11:30 a.m.	Water Quality with Vernier	
12:00 - 1:30 p.m.	Environmental Science with Vernier	
2:00 - 3:30 p.m.	Engineering with Vernier	DEMO

FRIDAY | March 11th | Workshop Room 301		
8:00 - 9:30 a.m.	Human Physiology with Vernier	
10:00 - 11:30 a.m.	Biology with Vernier	
12:00 - 1:30 p.m.	Chemistry with Vernier	
2:00 - 3:30 p.m.	Physics with Vernier	

FRIDAY | March 11th | Workshop Room 302		
8:00 - 9:30 a.m.	From Curriculum to Inquiry: *Using lab instructions as protocols to launch student-driven investigation.*	DEMO
10:00 - 11:30 a.m.	What's New at Vernier	DEMO
12:00 - 1:30 p.m.	Video Analysis with Vernier	DEMO
2:00 - 3:30 p.m.	Earth Science with Vernier	

SATURDAY | March 12th | Workshop Room 301		
8:00 - 9:30 a.m.	Physics with Vernier	
10:00 - 11:30 a.m.	Chemistry with Vernier	
12:00 - 1:30 p.m.	Biology with Vernier	
2:00 - 3:30 p.m.	Advanced Biology and Biotechnology with Vernier	

SATURDAY | March 12th | Workshop Room 302		
8:00 - 9:30 a.m.	Water Quality with Vernier	
10:00 - 11:30 a.m.	Environmental Science with Vernier	
12:00 - 1:30 p.m.	Bridging STEM and Vernier Technology	
2:00 - 3:30 p.m.	Inquiry Chemistry with Vernier	

NO PRE-REGISTRATION! NO FEE!

Hands-On Workshop

DEMO Demonstration Workshop

Advice for First-Time Conference Attendees

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

(Submitted by William Peltz)

NSTA Exhibits

NSTA exhibits are an essential feature of every NSTA conference. Here you will find the latest textbooks, computer hardware and software, laboratory equipment, industry-supported educational materials, summer opportunities, and many other exhibits that are designed to enhance your knowledge and teaching skills.

The lapel badge mailed to you with your confirmation, or issued to you at registration on-site, is your "ticket of admission" to the Exhibit Hall and all conference activities. A complete list of exhibitors and contact information is available in Volume 4 of the program. A foldout map of the Exhibit Hall floor plan is available at Program Pickup.

Exhibit Hall Hours. Located in Halls A–C of the Moscone Center, exhibits will be open for viewing during the following hours:

Thu., March 10	10:00 AM–6:00 PM
Fri., March 11	9:00 AM–5:00 PM
Sat., March 12	9:00 AM–5:00 PM

Ribbon Cutting. An opening ceremony is scheduled on Thursday at 10:00 AM in the Hall B Lobby.

Leads Retrieval. NSTA exhibitors use leads retrieval, a paperless tracking system that allows them to receive fast, accurate information about conference attendees who have visited their booth. With the system, an exhibitor scans your badge as you visit the booth. This allows exhibitors to send information to you while the conference is still fresh in your mind.

Exhibitor Workshops. Exhibitor-sponsored workshops for science teachers are offered throughout the conference. These workshops give you an opportunity to use a variety of commercial instructional materials. Attendance is on a first-come, first-served basis. See Volume 4 for a complete list of exhibitor workshops. An index of exhibitor workshops scheduled on Thursday begins on page 182.

NSTA Avenue

Stop by the NSTA Avenue and learn about NSTA's benefits, services, programs, and partners…all created for you! Share with others, expand your knowledge, and earn rewards for you and your students. See page 91 for a complete list of NSTA services and programs.

NSTA Science Bookstore

Attendees are invited to browse the newly redesigned NSTA Science Bookstore, where you're sure to find hundreds of professional development titles for science educators of all grade bands and disciplines. Not only do we offer a wide range of books to sharpen your content knowledge and expand your teaching strategies, we also offer dozens of wonderful "Science Matters" and "I Love Science" NSTA Gear product lines.

Examine our new spring titles: *Uncovering Student Ideas in Life Science, Volume 1: 25 New Formative Assessment Probes*, by Page Keeley; *More Brain-Powered Science: Teaching and Learning with Discrepant Events*, by Thomas O'Brien; *Yet More Everyday Science Mysteries: Stories for Inquiry-Based Science Teaching*, by Richard Konicek-Moran; *Gourmet Lab: The Scientific Principles Behind Your Favorite Foods*, by Sarah Young; and many more. Meet NSTA Press® authors and have your books signed.

The Science Bookstore is located in the North Lobby area of the Moscone Center. All attendees enjoy discounts of 20% on NSTA Press items and 10% on books from other publishers. Enjoy our free shipping option when you place your order online for both books and gear.

CSTA Booth

The California Science Teachers Association (CSTA) booth is located in the NSTA Registration Area. Stop by for information about California and the benefits of becoming a CSTA member. Membership forms and information on association activities will be available.

SDSEA Booth

The San Diego Science Educators Association (SDSEA) booth is located in the NSTA Registration Area. Stop by for information about San Diego and the benefits of becoming an SDSEA member. Membership forms and information on association activities will be available.

Presenters and Presiders Check-In

If you are presenting or presiding at a session, please check in and pick up your ribbon at the Presenters/Presiders booth in the Registration Area after you have registered for the conference and received your name badge.

Conference Evaluation

All conference attendees are invited to complete a conference evaluation form online at *http://ecommerce.nsta.org/2011san/conference_evaluation.asp*.

First Aid Services/Security

The First Aid Room is located near the north entrance doors of South Exhibit Hall C. Look for the red cross. In case of emergency, call extension 511 on any house phone. For nonemergency situations, conference attendees can call extension 4090 from any house phone.

Lost and Found

All lost-and-found items at the Moscone Center will be turned in at the Exhibitor Registration counter. Lost-and-found items at other facilities will be turned in at the facilities' security offices.

International Lounge

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

Business Services

The Business Center at the Moscone Center is located in the South Lower Lobby outside Hall C. The hours for NSTA are Thursday–Saturday, 9:00 AM–5:00 PM. Services include printing, faxing, scanning, photocopying, and shipping (UPS only). For more information, contact the Business Center at 415-974-4067.

Audiovisual Needs

NSTA will provide an LCD projector if it was requested on the original proposal form. Microphones are also provided in large rooms. For any other AV needs, presenters must arrange and pay for their own equipment. Projection Presentation Technology, Inc., the designated AV company on-site, will be located in the following rooms:

Moscone Center	Esplanade Rotunda Green Room
Moscone Center	Room 264 (West Mezzanine of Moscone South)
Marriott	North Registration Lower B2 Level
Hilton	Union Square 8 Fourth Floor
Grand Hyatt	San Francisco C Theater Level

Wireless Service

The Moscone Center offers complimentary open wireless for NSTA attendees in the public areas, including all lobbies and concourses.

NSTA Coordinating Center for People with Disabilities

NSTA makes an effort to provide convenience and accessibility for all persons attending conferences. A Center for Services for Disabled Persons, staffed by local committee volunteers, is located in the NSTA Registration Area. If you need assistance, visit this table during registration hours. NSTA cannot guarantee services for requests not made in advance of the conference.

Message Center

A Message Center for conference attendees is available in the NSTA Registration Area. No messages, except extreme emergencies, can be broadcast over the public address system.

NEW! Online Session Evaluations and Tracking Professional Development

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

Help NSTA's **GREEN** efforts by completing session evaluations online March 10–24, 2011, at *www.nsta.org/evaluations.* Online session evaluations can be completed on the computers at the Presenters/Presiders booth in the Registration Area or on the e-mail stations in both the Exhibit Hall and the Registration Area. Attendees should follow these steps:

- Enter badge number (if you don't remember your badge number, click "help me find my badge number").
- Type the beginning of the session title in the "Lookup Session" field, scroll down to find the correct session, and click the "Submit Session" button. The session information will appear and you can begin to evaluate the session.
- When finished evaluating the session, click the "Submit Evaluation" button.
- Repeat this process for each session attended.

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

A Professional Development Documentation Form is included following page 64 to help attendees keep track of sessions/events attended that are NOT available for online session evaluation. This form can also be used to take notes on sessions attended that are available for online session evaluation.

Beginning March 29, 2011, an attendee can visit *www.nsta.org/transcripts* to access a transcript of his or her attendance at specific sessions and to document credit for activities that are not being evaluated (e.g., symposia, short courses, Exhibit Hall visits, featured speakers, meetings, etc.). Each attendee is responsible for tracking his or her own attendance at such events. The transcript can be printed here and presented to an administrator who requires documentation of participation in the conference. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.

The following venues have extended special offers for San Francisco conference attendees. During the days of the conference, attendees need only show their badge to gain free entrance to the California Academy of Sciences, the Exploratorium, and the USS *Pampanito*.

California Academy of Sciences *www.calacademy.org*

The California Academy of Sciences invites conference attendees to visit at no charge during the conference by showing their conference badge. Regular hours are Monday–Saturday 9:30 AM–5:00 PM, and Sunday 11:00 AM–5:00 PM. The N-Judah Cable Car from the Muni Metro station stops at Ninth Avenue and Irving Street, about a half mile from the academy. Taxi fare from downtown costs roughly $15. Housed under under one roof, the California Academy of Sciences includes an aquarium, a planetarium, a natural history museum, and a four-story rain forest…and it boasts 40,000 live animals.

Exploratorium *www.exploratorium.edu*

The Exploratorium invites conference attendees to visit at no charge during the conference by showing their conference badge. Regular hours are Tuesday–Sunday 10:00 AM–5:00 PM. The offer extends from March 8 to March 16 (*closed Monday, March 14*). Virtually all downtown-bound Golden Gate Transit buses stop nearby the Exploratorium, and San Francisco Muni buses #30, #43, #28, and #29 stop in the vicinity. For complete transportation information, visit *www.exploratorium.edu/visit/location_directions*. The Exploratorium, the museum of science, art and human perception, offers hundreds of exhibits and engaging experiences led by Field Trip Explainers.

USS *Pampanito* *www.maritime.org/pamphome.htm*

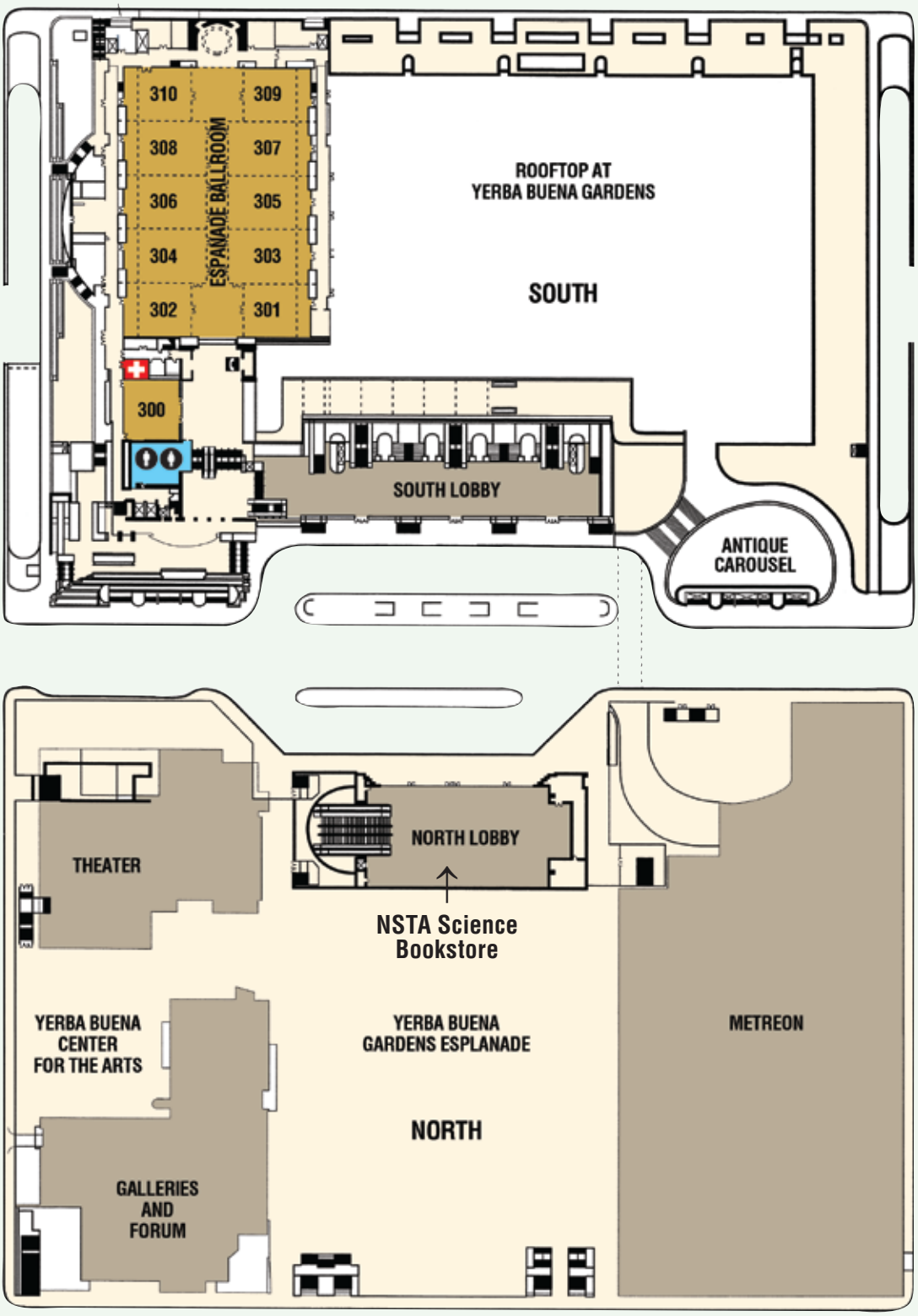
The USS *Pampanito* invites conference attendees to visit at no charge during the conference by showing their conference badge. Admission includes a free audio tour of the submarine. Regular hours are Monday–Sunday 9:00 AM–8:00 PM. To reach Pier 45 using public transportation, take the "F" line Muni train and get off at the Taylor Street stop. In addition, the Powell-Hyde Street Cable Car Line has stops about five blocks from the pier. A National Historic Landmark, the USS *Pampanito* (SS-383) is a World War II Balao class Fleet submarine museum and memorial that completed six war patrols in the Pacific, serving from 1944 to 1945. The submarine was decommissioned in August 1945 and then transferred to the San Francisco Maritime National Park Association in 1982. Carefully restored to her condition in 1945, the USS *Pampanito* hosts approximately 90,000 visitors a year and is one of the most popular historic vessels in the country.

MOSCONE CENTER

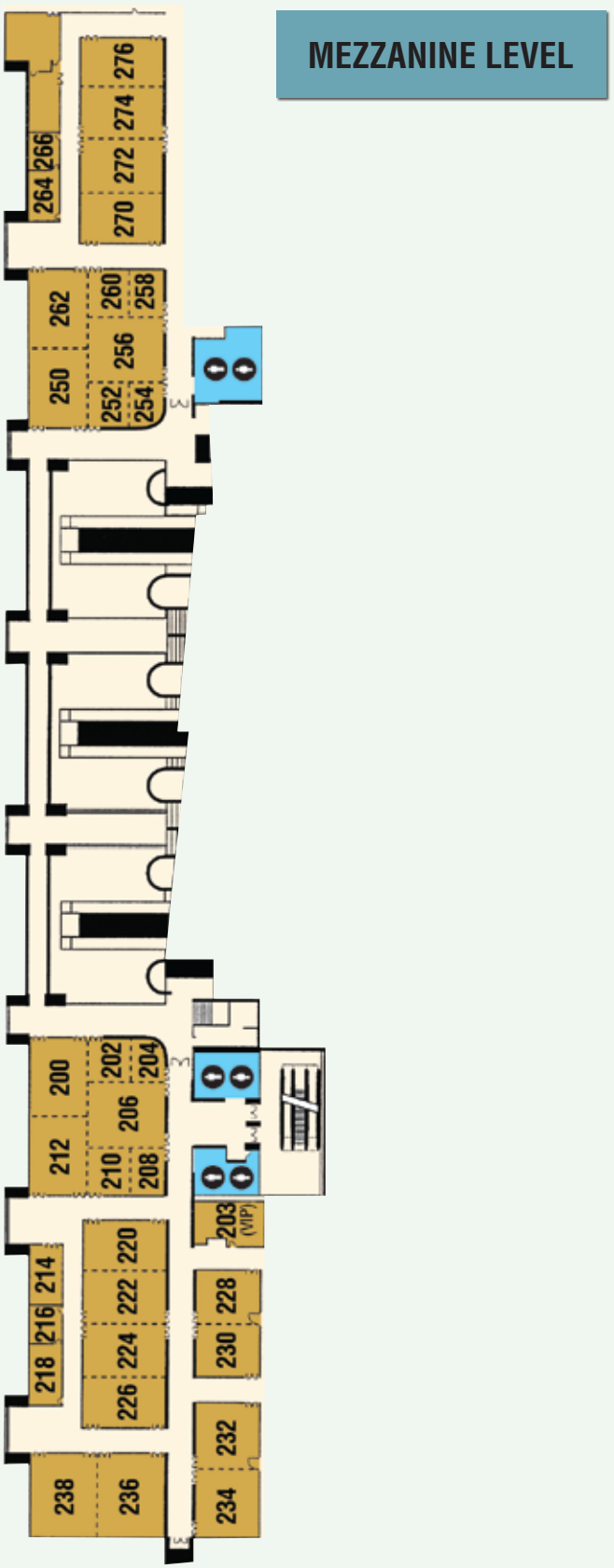
EXHIBIT LEVEL

MOSCONE CENTER

ESPLANADE LEVEL

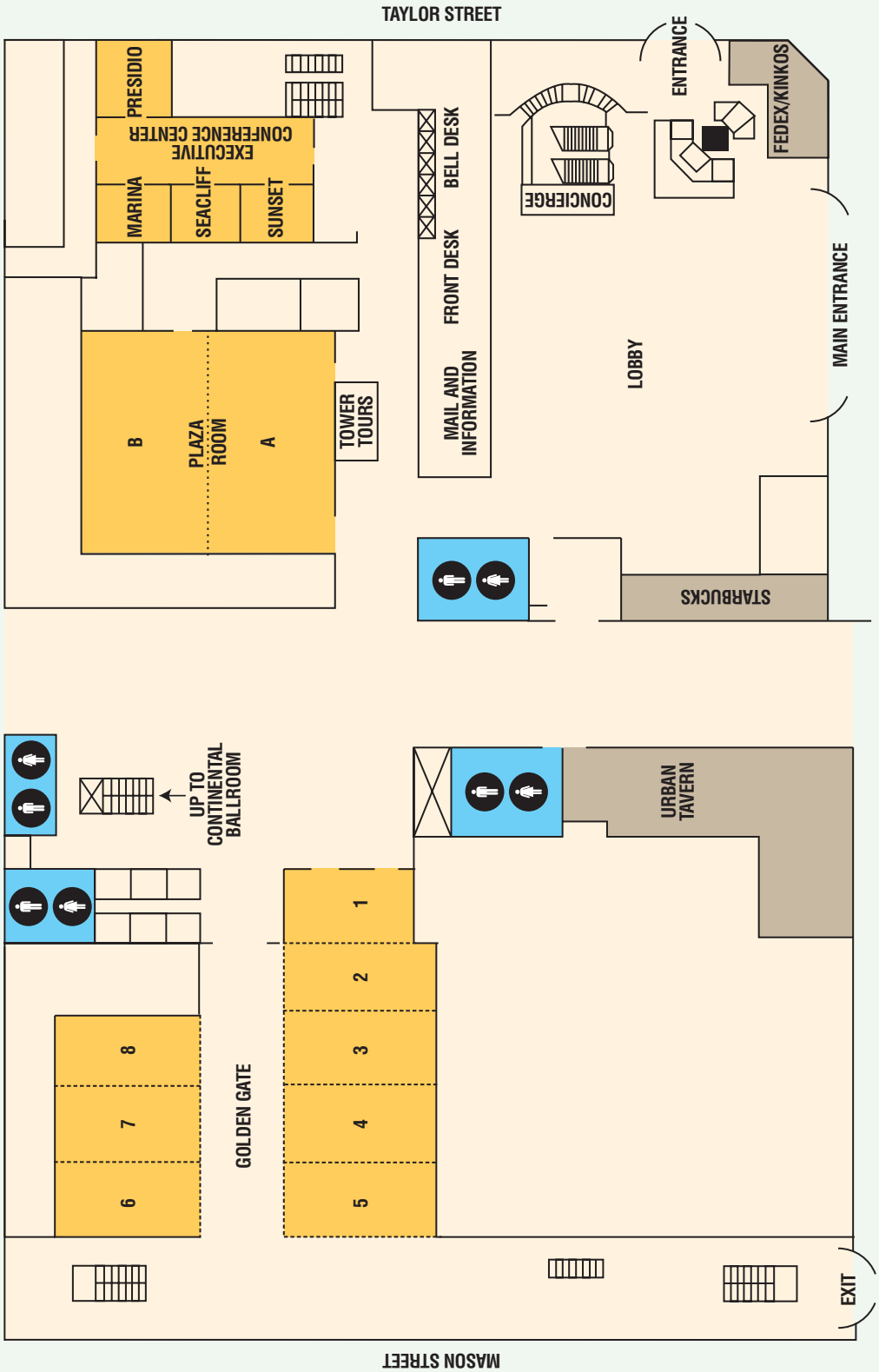


MOSCONE CENTER



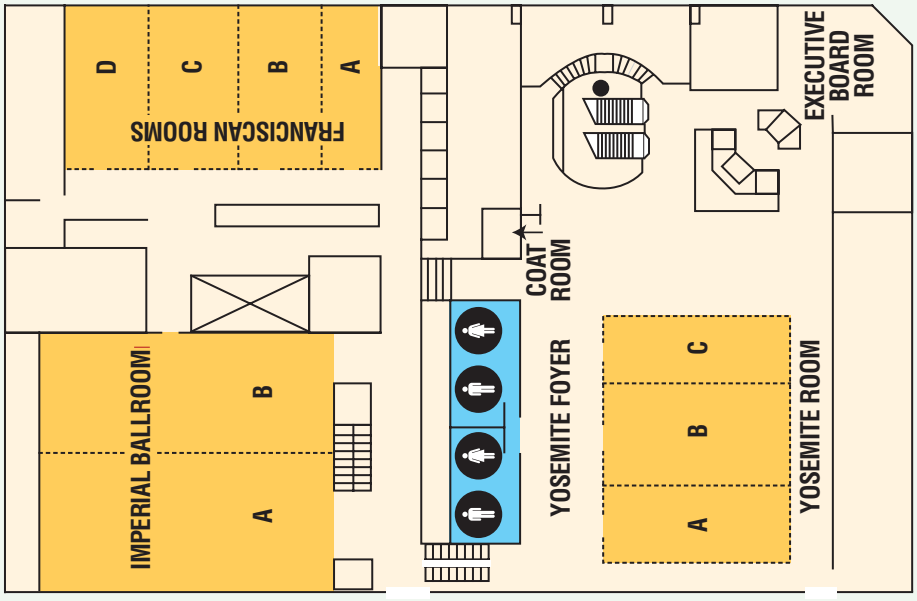
HILTON SAN FRANCISCO UNION SQUARE

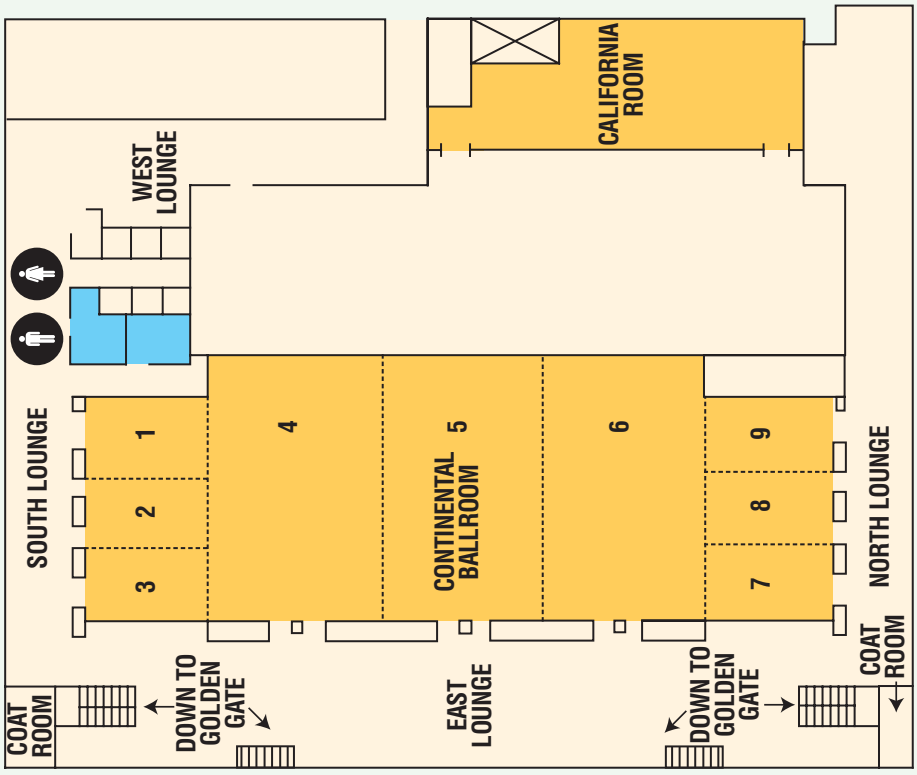
LOBBY LEVEL



HILTON SAN FRANCISCO UNION SQUARE

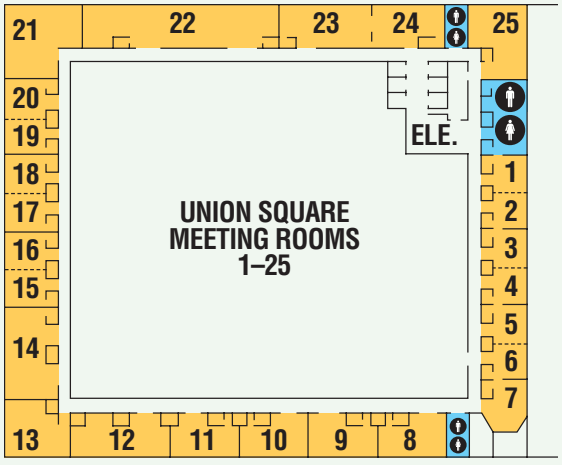
BALLROOM LEVEL



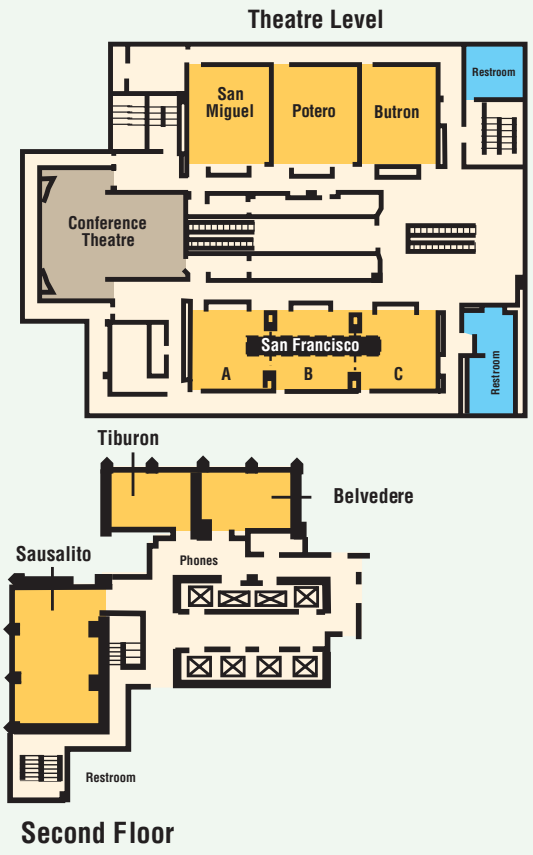


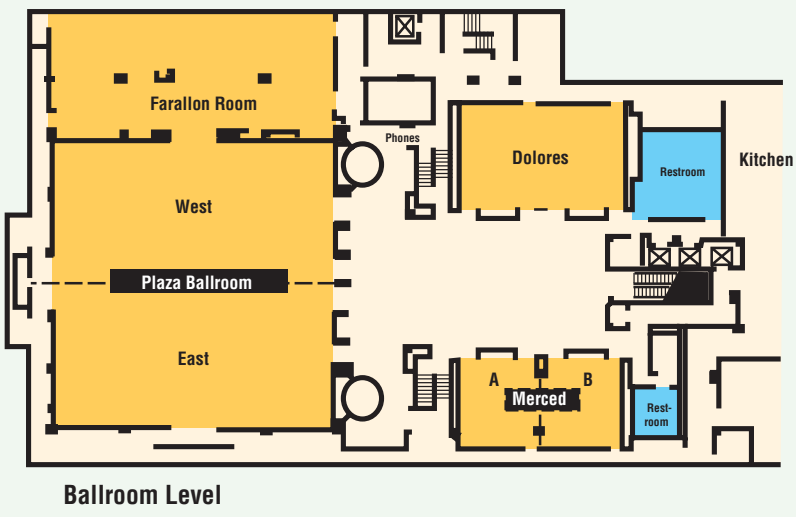
HILTON SAN FRANCISCO UNION SQUARE

FOURTH FLOOR



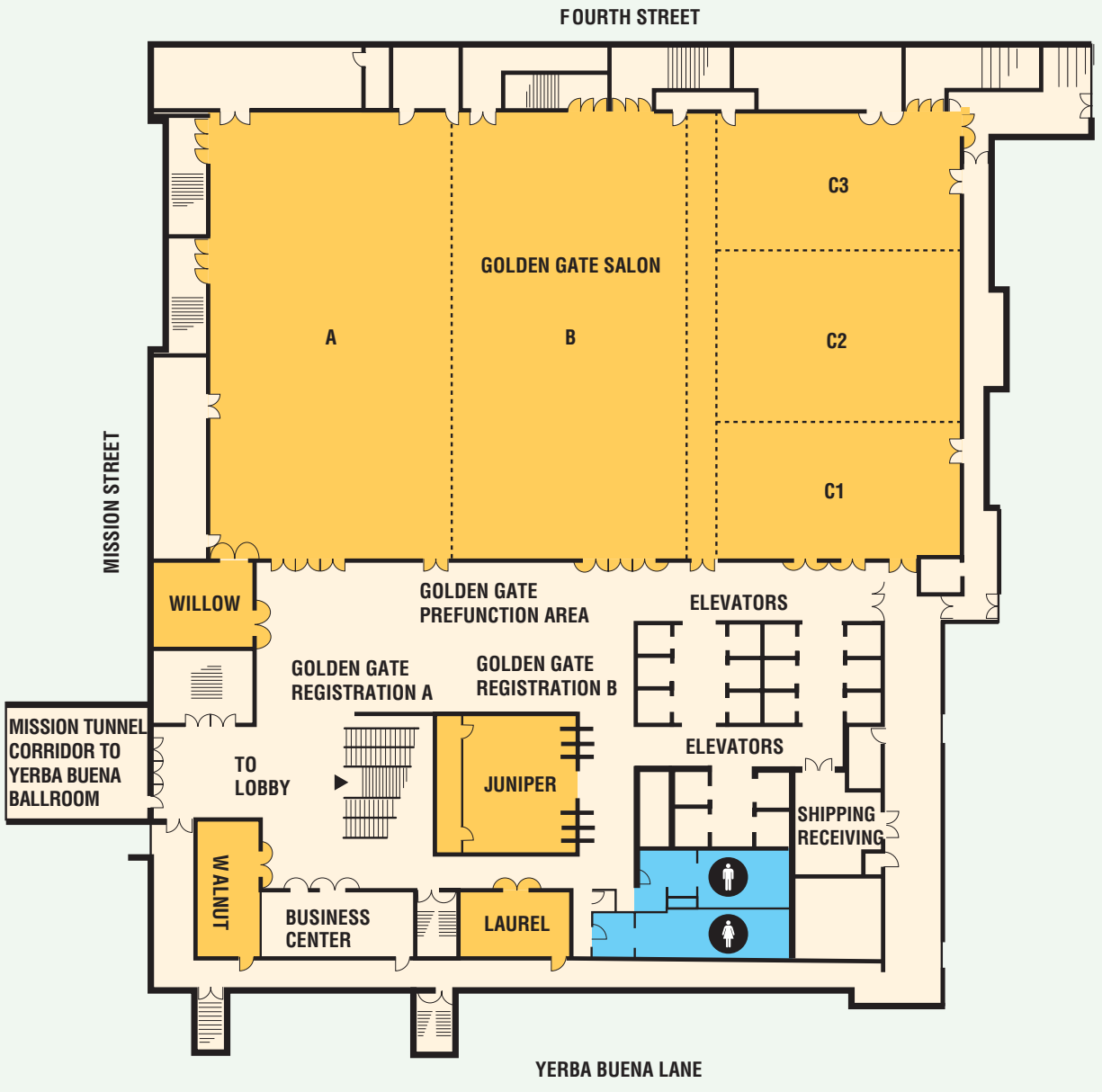
GRAND HYATT SAN FRANCISCO





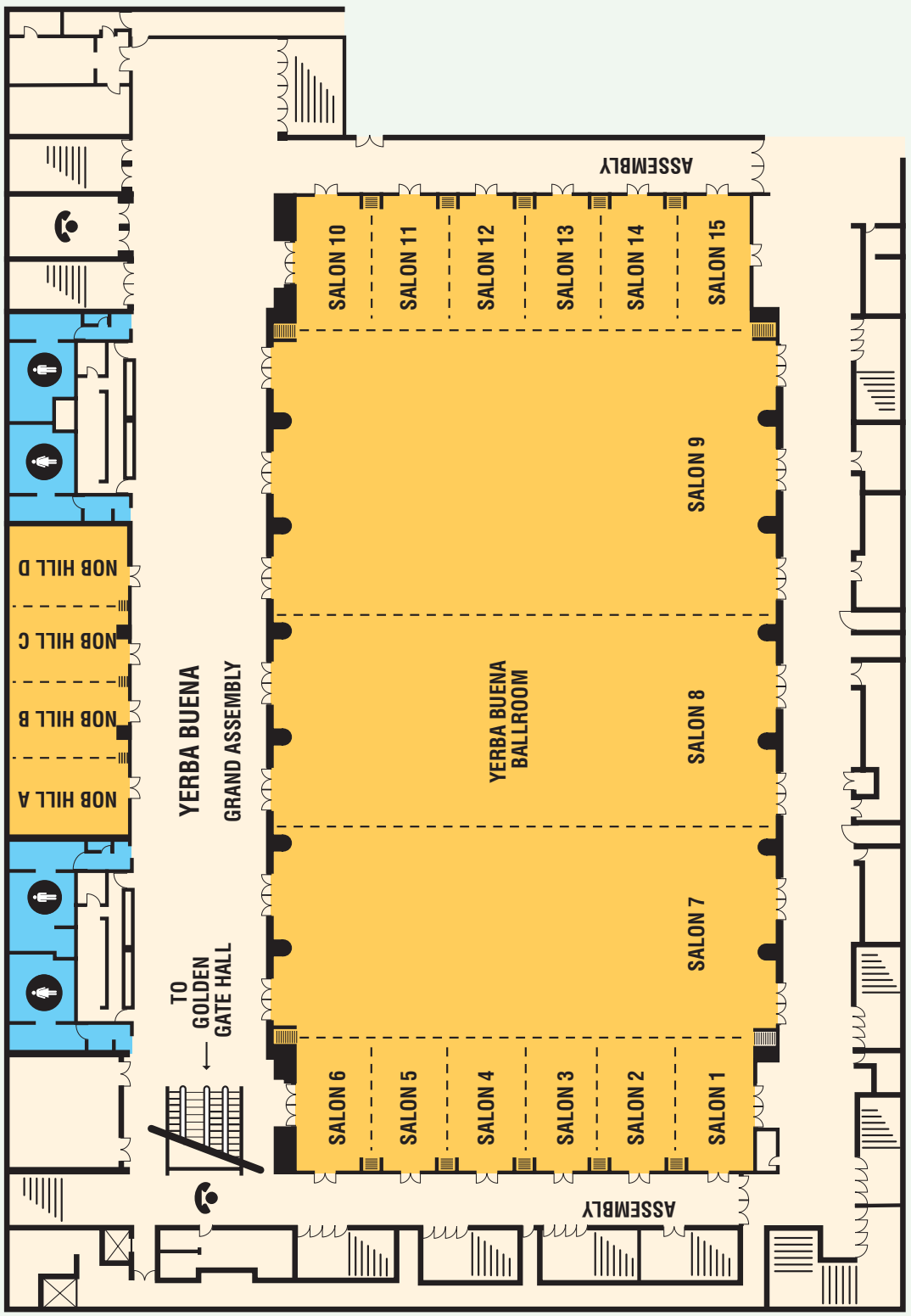
MARRIOTT SAN FRANCISCO MARQUIS

B2 LEVEL



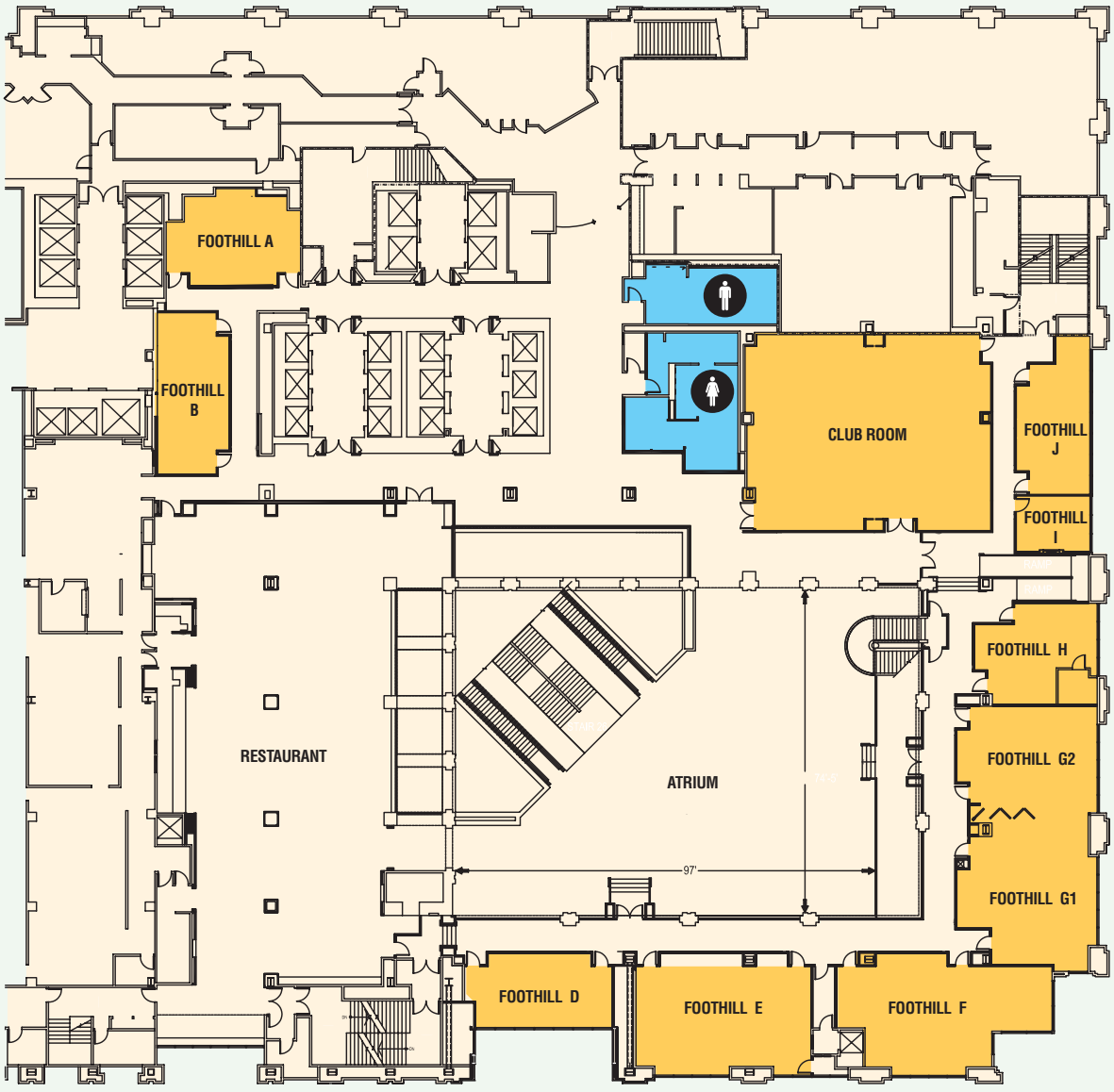
MARRIOTT SAN FRANCISCO MARQUIS

LOWER B2 LEVEL

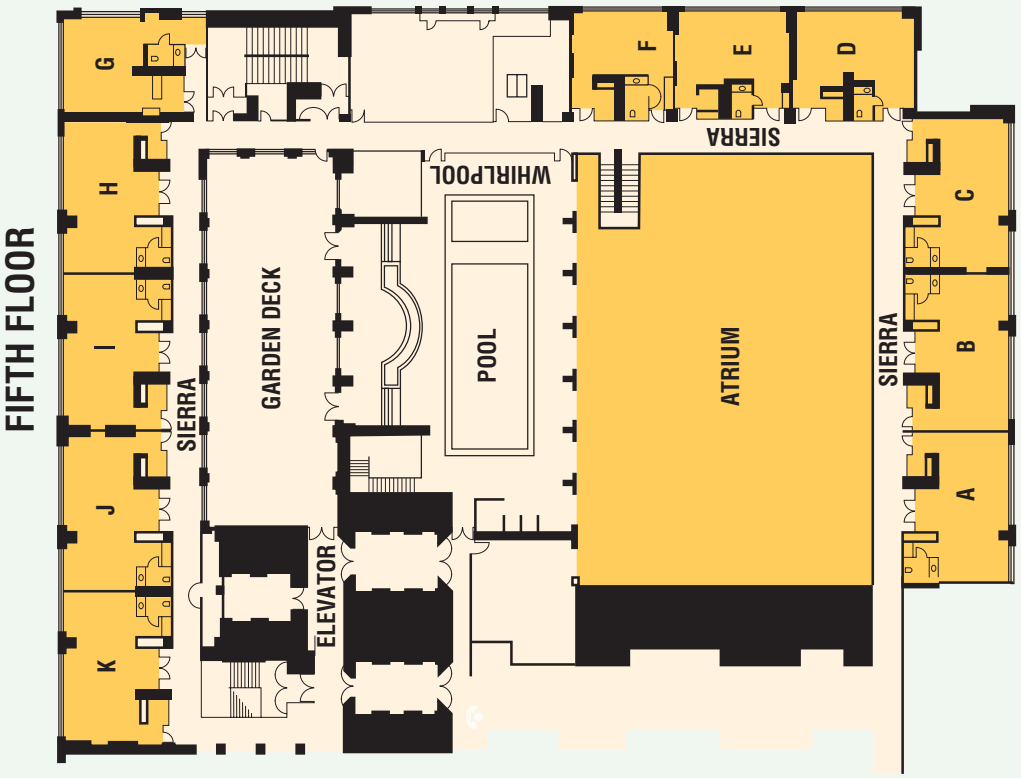


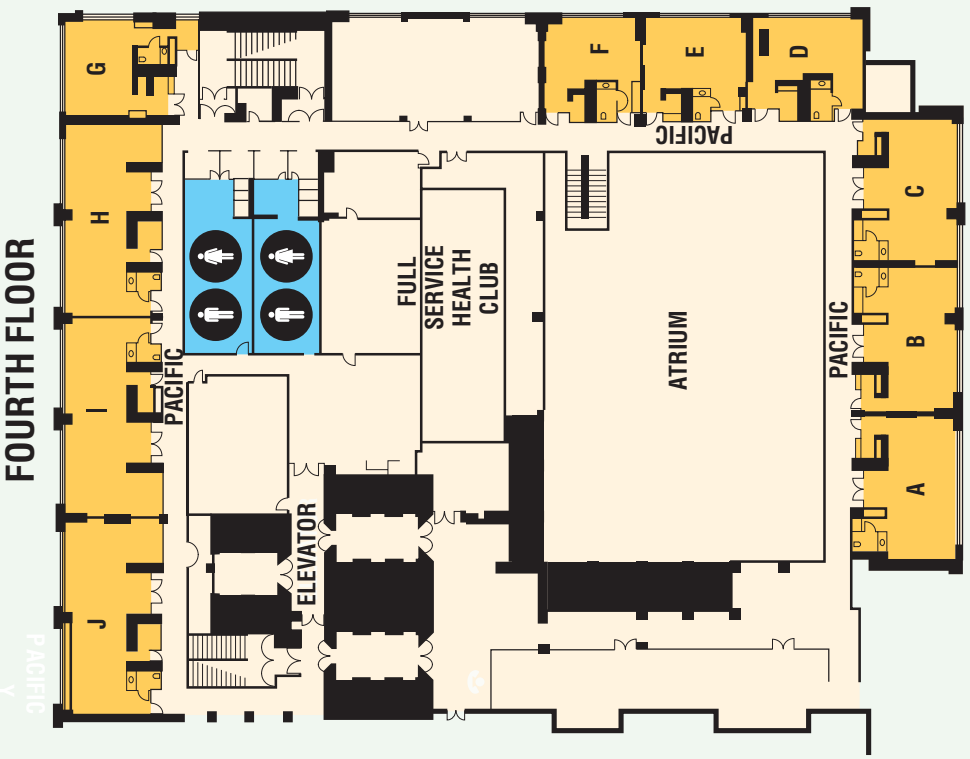
MARRIOTT SAN FRANCISCO MARQUIS

SECOND LEVEL



MARRIOTT SAN FRANCISCO MARQUIS





Executive Office
Francis Q. Eberle, Executive Director

Board Relations
Michelle Butler, Executive Administrator and Manager

Development and Corporate Relations
Corporate Partnerships
Marie Wiggins, Senior Director, Science Education Competitions
Eric Crossley, Director, Science Education Competitions
Brian Short, Assistant Director, Science Education Competitions

Development
Bleik Pickett, Managing Director
Ann Korando, Director, Major Gifts
Vacant, Assistant Manager

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

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All cities are subject to change pending final negotiation.

National Conferences on Science Education

Indianapolis, Indiana
March 29–April 1, 2012

San Antonio, Texas
April 11–14, 2013

Area Conferences on Science Education

2011 Area Conferences

Hartford, Connecticut
October 27–29

New Orleans, Louisiana
November 10–12

Seattle, Washington
December 8–10

2012 Area Conferences

Louisville, Kentucky
October 18–20

Atlanta, Georgia
November 1–3

Phoenix, Arizona
December 6–8

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Attend NSTA Area Conferences on Science Education

You will find:

- 100s of hands-on workshops and presentations to build content knowledge and teaching techniques
- Ready-to-use handouts, lesson plans, and activity ideas
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- Inspiring presenters who share your passion for science
- The latest information on hot topics, including STEM, ELL, assessment, and inquiry

Hartford, CT
October 27–29, 2011

Theme: Science Inspiring Growth

Strands:

- From the Roots to the Fruits of STEM
- Sustainability: Green Is Growing!
- Integrating Literacy: Cross-pollinating the Curriculum

New Orleans, LA
November 10–12, 2011

Theme: Science—Eye on Our Future

Strands:

- Crafting a College-ready and Career STEM Workforce for the Future
- Leveraging Multidimensional Resources to Enhance 21st-Century Learning
- Sustaining Science Success for All Students

Seattle, WA
December 8–10, 2011

Theme: Science—For All, For Now, Forever

Strands:

- Effective Science Instruction for Diverse Learners
- Progressions in the Learning of Science
- STEM Connections: Fostering Life, Career, and College Readiness

For more information or to register, visit *www.nsta.org*.

NSTA National Science Teachers Association

National Science Teachers Association

Robert H. Carleton Award

for National Leadership in the Field of Science Education

Sponsored by Dow Chemical Co.

Emma Walton
Science Consultant
1999–2000 NSTA President
Anchorage, Alaska

National Science Teachers Association

Distinguished Informal Science Education Award

Manuel Hernandez
Science Specialist
Fresno Community Science Workshop
Fresno, Calif.

National Science Teachers Association

Distinguished Teaching Award

Susan German
Science Teacher
Hallsville Middle School
Hallsville, Mo.

Ron Mardigian Memorial Biotechnology Explorer Award

Sponsored by Bio-Rad Laboratories

Kevin McLean
Science Teacher
Lakes Community High School
Lake Villa, Ill.

National Science Teachers Association

Distinguished Service to Science Education Award

Thomasena Woods
STEM AESP Advisor
NASA Langley Research Center
Hampton, Va.

Karen Worth
Senior Scientist
Education Development Center, Inc.
Newton, Mass.

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Susie Stevens Edens
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Ada, Okla.

Finalist

Kareen Borders
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Key Peninsula Middle School
Lakebay, Wash.

Finalist

Bill Richey
Science Teacher
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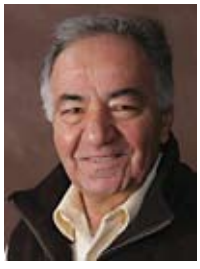
Xenia, Ohio

Presidential Citation



Joseph I. Stepans
Professor Emeritus
University of Wyoming
Laramie, Wyo.

Sylvia Shugrue Award

Melissa Collins
Elementary Teacher
John P. Freeman Optional School
Memphis, Tenn.

Delta Education/Frey Scientific-Neo/CPO Science Awards for Excellence in Inquiry-based Science Teaching

Sponsored by Delta Education, Frey-Neo, CPO Science (divisions of School Specialty Science), LLC

Elementary Level

Kristy Smith
Science Teacher
Cedar Grove Elementary School
Williamson, S.C.

Middle Level

Greer Harvell
Science Teacher
Meigs Middle School
Shalimar, Fla.

High School Level

Gamal Sherif
Science Teacher
Science Leadership Academy
Philadelphia, Pa.

"Angela" Award

Camille Adajar
Central Lee Middle School
Donnellson, Iowa

Vernier Technology Awards

Sponsored by Vernier Software & Technology

Elementary Level

Lynn Fagerholm
Science Teacher
Kenston Intermediate School
Chagrin Falls, Ohio

Middle Level

Nicole Ackerson
Science Teacher
Berkeley Preparatory School
Tampa, Fla.

Rebekah Hammack
Science Teacher
Stillwater Middle School
Stillwater, Okla.

High School Level

Celeste Best
Science Teacher
Oyster River High School
Durham, N.H.

Lai Cao
Science Teacher
Baton Rouge High School
Baton Rouge, La.

Frank Wood
Science Teacher
Hardin Valley Academy
Knoxville, Tenn.

College Level

Julie Ealy
Professor
Pennsylvania State University
Center Valley, Pa.

Wendell G. Mohling Outstanding Aerospace Educator Award

Kenneth Huff
Science Teacher
Mill Middle School
Williamsville, N.Y.

Zula International Early Science Educator Awards

NSTA/CESI Affiliation
Bianca Deliberto
Elementary Teacher
Zachary Elementary School
Zachary, La.

NAEYC/NHSA Affiliation
Jason Pittman
Science Lab Teacher
Hollin Meadows Science and Math Focus School
Alexandria, Va.

Faraday Science Communicator Award

Ed Barker
Kell High School
Robotics Team
Marietta, Ga.

SeaWorld/Busch Gardens Environmental Educator of the Year

Paul Ritter
Science Teacher
National Prescription Pill and Drug Disposal Program
Pontiac Township High School
Pontiac, Ill.

DCAT "Making a Difference" Awards

Sponsored by the Drug, Chemical, and Associated Technologies Assn.

Middle Level
Colleen Howard
Science Coordinator
Mesa Unified School District
Mesa, Ariz.

High School
Ophelia Barizo
Science Teacher
Highland View Academy
Hagerstown, Md.

DuPont Challenge Science Essay Teacher Awardees

Junior Division

Sharon Reynolds
Life Science and Environment Science Teacher
Tower Hill School
Wilmington, Del.

Senior Division

Renee Dewald
Chemistry Teacher, retired
Evanston Township High School
Evanston, Ill.

George Washington Carver AgriSCIENCE Teachers Award

Sponsored by Pioneer Hi-Bred

Rick Henningfeld
AgriScience Teacher
Big Foot High School
Walworth, Wis.

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M3-B*

M3-B is a micro/macro scope that can be used in the classroom and out in the field. It can be used to see microscopic samples and switched to examine larger objects.

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*The M3 -B also is available in a monocular version.

M3-F

M3-F is a comparison scope, used to compare specimens, and popular with forensics science (but not limited to this use).

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Imagine science instruction that engages and motivates all students to learn. Create that environment with Carolina's workshops. Our sessions are taught by experienced presenters—classroom teachers, science coordinators serving as teaching partners, and our own staff scientists. Their training in the latest teaching techniques, national standards, and cutting-edge science topics means you'll receive concise, valuable information. See below for sessions, times, and locations (all take place in the Moscone Center).

Let Carolina help you and your students succeed.

Session Schedule

Thursday, March 10, 2011

Time	Location	Grade*	Title
9:30 AM–11:00 AM	Room 120	H	Introduction to Electrophoresis
9:30 AM–11:00 AM	Room 121	H	AUTOPSY: Forensic Dissection Featuring *Carolina's Perfect Solution*® Pigs
9:30 AM–11:00 AM	Room 122	E	Get Their Heads into the Clouds—Exploring Space Science with GEMS® Space Science Sequences
11:00 AM–2:00 PM	Room 122	M	Lunch and Learn—Discover a New Inquiry Program for Secondary Schools
11:30 AM–1:00 PM	Room 120	H	Mendelian Genetics with Wisconsin *Fast Plants*®
11:30 AM–1:00 PM	Room 121	H	Comparative Mammalian Organ Dissection with *Carolina's Perfect Solution*® Specimens
1:30 PM–3:00 PM	Room 120	E, M, H	Hands-On Science with Classroom Critters
1:30 PM–3:00 PM	Room 121	H	Sharing 35 Years of Teaching High School Chemistry—Demos, Tips, and Best Practices
2:30 PM–4:00 PM	Room 122	E	Dive into Ocean Literacy with the New GEMS® *Ocean Sciences Sequence for Grades 3–5*
3:30 PM–5:00 PM	Room 120	H	Amplify Your Genetics Teaching Skills with Carolina's New *Inquiries in Science*® Biology Series
3:30 PM–5:00 PM	Room 121	M, H	Take the Leap: *Carolina's Perfect Solution*® Frog Dissection
4:30 PM–5:30 PM	Room 122	E	Flexible Instruction for the 21st-Century Student: The Inquiry Approach to Differentiation

Friday, March 11, 2011

Time	Location	Grade*	Title
7:00 AM–8:30 AM	Room 122	E, M	Next Steps for Science—Science Supervisor Breakfast and Forum
8:00 AM–9:30 AM	Room 120	M, H	Introduction to Protozoa
8:00 AM–9:30 AM	Room 121	H, C	Exploring Feline Anatomy with *Carolina's Perfect Solution*® Cats
9:00 AM–10:30 AM	Room 122	E	Swing, Roll, and Spin into STEM in Your Primary Classroom with Building Blocks of Science® (BBS)
10:00 AM–11:30 AM	Room 120	H, C	Exploring Gene Function in *C. elegans*: Mutations and RNA Interface
10:00 AM–11:30 AM	Room 121	H	Innovative and Engaging Chemistry Labs with Real-World Connections: Discover the *Inquiries in Science*® Series
11:00 AM–2:00 PM	Room 122	M	Lunch and Learn—Discover a New Inquiry Program for Secondary Schools
12:00 PM–1:30 PM	Room 120	H, C	Genetics with *Drosophila*
12:00 PM–1:30 PM	Room 121	E, M	Carolina's Young Scientist's Dissection Series
2:00 PM–3:30 PM	Room 120	H, C	Fast Gels for Fast Times
2:00 PM–3:30 PM	Room 121	H	Need "Energy" in Your Environmental Classes? Learn About Carolina's New *Inquiries in Science*® Environmental Science Series
2:30 PM–4:00 PM	Room 122	M	Science Notebooking: Integrating Writing and Science Through Catastrophic Events
4:00 PM–5:30 PM	Room 120	E, M, H	Butterflies in Your Classroom
4:00 PM–5:30 PM	Room 121	H, C	Rats! Inquiry-Based Dissection with *Carolina's Perfect Solution*® Specimens
4:15 PM–5:30 PM	Room 122	E	Learning to Read, Reading to Learn: Literacy, Notebooks, and the Power of Inquiry

*E=Elementary, M=Middle School, H=High School, C=College

See how much fun learning can be!

Saturday, March 12, 2011

Time	Location	Grade*	Title
8:00 AM–9:30 AM	Room 120	H	Strawberry DNA and Molecular Models
8:00 AM–9:30 AM	Room 121	H, C	Think Mink! Exploring Mammalian Anatomy with *Carolina's Perfect Solution*® Mink
8:00 AM–9:30 AM	Room 122	E	Don't Forget the M in STEM: A Focus on Literacy in the Math Classroom
10:00 AM–11:30 AM	Room 120	E, M, H	Introduction to Wisconsin *Fast Plants*®
10:00 AM–11:30 AM	Room 121	H	Engage Student Inquiry with Carolina's Environmental Science Labs
10:00 AM–11:30 AM	Room 122	E	Don't Forget the M in STEM: A Focus on RTI in the Math Classroom
12:00 PM–1:30 PM	Room 120	H	Infection Detection: An ELISA Simulation for Your Classroom
12:00 PM–1:30 PM	Room 121	M, H	Comparative Vertebrate Anatomy with *Carolina's Perfect Solution*® Specimens
12:00 PM–1:30 PM	Room 122	E	Don't Forget the M in STEM: A Focus on Inquiry in the Math Classroom
2:00 PM–3:30 PM	Room 120	H	Forensics for the Biology Laboratory
2:00 PM–3:30 PM	Room 121	H	SQUID INK-UIRY: Inquiry-Based Invertebrate Anatomy Through Squid Dissection
2:00 PM–3:30 PM	Room 122	E	Learning to Read, Reading to Learn: Literacy, Notebooks, and the Power of Inquiry

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Is This Your First NSTA Conference?

Yes, you say? Then you are invited to attend either one of two Thursday sessions that are specifically intended for first-time conference attendees. These sessions will help you make the most of your first-time conference experience!

The morning session is generously sponsored by Carolina Biological Supply Company. See pages 98 and 165 for details.

Ribbon-cutting Ceremony

An opening ceremony is scheduled on Thursday at 10:00 AM in the lobby of Hall B.

Wednesday, March 9 (Volume 1)

8:30 AM–4:00 PM	NSTA Professional Development Institutes and Work Sessions 93

Thursday, March 10 (Volume 1)

8:00–9:00 AM	First-Timers' Meeting (Is This Your First NSTA Conference?) . . . 98
8:00 AM–12:30 PM	NOAA Symposium (SYM-1) 110
8:00 AM–2:00 PM	Global Conversations in Science Education Conference (M-2) . . 112
8:15–9:45 AM	Featured Presentation: Science Matters National Town Hall on Science Education 112
9:00–10:30 AM	Preservice and New Teachers Breakfast (M-1) 115
9:30–10:30 AM	Featured Presentation: Chad W. Dorsey 115
10:00–10:10 AM	Ribbon-cutting Ceremony 127
10:10 AM–6:00 PM	Exhibits 130
11:00 AM–12:30 PM	General Session: Jeff Goldstein 133
12:30–1:30 PM	Mary C. McCurdy Lecture: Dennis Bartels 140
1:30–6:00 PM	NOAA/USFS/EPA Symposium: (SYM-2) 153
2:00–3:00 PM	Featured Panel: Next Generation of Science Education Standards: Francis Q. Eberle, Stephen L. Pruitt, Helen R. Quinn 154
3:30–4:30 PM	Featured Presentation: Kenji Hakuta 165
3:30–4:30 PM	First-Timers' Meeting (Conference Tips for First-Timers) 165
3:30–5:30 PM	NSTA ESP Symposium I 175
3:30–5:30 PM	The Planetary Society Lecture: Bill Nye 176
6:00 PM–12 Mid	Special Evening Session: A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating, Engaging Courses, Part 1 181

Friday, March 11 (Volume 2)

See Conference Highlights, Volume 2, for page numbers.

7:00–8:00 AM	A Broad Spectrum for Science Learning Breakfast (Informal Science Day) (M-3): Gretchen Walker
7:00–8:30 AM	Dorothy K. Culbert Chapters and Associated Groups Breakfast (M-4)
7:00–8:30 AM	High School Breakfast (M-5): Tamica A. Stubbs
7:00 AM–5:00 PM	Informal Science Day
8:00 AM–12:30 PM	FDA/NSTA Symposium (SYM-3)
8:30–9:30 AM	Featured Presentation: Lawrence Lowery
8:30 AM–5:00 PM	Teacher Researcher Day
9:00 AM–5:00 PM	Exhibits
10:30 AM–12 Noon	Shell Science Seminar: Eugenie C. Scott
10:30 AM–12 Noon	Shell Science Seminar: Richard A. Duschl
12 Noon–2:00 PM	NSELA/ASTE Luncheon (M-6): Randal Harrington
12 Noon–2:00 PM	NSTA/NMLSTA Middle Level Luncheon (M-7): Tory Brady and Sandra Robins
12:30–1:30 PM	Robert H. Carleton Lecture: Arthur Eisenkraft
12:30–1:30 PM	Featured Presentation: Susan Teel
12:30–1:30 PM	SCST Marjorie Gardner Lecture: Robert J. Beichner
1:30–3:00 PM	Shell Science Seminar: Celeste H. Pea

General Session

Thursday, March 10, 11:00 AM–12:30 PM

Jeff Goldstein
Director,
National Center
for Earth and Space
Science Education,
Capitol Heights, Md.

Science—It's Not a Book of Knowledge… It's a Journey

Jeff Goldstein will speak about the rewards for science educators of seeing students immersed in the journey of exploration by doing the science themselves.
(See page 133 for details.)

— *Meiko Takechi, California Academy of Sciences*

The following venues have extended special offers for San Francisco conference attendees. See page 23 for details.

- **California Academy of Sciences**
- **Exploratorium**
- **USS *Pampanito***

Friday, March 11, continued

1:30–6:00 PM	NSF Symposium (SYM-4)
2:00–3:00 PM	AGU Lecture: J. Todd Hoeksema
2:00–3:30 PM	Featured Panel: Improving STEM Teaching and Education—A Superintendents' Symposium
3:30–5:00 PM	Shell Science Seminar: Kenneth Wesson
3:30–5:30 PM	NSTA ESP Symposium II
6:00–8:30 PM	NSTA Teacher Awards Gala (M-8)
6:00 PM–12 Mid	Special Evening Session: A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, Stimulating, Engaging Courses, Part 2

Saturday, March 12 (Volume 3)

See Conference Highlights, Volume 3, for page numbers.

7:45 AM–3:00 PM	Highly Effective Science Education: Integrating Science and . . . Emerging Educational Technology in the Science Classroom (Research Dissemination Conference) (C-1)
8:00 AM–5:00 PM	The Centers for Ocean Sciences Education Excellence (COSEE) Program
8:30–10:00 AM	Featured Presentation: Bernard A. Harris, Jr.
9:00 AM–5:00 PM	Exhibits
9:30–10:30 AM	Featured Presentation: Ken Roy
9:30 AM–12 Noon	NSTA/SCST Symposium on Nanotechnology
10:00–11:30 AM	Special Session: Maria Fadiman
10:30 AM–12 Noon	Shell Science Seminar: Ira Flatow
10:30 AM–12 Noon	Shell Science Seminar: Helen R. Quinn
11:00 AM–12 Noon	Paul F-Brandwein Lecture: Art Sussman
12 Noon–1:30 PM	NSTA/SCST College Luncheon (M-9): Melanie M. Cooper
12 Noon–2:00 PM	Aerospace Educators Luncheon: NASA AESP 50th Anniversary (M-10): Vinton G. Cerf
12 Noon–2:00 PM	CESI/NSTA Elementary Science Luncheon (M-11): Kerry Ruef
1:30–3:00 PM	Shell Science Seminar: Elizabeth K. Stage
1:30–3:00 PM	Shell Science Seminar: Eugene García
2:00–3:00 PM	NSTA/ASE Honors Exchange Lecture: Jonathan Osborne
3:30–4:30 PM	Robert H. Karplus Lecture: Gerry Wheeler
3:30–5:30 PM	NSTA ESP Symposium III
7:00–9:30 PM	President's Annual Banquet (M-12): Bernard A. Harris, Jr.
6:00 PM–12 Mid	Special Evening Session: A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating, Engaging Courses, Part 3

Sunday, March 13 (Volume 3)

See Conference Highlights, Volume 3, for page numbers.

7:00–9:00 AM	NSTA Life Members' Buffet Breakfast: Celebrate Your Lifetime Dedication (M-13)

The San Francisco Planning Committee has planned the conference around the following four strands, enabling you to focus on a specific area of interest or need. Strand events are identified by icons throughout the daily program.

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

Embracing Technology in the 21st-Century Classroom

Effective classrooms require the tools and resources necessary to be technologically rich environments. Professional development is required to maintain educators' awareness and understanding of available and appropriate technology and its effective use for student learning. The understanding and use of technology are critical components of STEM education. This strand will promote the awareness, understanding, and appropriate use of technology in preK–12 and community college classrooms, vocational schools, and informal science programs to support the development of workplace skills.

Accessing Language Through Science and Mathematics Content

This strand will feature expert practitioners, researchers, informal science educators, and educational leaders who will share successful practices, conceptual and practical frameworks, and proven models for improving literacy achievement through science and mathematics. Sessions will focus on the contextualized use of academic language and include strategies for improving reading comprehension, writing, and scientific discourse. Strategies should be inclusive of all students, including advanced learners, English language learners, special needs students, and students that are economically disadvantaged. Accessing language through science and mathematics can also occur outside classrooms through informal settings such as science museums and after-school, Saturday, and summer enrichment and recreation programs.

Exploring Earth, Wind, and Fire

Educators must have substantial content knowledge in order to teach Earth system sciences effectively. In order to examine their own misconceptions and ways of thinking, educators need concrete examples that support their understanding of Earth science content. This strand will focus on providing science educators with the knowledge and understanding to effectively teach Earth system science within the context of the following: geology, astronomy, meteorology, global climate change, ecology, space, geophysics, and sustainability.

Building Scientific Minds: Inspiring Teaching and Effective Learning

Science classroom practice and informal science experiences should be grounded in research in science education and cognitive psychology. Key developments, such as national and state science standards, Science Anchors, and workplace skills for the 21st century, deserve wide-scale application in science programs. Teachers and science education leaders need model approaches to implementing research findings in science programs and teaching/learning strategies.

Embracing Technology in the 21st-Century Classroom

Thursday, March 10

8:00–9:00 AM
ISTE: Mobile Learning in Science

8:00–11:00 AM
Short Course: Telescopes and Optics: Build a Galileoscope (By Ticket: SC-2)

8:00 AM–2:15 PM
Field Trip: An In-depth Tour of Bio-Rad Laboratories (By Ticket: T-1)

9:30–10:30 AM
Featured Presentation: Deeply Digital Science Teaching: Looking into the Future of Educational Technology
(Speaker: Chad Dorsey)

9:30–11:00 AM
ISTE: Technology + Science: Making IT Work

12:30–1:30 PM
ISTE: More Than Just Probes

2:00–3:00 PM
ISTE: Podcasting for Students and Teachers in Science

3:30–5:00 PM
ISTE: Google Me This—How to Make Collaboration Work in a Wiki World

Friday, March 11

8:00–9:00 AM
Online Interactives in the Science Classroom

8:00 AM–12:30 PM
Short Course: Exploring Birds and Citizen Science at the California Academy of Sciences (By Ticket: SC-12)

8:00 AM–5:00 PM
Field Trip: The Center for Probing the Nanoscale, Stanford Linear Accelerator Center (SLAC), and the Stanford University Campus (By Ticket: F-2)

9:30–10:30 AM
Fun, Free, and Easy: Great Free Web 2.0 and Open-Source Resources

11:00 AM–12 Noon
Bringing Together STEM, Language Arts, and Global Awareness

12:30–1:30 PM
Learning on the Holodeck: Theaters Without Audiences

2:00–3:00 PM
Engaging Your Grades 3–8 Students in the Digital Age with a Great Teaching Strategy and a Digital Suitcase

3:30–4:30 PM
Science Teaching in Second Life

5:00–5:30 PM
Using Real-Time Communication Technology to Connect Students with Real Science from the Polar Regions

Saturday, March 12

8:00–9:00 AM
Bring Your Teaching into the 21st Century with Web 2.0 Tools and Other Technologies

8:00–11:00 AM
Short Course: Bringing Nanotechnology into the Classroom (By Ticket: SC-15)

9:30–10:30 AM
Virtual Labs in the Earth Sciences: Melting Ice, Warming Climate, and Ballooning Through the Stratosphere

12:30–1:30 PM
Cyber Enabled Earth Exploration (CE^3) Science Curriculum Project

1:00–4:00 PM
Short Course: Create Your Own Interactive Whiteboard (By Ticket: SC-21)

2:00–3:00 PM
Investigating Supernova Remnants

3:30–4:30 PM
Now Even Middle School Students Can Learn Spectroscopy!

Sunday, March 13

9:30–10:30 AM
Explore the Chemistry Education Digital Library

Accessing Language Through Science and Mathematics Content

Thursday, March 10

7:30 AM–4:30 PM
Field Trip: Space Science: A Visit to NASA Ames (By Ticket: T-2)

8:00–9:00 AM
Fab Vocab Strategies You Can Use Today!

8:00–11:00 AM
Short Course: The Role of Discourse and Writing in Inquiry Science at the Upper Elementary Level (By Ticket: SC-4)

12:30–1:30 PM
Practical Strategies to Help English Learners Comprehend Science Texts

3:30–4:30 PM
Featured Presentation: Practical Tools to Support English Language Learners Reading Science Texts (Speaker: Kenji Hakuta)

What Can We Learn from Skulls? Teaching Science to English Language Learners (ELLs)

Friday, March 11

8:00–9:00 AM
Dissecting Word Problems

9:00 AM–2:45 PM
Field Trip: Lawrence Hall of Science (By Ticket: F-4)

9:00 AM–4:05 PM
Field Trip: Hands On at Its Finest: The Tech Museum and Resource Area for Teachers (RAFT) (By Ticket: F-5)

9:30–10:30 AM
Applying Algebra to Pendulums: Language Acquisition Using Manipulatives

11:00 AM–12 Noon
Developing a Community of Young Scientists

1:00–4:00 PM
Short Course: Science Notebooking and Academic Language Development for Upper Elementary Students (By Ticket: SC-14)

2:00–3:00 PM
Science Notebooking for the Early Grades

Accessing Language Through Science and Mathematics Content, cont.

3:30–4:30 PM
Using Math and Science Notebooks to Improve Literacy Skills and Scientific Discourse

4:15–9:45 PM
Field Trip: Educator's Evening Under the Stars at Chabot Space & Science Center (By Ticket: F-8)

5:00–6:00 PM
Developing a Framework for Formatively Assessing Student Notebooks

Saturday, March 12

8:00–9:00 AM
On the Prairie: Ecological Approaches to Language and Mathematics

8:00–11:00 AM
Short Course: Accessing Science Through Language, Reading, and Writing (By Ticket: SC-16)

9:30–10:30 AM
Integrating Science and Literature: Promoting a Bright Future for Every Child

11:00 AM–12 Noon
Integrating Science Literacy and English Literacy in the K–12 Science Classroom: Benefits for Deaf, Hard of Hearing, and Hearing Students

12:30–1:30 PM
"What Do You Think?" The Use of Blogging as a Scientific Literacy Tool

How Do We Know? Improving Scientific Understanding Through Reading

2:00–3:00 PM
Building Student Science Inquiry: Authoring Your Own Science Literature Book

3:30–4:30 PM
Nature Books: The Natural Way to Link Science, Math, and Literacy

5:00–6:00 PM
Science Literacy: Using Examples and Nonexamples

Exploring Earth, Wind, and Fire

Thursday, March 10

8:00–9:00 AM
Activities from Across the Earth System

8:45 AM–3:20 PM
Field Trip: Taking Science Outdoors: Learning in San Francisco Green School Yards (By Ticket: T-4)

9:00 AM–3:00 PM
Field Trip: Written in Stone: Lessons from the Field for the Earth Science Classroom (By Ticket: T-5)

9:30–10:30 AM
Eating Your Way Through the Earth Science Standards

2:00–3:00 PM
The Geometry of Earth Science

3:30–4:30 PM
ART/Science

Friday, March 11

8:00–9:00 AM
I Feel the Earth Move Under My Feet!

8:00 AM–3:00 PM
Short Course: NOAA Ship *Okeanos Explorer*: Why Do We Explore?…and How Do We Explore? (By Ticket: SC-13)

8:00 AM–5:00 PM
Field Trip: How Geologic Events Shape Our Lives (By Ticket: F-1)

9:15 AM–4:15 PM
Field Trip: Berkeley's Bounty: The Edible Schoolyard and the Center for Ecoliteracy in the David Brower Center (By Ticket: F-6)

9:30–10:30 AM
Visualizing the Unviewable: Simple Models to Activate Your Earthquake Instruction

11:00 AM–12 Noon
Making the Water Cycle Real: A Journey from the School Yard to the Ocean

12:30–1:30 PM
Featured Presentation: Bridging Scientific Research and Education Through Research Learning Centers (Speaker: Susan Teel)

Under Pressure!

2:00–3:00 PM
Beyond Mere Attraction: Measuring Magnetism

3:30–4:30 PM
Photosynthesis Strategies: The Foundation for Ecological Food Webs

5:00–6:00 PM
Meteorites CSI: The Sky Has Fallen…Now What?

Saturday, March 12

8:00–9:00 AM
Fun with Flames: A Safe Way to Teach Fire Sciences

8:00 AM–3:00 PM
Short Course: 2011: NASA's Year of the Solar System (By Ticket: SC-18)

9:15 AM–2:45 PM
Field Trip: Hands-On Outdoor Experience Makes Science Come Alive (By Ticket: S-2)

9:30–10:30 AM
The Composition of the Atmosphere

11:00 AM–12 Noon
Fossils: Where Biology and Geology Intersect

12:30–1:30 PM
Taking Earth Science One Step Further: Harnessing Sun and Wind Energy

2:00–3:00 PM
We're All in This Together: Watersheds and You!

3:30–4:30 PM
Basic Weather

5:00–6:00 PM
The Ups and Downs of Convection

Building Scientific Minds: Inspiring Teaching and Effective Learning

Thursday, March 10

8:00–9:00 AM
Chemistry Is Elementary! Giving Elementary Science Teachers the Confidence, Skills, and Experience to Teach Chemistry

8:00–11:00 AM
Short Course: Science as Inquiry: Using Language Processes to Understand Physical Processes (By Ticket: SC-5)

8:35–11:15 AM
Field Trip: The USS *Pampanito*—Where History Meets Science (By Ticket: T-3)

9:30–10:30 AM
Engaging Students in Biology Through Real-World Connections

11:35 AM–2:15 PM
Field Trip: The USS *Pampanito*—Where History Meets Science (By Ticket: T-7)

12:30–1:30 PM
How We Know What We Know: The Most Important Tools for Teaching Earth Science

1:45–5:15 PM
Field Trip: Explore the Exploratorium (By Ticket: T-8)

2:00–3:00 PM
How to Host an Inquiry Symposium at Your School

2:00–5:00 PM
Short Course: Inspire Middle and High School Girls Toward Careers in Science (By Ticket: SC-7)

2:35–5:15 PM
Field Trip: The USS *Pampanito*—Where History Meets Science (By Ticket: T-9)

3:30–4:30 PM
Independent Investigations for Young Scientists

Friday, March 11

8:00–9:00 AM
Inquiry with Young Scientists: Helping Children to Investigate Their World

8:00 AM–12 Noon
Short Course: Physics on the Subway (By Ticket: SC-11)

8:30–9:30 AM
Featured Presentation: Effective Teaching for Effective Learning (Speaker: Lawrence Lowery)

8:30 AM–12:30 PM
Field Trip: Dynamic Nature: The Ebb and Flow of the Bay Area Watershed and Creating Opportunity for Local Community Involvement (By Ticket: F-3)

9:30–10:30 AM
Creating a Community of Science Learners

11:00 AM–12 Noon
Creating Scientific Drawings and Recordings with Kindergartners

12:30–1:30 PM
Let Loose! Lecture-free Teaching in the Middle School Classroom

12:30–4:30 PM
Field Trip: Dynamic Nature: The Ebb and Flow of the Bay Area Watershed and Creating Opportunity for Local Community Involvement (By Ticket: F-7)

2:00–3:00 PM
Simple Machines Made Simple!

3:30–4:30 PM
Get Moving Redux! More Kinesthetic Tools for Excellence in Science

5:00–6:00 PM
Helping Students Develop Scientific Explanations Based on Empirical Evidence and Scientific Reasoning

Saturday, March 12

8:00 AM–12 Noon
Short Course: Young Investigators in Environmental Health Science: Challenging and Exciting Your Students with Novel, Inquiry-based Environmental Activities (By Ticket: SC-17)

8:30 AM–12:30 PM
Field Trip: Scientist for a Day on the *Robert G. Brownlee* (By Ticket: S-1)

9:30–10:30 AM
Incorporating Problem Based Learning and Creativity in Integrated Science Classrooms: An International Perspective

9:45 AM–2:15 PM
Field Trip: Explore the Exploratorium (By Ticket: S-3)

11:00 AM–12 Noon
Promoting Scientific Creativity in the Chemistry Classroom

12:30–1:30 PM
Scientific Literacy: More Than Just the Facts

12:30–4:30 PM
Field Trip: Scientist for a Day on the *Robert G. Brownlee* (By Ticket: S-5)

2:00–3:00 PM
Slingshot Physics: Authentic Application of Work, Energy, Friction, and Newton's First Law of Motion

3:30–4:30 PM
Using Open-Source Resources to Engage Students in the Biology Classroom

5:00–6:00 PM
Assessing Inquiry Skills Using Science Notebooks

Sunday, March 13

11:00 AM–12 Noon
Rigor *vs.* Rhetoric: Teaching Scientific Skepticism

Global Conversations in Science Education Conference

SOLD OUT

Cultural Influences on Science Education

Thursday, March 10, 8:00 AM–2:00 PM

San Francisco Marriott Marquis

Tickets (M-2) are required.

On Thursday, March 10, NSTA will host a special day dedicated to science education from an international perspective. During this event, there will be numerous opportunities for international visitors to network with science educators from various cultures. An agenda follows. *Global Conversations Conference events are described in the Thursday and Friday daily programs. See page 112 (Vol. 1) and Vol. 2.*

Wednesday, March 9

7:00 AM–4:00 PM	Science Classroom Visits in the San Francisco Area *(Ticketed Event: W-1)*
6:30–7:30 PM	NSTA President's International Reception (Yerba Buena Salon 14/15) *Open to international visitors and invited guests.*

Thursday, March 10

8:00–9:00 AM	Welcome and Introductions (Yerba Buena Salon 8)
9:00–9:30 AM	Plenary Session (Yerba Buena Salon 8) *Building Cultural Bridges Between Scientific and Indigenous Ways of Knowing Nature* Speaker: Glen S. Aikenhead
9:30–9:45 AM	Break
9:45–10:45 AM	Concurrent Sessions (Session 1, Nob Hill A; Session 2, Nob Hill B; Session 3, Nob Hill C)
10:45–11:15 AM	Poster Session (Yerba Buena Salon 8)
11:15 AM–12:15 PM	Concurrent Sessions (Session 1, Nob Hill A; Session 2, Nob Hill B; Session 3, Nob Hill C)
12:15–1:15 PM	Luncheon Plenary Session (Yerba Buena Salon 8) *Exploring and Explaining Experiences: The Place of Doing Science in a Cultural Diverse Classroom* Speaker: Ian Milne
1:15–1:35 PM	Panel Discussion (Yerba Buena Salon 8)
1:35–1:50 PM	Updates from Around the World (Yerba Buena Salon 8)
1:50–2:00 PM	Closing Remarks

Friday, March 11

9:00–11:00 AM	International Curriculum Showcase (Sierra B, C, and E)

NSTA Exemplary Science Program (ESP)

Realizing the Visions of the National Science Education Standards

Thursday, March 10–Saturday, March 12

Continental Salon 2, Hilton

ESP symposia were organized by Robert E. Yager, 1982–1983 NSTA President and editor of the NSTA ESP Program. These sessions will include brief descriptions of programs that exemplify how the four NSES goals have been met. The discussants will be drawn from authors of chapters from several monographs in the series. Discussion will center on how NSES "More Emphasis" suggestions have guided instruction.

ESP symposia are described throughout the daily program (Volumes 1, 2, and 3).

Thursday, March 10, 3:30–5:30 PM

Symposium I *(Volume 1, page 175)*

Coordinators: Robert E. Yager, University of Iowa, Iowa City; and Herbert Brunkhorst, California State University, San Bernardino

ESP: Major Changes in "Reform" Classrooms Advocated in the NSES

Friday, March 11, 3:30–5:30 PM

Symposium II *(Volume 2)*

Coordinators: Robert E. Yager, University of Iowa, Iowa City; and Susan B. Koba, Science Education Consultant, Omaha, Neb.

ESP: Science Teaching and Learning as Collaborative Experiences

Saturday, March 12, 3:30–5:30 PM

Symposium III *(Volume 3)*

Coordinators: Robert E. Yager, University of Iowa, Iowa City; and Diane L. Schmidt, Florida Gulf Coast University, Fort Myers

ESP: How to Make Students Full Partners in Science Learning

Informal Science Day

Friday, March 11, 7:00 AM–5:00 PM
Yerba Buena Salon 9, Marriott

Packed with exciting informal science presentations and activities, Informal Science Day is intended to build awareness of the abundance of existing high-quality informal science education methods, resources, and opportunities available to enhance science teaching and learning. It is designed to offer a "town square" at which both informal and formal science educators can 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 represented include zoos, museums, media, after-school programs, university outreach, and others that provide and/or support out-of-school science education.

An agenda follows. *Informal Science Day events are described throughout the Friday daily program (Vol. 2).*

Friday, March 11

7:00–8:00 AM	A Broad Spectrum for Science Learning Breakfast (Tickets Required: M-3) *Are Trees Alive? Roles for Experts and Novices in Informal Science Education* Gretchen Walker, Lawrence Hall of Science, University of California, Berkeley
9:00–10:00 AM	Breakout Sessions
10:00 –11:00 AM	Breakout Sessions
11:00 AM–12 Noon	Breakout Sessions
12:30–1:30 PM	Edu-tainment General Session featuring Banana Slug String Band
2:00–5:00 PM	Informal Science Education Share-a-Thon

Teacher Researcher Day

Friday, March 11, 8:30 AM–5:00 PM
Yerba Buena Salon 8, Marriott

Teacher researchers are curious about their students' learning and ask questions to try to better understand what is happening in their classrooms. They collect data such as videotapes of instruction, copies of student work, and their own written reflections. Then they try to make sense out of what they see in the data and use this knowledge to improve their teaching. Teacher Researcher Day is for both new and experienced teacher researchers. The full day of activities includes a poster session and presentations on topical issues. These sessions provide opportunities to meet teacher researchers and learn about their studies in a wide variety of contexts.

An agenda follows. *Teacher Researcher Day events are described throughout the Friday daily program (Vol. 2).*

Friday, March 11

8:30–9:30 AM	Poster Session
9:30–11:00 AM	Presentation: *Exploring Teacher Inquiry and Teacher Research—Conversations for Teachers and Teacher Inquiry Group Leaders*
11:00 AM–12 Noon	Concurrent Sessions
12 Noon–12:30 PM	Science Inquiry Group Network
12:30–1:30 PM	Concurrent Sessions
1:30–2:30 PM	Informal Conversations About Teacher Research
2:00–3:00 PM	Concurrent Sessions
3:00–3:30 PM	Informal Conversations About Teacher Research
3:30–4:30 PM	Concurrent Sessions
4:30–5:00 PM	Presentation: *Fostering Teacher Researcher Collaborations*

NESTA Earth and Space Science Resource Day: Earthquake Hazards and Seismology

Saturday, March 12, 7:00 AM–6:30 PM

Meeting Room Hall D, Moscone Center

This jam-packed day of professional development starts with a ticketed breakfast and speaker and finishes with the NESTA Annual Membership meeting. We look forward to seeing you on Saturday, as well as at other scheduled NESTA events on Friday, including our three share-a-thons and Friends of Earth Science Reception. *See the Saturday daily program (Vol. 3) for details on NESTA Earth and Space Science Resource Day events.*

Saturday, March 12

7:00–8:30 AM	NESTA Earth and Space Science Resource Day Breakfast *Nob Hill A, Marriott* Featured Speaker Jesse F. Lawrence, Assistant Professor, Department of Geophysics, Stanford University, Stanford, Calif. *(This event was available from NESTA by preregistration only.)*
9:30–10:30 AM	NESTA Earthquake Hazards and Seismology Share-a-Thon
11:30 AM–12:30 PM	Advances in Earth and Space Science Lecture 1: Earthquake Forecasting in California Cynthia L. Pridmore, California Geological Survey, Sacramento
12:30–1:30 PM	Advances in Earth and Space Science Lecture 2: Imaging the Earth Beneath Our Feet—Pictures of the Earthquake-producing Machinery in the Western U.S. and Alaska Gary Fuis, U.S. Geological Survey, Menlo Park, Calif.
1:30–2:30 PM	Advances in Earth and Space Science Lecture 3: The Tortoise and the Hare—A Tale of Faults That Creep Matthew d'Alessio, California State University, Northridge
3:30–5:00 PM	National Earth Science Teachers Association Rock and Mineral Raffle
5:00–6:30 PM	NESTA Annual Membership Meeting

NSTA/SCST College Symposium

Nanotechnology: An Educational Symposium Jointly Sponsored by NSTA and SCST

Saturday, March 12, 9:30 AM–12 Noon

Continental 2, Hilton

Nanotechnology is the understanding and control of matter at dimensions between approximately 1 and 100 nanometers, where unique phenomena enable novel applications. This emerging science encompasses nanoscale science, engineering, and technology. Nanotechnology involves imaging, measuring, modeling, and manipulating matter at this length scale. This symposium will highlight the Tools of Nanotechnology, Nanobiotechnology for Health and Life, Informal Education in Nanotechnology, and Nanotechnology Curriculum Across Disciplines. *See the Saturday daily program (Vol. 3) for details.*

Following the symposium, don't miss the NSTA/SCST College Luncheon (Ticket M-9) from 12 Noon to 1:30 PM (see Vol. 3).

The Centers for Ocean Sciences Education Excellence (COSEE) Program

Saturday, March 12, 8:00 AM–5:00 PM

Willow, Marriott

Since 2002, the Centers for Ocean Sciences Education Excellence (COSEE) have worked to increase understanding of the ocean and its relevance to society. Primarily funded through the National Science Foundation, the COSEE network promotes partnerships between research scientists and educators, disseminates high-quality ocean sciences education resources, and promotes ocean science as a charismatic vehicle for learning at any age. COSEE sessions will highlight activities and products designed for classroom science teachers. Walk away with links to real-time data, relevant scientific resources, lesson plans, information on regional programs, and connections to a nationwide network of scientists and educators who are dedicated to improving ocean literacy. A list of COSEE events follows. *See the Saturday daily program (Vol. 3) for details.*

Saturday, March 12

8:00–9:00 AM	The Role of Discourse as Students Make Meaning of Science Concepts
9:00–10:00 AM	Linking the Ocean to the Classroom
10:00–11:00 AM	Satellites, Sounds, and Storms: Using Satellite Data and Podcasts to Study Coastal Storms
11:00–11:30 AM	What's That? An Inquiry-based Approach to Squid Dissections
11:30 AM–1:30 PM	COSEE Luncheon (By Invitation Only) Featured Speaker: David Hollander
1:30–2:30 PM	Linking Our Ocean and Climate Through Innovative Learning Connections: Part 1
2:30–3:00 PM	Linking Our Ocean and Climate Through Innovative Learning Connections, Part 2
3:00–3:30 PM	Ocean Observing Systems—Benefits for Teachers and Their Students
3:30–4:30 PM	Linking Physical Science and the Ocean
4:30–5:00 PM	Practical Applications of the Ocean Literacy Principles Scope and Sequence

NSTA Avenue Sessions

Visit the NSTA Avenue, our marketplace in the Exhibit Hall at Moscone Center, to learn about NSTA's products and services. Meet staff, register for the Learning Center, or become a member. We're looking for connections to educators with a passion for science education, and we welcome you to our network.

Thursday, March 10

2:00–3:00 PM

An Update on the Elementary and Secondary Act (No Child Left Behind)

Friday, March 11 (Volume 2)

8:00–9:00 AM

Siemens We Can Change the World Challenge: 21st-Century Tools for Project-Based Learning

9:30–10:00 AM

NSTA Teacher and Principal Awards and Recognitions

11:00 AM–12 Noon

Online Professional Development: Research on Teacher Perceptions, Learning Preferences, and Learning Outcomes for Self-directed NSTA Web Courses

12:30–1:30 PM

The Shell Science Teaching Award—Learn More, Be Successful

2:00–3:00 PM

Using the Online Quiz Manager Tool

3:30–4:30 PM

The NSTA Learning Center: Free Professional Development Resources and Opportunities for Educators

Project-Based Learning Through Disney's Planet Challenge

Saturday, March 12 (Volume 3)

11:00 AM–12 Noon

Spirit of Innovation Teacher Orientation

NSTA Press Sessions

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

Thursday, March 10

8:00–9:00 AM

Reflective Questions for Educators: Keeping Yourself Thoughtful

Successfully Integrating Science, Math, and Art Instruction

9:30–10:30 AM

Constructive Class Climate: Building a Self-Sufficient, Collaborative Community of Scientists

9:30–11:00 AM

Inside-Out: Grades 3–8 Environmental Science in the Field and the Classroom

12:30–1:30 PM

Outdoor Science

A Head Start on Science

2:00–3:00 PM

Brain-powered Science: Teaching and Learning with Discrepant Events

Planning and Designing Safe, Sustainable, and Flexible Facilities for Inquiry/Project-based Science (Science Facilities 101)

3:30–5:00 PM

The Architects Have Started Without Me: What Do I Do Now? (Science Facilities 102)

Friday, March 11 (Volume 2)

8:00–9:00 AM

This Is Not a Tech-Talk: A Discussion on 21st-Century Science Education

9:30–10:30 AM

SAFER Science: Laboratory Hazards You Must Deal With!

Developing Formative Assessment Probes Based on Learning Research

11:00 AM–12 Noon

SAFETY and LIABILITY: Is the Jury Out on Your Class?

Teaching for Conceptual Change

Picture-Perfect Science, K–4

12:30–1:30 PM

Blick on Flicks: Popular Media in the Classroom

Explicitly Teaching Students How to Take Collective Action During a Whole-Class Inquiry

2:00–3:00 PM

Spotlighting Books Co-Published by NSTA and NSELA and How to Use Them to Build Stronger Science Programs, K–16

Picture-Perfect Science, Grades 3–6

Uncovering Student Ideas in Physical Science: Electricity and Magnetism

3:30–4:30 PM

Uncovering Student Ideas in Life Science

3:30–5:00 PM

A Framework and Tools to Make Tough Science Topics Approachable for Grades 3–5

5:00–6:00 PM

Using Notebooks with Earth Science Success!

Saturday, March 12 (Volume 3)

8:00–9:00 AM

Predict, Observe, Explain: Activities Enhancing Scientific Understanding

Stop Faking It! Finally Understand FORCE and MOTION So You Can Teach It

9:30–10:30 AM

Stop Faking It! Finally Understand CHEMISTRY BASICS So You Can Teach It

Girls in Science—A Framework for Action

11:00 AM–12 Noon

Using the National Science Facilities Standards to Plan and Design Your School Science Classroom/Laboratory

Stop Faking It! Finally Understand LIGHT and SOUND So You Can Teach It

12:30–1:30 PM

Putting the Science into Your PLC: Tools for Professional Learning

Designing Effective Science Instruction

2:00–3:00 PM

Get the FACTs: Formative Assessment Classroom Techniques

Developing Visual Literacy in Science, K–8

2:00–6:00 PM

Lecture-Free Teaching: A Learning Partnership Between Science Educators and Their Students (By ticket: SC-22)

3:30–4:30 PM

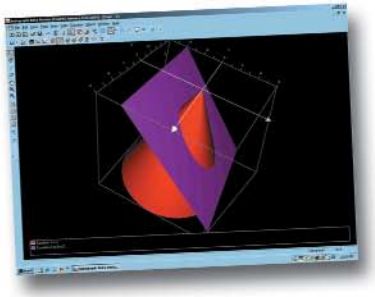
Uncovering Student Ideas with Everyday Science Mysteries

Uncovering Student Ideas in Physical Science: Force and Motion

Preparing our students for the 21st century...

Project-Based Inquiry Learning

Inquiry



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Tickets, if still available, can be purchased at the Ticket Sales Counter in the NSTA Registration Area. Tickets must be purchased by 5:00 PM on Friday, March 11.

Upon purchase of a ticket, participants may select three breakout sessions that best match their needs and interests.

Highly Effective Science Education: Integrating Science and Emerging Educational Technology in the Science Classroom

A Research Dissemination Conference for K–12 Teachers, Administrators, Professional Development Providers, University Faculty, and Curriculum Specialists (Ticket C-1)

Saturday, March 12, 7:45 AM–3:00 PM *(Breakfast begins at 7:00 AM)*
Yerba Buena Salon 7, Marriott

Research on science teaching and learning plays an important role in improving science literacy, a goal called for in the National Science Education Standards (NRC 1996) and supported by the National Science Teachers Association (NSTA 2003). NSTA promotes a research agenda that is focused on the goal of enhancing student learning through effective teaching practices that connect research and practice. NSTA encourages ALL participants in science education, including K–16 teachers of science and administrators, to recognize the importance of research and assume active roles in research practices.

NSTA Position Statement: The Role of Research on Science Teaching and Learning (adopted September 2010)

The overall objective of this daylong event is to:

- Disseminate current research on K–12 science education to practitioners and policy makers in order to promote its wide application to improve science teaching and student learning;
- Emphasize results that address key issues and concerns: student achievement, teacher retention, scalability, and sustainability;
- Allow teachers and administrators at school and district levels, as well as professional development providers, to learn about the implications of researchers' work for classroom practice and professional development.

Plenary Speakers:

Barbara Lockee, President, Association for Educational Communications and Technology, Professor for Instructional Design and Technology, and Associate Director of Research and Outreach, School of Education, Virginia Tech, Blacksburg

John Burton, Professor for Instructional Design and Technology, School of Education, Virginia Tech, Blacksburg

Agenda

7:00–7:45 AM	Continental Breakfast
7:45–8:00 AM	Welcome and Introductions Zipporah Miller, *NSTA Associate Executive Director for Professional Programs and Conferences* Francis Q. Eberle, *NSTA Executive Director*
8:00–8:45 AM	Plenary Session I: *From Silent Films to Virtual Worlds: A Historical Look at the Research on Educational Technology* Barbara Lockee and John Burton
8:50–10:25 AM	Breakout Block A
10:30 AM–12 Noon	Breakout Block B
12 Noon–12:45 PM	Lunch
12:50–2:20 PM	Breakout Block C
2:25–3:00 PM	Plenary Session II: *Reflection and Discussion* Barbara Lockee and John Burton

Highly Effective Science Education: Integrating Science and Emerging Educational Technology in the Science Classroom

Breakout Session C-2

(Yerba Buena Salon 2)

Integrating Connective Technology and Earth Boxes into Middle School Science Curricula

Pamela Fraser-Abder and **Robert Wallace,** New York University, New York, N.Y.

Paul Jablon, Lesley University, Cambridge, Mass.

Erik Ramírez Ruiz, National Council for Community and Education Partnerships México, Monterrey Nuevo León

Amy McMillen, Food and Agriculture Organization of the United Nations, Washington, D.C.

Breakout Session C-3

(Yerba Buena Salon 3)

The NASA Electronic Professional Development Network (ePDN): Online Professional Development Courses for Teachers

Meltem Alemdar, Michael Ryan, and **Jeff Rosen,** Center for Education Integrating Science, Mathematics, and Computing (CEISMC), Georgia Institute of Technology, Atlanta

Tony Docal, Orbit Education, Inc., Roswell, Ga.

Breakout Session C-4

(Yerba Buena Salon 4)

Science in the "Clouds": Exploring the Integration of Cloud-computing Tools Within Inquiry-based Science Instruction and Professional Development Settings

Joel D. Donna, University of Minnesota, Minneapolis

Brant G. Miller, University of Idaho, Moscow

Breakout Session C-5

(Yerba Buena Salons 2 and 5)

Moonbase Alpha: A NASA Serious Game

Daniel Laughlin, NASA Learning Technologies, Washington, D.C.

Breakout Session C-6

(Yerba Buena Salon 6)

Teaching "Evolution Readiness" to Fourth-Graders: Does Technology Help?

Linda Lacy, North Kansas (Mo.) City Schools

Chad Dorsey, Paul Horwitz, and **Carolyn Staudt,** The Concord Consortium, Concord, Mass.

Laura O'Dwyer, Boston College, Chestnut Hill, Mass.

Breakout Session C-7

(Yerba Buena Salon 10)

Adding Value to Instruction with Strategic Use of Online Collaboratives

Laurie Ruberg, Debra C. Burkey Piecka, and **Manetta Calinger,** Wheeling Jesuit University, Wheeling, W.Va.

Breakout Session C-8

(Yerba Buena Salon 11)

Linking Student Achievement, Teacher Professional Development, and the Use of Inquiry-based Computer Models in Science

Daniel Damelin, The Concord Consortium, Concord, Mass.

Breakout Session C-9

(Yerba Buena Salon 12)

The Virtual Populations Genetics (VPG) Simulation System: An Example of Learning "with" Cyber-enabled Technologies in Science Classrooms

Aaron M. Duffy, Todd Campbell, and **Paul G. Wolf,** Utah State University, Logan

Breakout Session C-10

(Yerba Buena Salons 1 and 3)

Professional Development Programs Employing Geospatial Technologies and Problem-based Instruction to Promote Scientific Inquiry

Lori Rubino-Hare, Jennifer Claesgens, and **Kristi Fredrickson,** Northern Arizona University Center for Science Teaching and Learning, Flagstaff

Breakout Session C-11

(Yerba Buena Salon 5)

Teaching Spatial Literacy Through Geospatial Technologies in the Science Curriculum

Rita A. Hagevik, Patty Stinger-Barnes, and **Jessica Horton,** The University of Tennessee, Knoxville

Breakout Session C-12

(Yerba Buena Salons 4 and 11)

Effective Use of Technology in Modeling-based Inquiry Science Education

Jana Bouwma-Gearhart and **Andrew Bouwma,** University of Kentucky, Lexington

Sarah Adumat, University of Wisconsin–Madison

Breakout Session C-13

(Yerba Buena Salons 6 and 12)

What Do Engineers *Really* Do and How Can I Make It Work in My Classroom?

Ann P. McMahon, K–16 STEM Education Consultant and Professional Developer, and Doctoral Candidate in Science Education, University of Missouri–St. Louis

Breakout Session C-14

(Yerba Buena Salons 3 and 10)

Hands-On Workshop: Using Mobile Learning Devices for Science Education in K–12

Cathie Norris, University of North Texas, Denton

Elliot Soloway, University of Michigan, Ann Arbor

Breakout Session C-15

(Yerba Buena Salon 13)

Online Professional Development: Applying What the Research Says for Effective Learning

Al Byers, Assistant Executive Director, e-Learning and Government Partnersrhips, NSTA, Arlington, Va.

Breakout Session C-16

(Yerba Buena Salon 1)

Focus On Diagnostic Formative Assessment and Associated Tools

Jim Minstrell, FACET Innovations, Seattle, Wash.

Angela DeBarger and **Bill Penuel,** SRI International, Menlo Park, Calif.

NSTA Professional Development Institutes

Wednesday, March 9
8:30 AM–4:00 PM

PDIs and work sessions were available by preregistration only.

Key topics in science teaching for learning are explored. NSTA professional development institutes (PDIs) are focused, content-based programs conducted by well-known professional development providers and NSTA partners. Each PDI begins with a full-day preconference session on Wednesday, March 9, followed by two days of pathway sessions during the conference that offer further exploration of the topics covered. The two work sessions are one-day sessions at a reduced fee because they do not include pathway sessions. Check-in opens at 8:30 AM.

Using Mathematical Representations to Talk About, Model, and Explain Scientific Phenomena (PDI-1)

Offered by TERC *(www.terc.edu)*

Sally Crissman and **Sue Doubler**, TERC, Cambridge, Mass.
Level: Middle Level
Location: Yerba Buena Salon 1, Marriott

Learn strategies for working with data to deepen all students' scientific understanding, habits of mind, and ability to reason critically and flexibly.

TERC Pathway Sessions
All sessions are located in Yerba Buena Salon 1. See daily program for details.

Thursday, March 10
8:00–10:00 AM
From Cells to Sea Ice: Analyzing Data from Digital Images

12:30–2:30 PM
Providing Access to Science for Students with Learning Disabilities

3:30–5:30 PM
Didn't We Do Graphs Like That in Math?

Friday, March 11
8:00–10:00 AM
Using Computer Tools to Visualize and Analyze Data

12:30–2:30 PM
Making Science Spatial

3:30–5:00 PM
Listen to the Data

Inquiring into Inquiry: Creating an Inquiry-based Classroom (PDI-2)

Offered by BSCS Center for Professional Development *(www.bscs.org)*

Elizabeth Edmondson, BSCS, Colorado Springs, Colo.
Level: Elementary–High School
Location: Yerba Buena Salon 2, Marriott

Experience the role inquiry plays in student learning and teacher professional development. Learn how to apply these experiences to engage students in your classroom.

BSCS Pathway Sessions
All sessions are located in Yerba Buena Salon 2. See daily program for details.

Thursday, March 10
8:00–9:00 AM
Looking for PCK (Pedagogical Content Knowledge) in All the Wrong Places?

9:30–10:30 AM
Science Teachers Learning from Lesson Analysis (STeLLA)

11:00 AM–12 Noon
How "Educative" Curriculum Materials Help Teach for Understanding

12:30–1:30 PM
Evolution and Medicine

2:00–4:00 PM
Amplifying Your Curriculum Through Argumentation

5:00–6:00 PM
Investigating Models for Earth's Climate

Friday, March 11
8:00–10:00 AM
Identifying and Using Strategies to Help Your Students Make Sense of Concepts in Science

11:00 AM–12 Noon
Can Supportive Instructional Materials Increase the Use of Best Practices in Science Teaching?

12:30–1:30 PM
Using Rare Diseases to Teach About Scientific Inquiry

2:00–4:00 PM
Using Science Notebooks to Develop Conceptual Understanding in Science

5:00–6:00 PM
Evaluating Instructional Materials Using Rubrics

Deepening Science Thinking and Reasoning Through Discussion and Writing in K–5 Inquiry-based Science (PDI-3)

Offered by the Center for Science Education, Education Development Center, Inc. *(cse.edc.org)*

Jeff Winokur and **Karen Worth,** Education Development Center, Inc., Newton, Mass.
Martha Heller-Winokur, Teaching and Learning Alliance, Inc., Woburn, Mass.
Level: Elementary
Location: Yerba Buena Salon 3, Marriott

Learn how to use multiple forms of representation, writing, and discussion to enhance students' conceptual understanding, along with in-depth exploration of the roles of oral and written language.

EDC Pathway Sessions
All sessions are located in Yerba Buena Salon 3. See daily program for details.

Thursday, March 10
8:00–10:00 AM
Elementary Science Discussions: The Art of Whole Group Talk

12:30–2:30 PM
The Role of Explicit Teaching

3:30–5:30 PM
Expository Writing and Science Notebooks

Friday, March 11
8:00–10:00 AM
Writing in Science Using Firsthand Data

12:30–2:30 PM
Yes, Little Ones Can Argue!

Science in Context: Helping Students Develop 21st-Century Skills Through Issue-oriented Science (PDI-4)

Offered by Science Education for Public Understanding Program (SEPUP) of the Lawrence Hall of Science, University of California, Berkeley *(www.sepup.lhs.org)*

Barbara Nagle, John Howarth, Maia Willcox, and **Laura Lenz,** Lawrence Hall of Science, University of California, Berkeley
Level: Middle Level–High School
Location: Yerba Buena Salon 4, Marriott

Learn the ways issue-oriented science units can provide rigorous science content and process, and what are the characteristics of high-quality issue-oriented science.

SEPUP Pathway Sessions
Most sessions are located in Yerba Buena Salon 4. See daily program for details.

Thursday, March 10
8:00–9:00 AM
Developing Literacy and Addressing Content Standards Through Issue-oriented Science

9:30–10:30 AM
Alternative Energy and Transportation: Hydrogen Fuel Cell and Other Bus Technologies

12:30–1:30 PM
Life Science Issues: Integrating Biodiversity into the Teaching of Ecology and Evolution

2:00–3:00 PM
Green Chemistry: Using Chemistry Knowledge to Inform Societal Decisions

3:30–4:30 PM
Integrating Sustainability-related Issues into the Science Classroom

Friday, March 11
8:00–9:00 AM
Using Simulations and Modeling in an Issues-based Science Classroom

9:30–10:30 AM
Differentiated Instruction Related to Science and Societal Issues

11:00 AM–12 Noon
How Media Literacy Influences Thinking About Socio-scientific Issues

12:30–1:30 PM
Assessing 21st-Century Skills in an Issue-oriented Science Classroom

2:00–3:00 PM
Integrating World Health Issues into High School Cell Biology

3:30–4:30 PM
Getting Kids Invested with Stories: The Car of the Future and Energy Conversions

5:00–6:00 PM
Teaching Core Genetics Concepts Through Issues Related to Genetically Modified Foods

Going with the Conceptual Flow: Bridging the Gap Between Your State Standards, Curriculum Materials, and Student Learning (PDI-5)

Offered by WestEd *(www.wested.org)*

Kathy DiRanna, Jo Topps, and **Karen Cerwin,** WestEd, Santa Ana, Calif.
Level: Elementary–High School
Location: Yerba Buena Salon 5, Marriott

Explore how instructional materials can be analyzed for their instructional design, coherence of activities to build student understanding, and usefulness as assessments of measuring students' understanding.

WestEd Pathway Sessions
All sessions are located in Yerba Buena Salon 5. See daily program for details.

Thursday, March 10
8:00–11:00 AM
The TLC Is a PLC!

12:30–3:30 PM
Understanding the Conceptual Flow in Instructional Materials

Friday, March 11
8:00–11:00 AM
Assessment-centered Teaching: A Reflective Practice

12:30–2:30 PM
Developing Rubrics and Appropriate Feedback

3:30–4:30 PM
Targeted Intervention Matter: Improving Student Graphing

Improving Student Learning Through Formative Assessment (PDI-6)

Offered by Lawrence Hall of Science

Brian Campbell, **Linda De Lucchi, Kathy Long, Larry Malone,** and **Terry Shaw,** Lawrence Hall of Science, University of California, Berkeley
Cathy Kennedy, Assessment and Psychometrics Consultant, San Mateo, Calif.
Level: Grades 3–8
Location: Yerba Buena Salon 6, Marriott

Learn about the design and use of formative assessments in science classrooms (grades 3–8). The assessment triangle from the National Research Council report *Knowing What Students Know (Cognition—Observation—Interpretation)* provides the framework.

LHS Pathway Sessions
Most sessions are located in Yerba Buena Salon 6. See daily program for details.

Thursday, March 10
8:00–10:00 AM
Looking at Student Work: Where to Focus/What to Do

12:30–1:30 PM
The Promise of Formative Assessment

2:00–3:00 PM
Protocols for Observing Formative Assessment in the Classroom

3:30–5:30 PM
Supporting Teachers Implementing Formative Assessment Practices

Friday, March 11
8:00–11:00 AM
Assessment-centered Teaching: A Reflective Practice

12:30–2:30 PM
Using Online Tools to Support Assessment for Learning

3:30–4:30 PM
Affordances of Technology in Formative Assessment

Science for English Language Learners: Adaptations for Inquiry Science Teaching While Building Language Skills (PDI-7)

Offered by University of Nevada, Reno/David T. Crowther

David T. Crowther, University of Nevada, Reno
Level: Elementary–High School
Location: Yerba Buena Salon 10, Marriott

Discover strategies for teaching science and increasing content vocabulary modeled through both scaffolding content and tiered vocabulary.

ELL Pathway Sessions
All sessions are located in Yerba Buena Salon 10. See daily program for details.

Thursday, March 10
8:00–9:00 AM
Seven Strategies to Scaffold Language and Learning

9:30–10:30 AM
Engaging ELL Students in Scientific Discourse Using Seven Strategies

12:30–1:30 PM
Scaffolding English Language Learners' Experiences with Science Texts

Friday, March 11
8:00–9:00 AM
Science Notebooks for English Language Learners

9:30–10:30 AM
We Do Science Here! The Administrator's Role in a Title I (K–5) Science-intensive Public School

11:00 AM–12 Noon
Science for ELL: Modifications to SIOP for Inquiry Instruction

12:30–1:30 PM
From Magic to Misconceptions: Developing Academic Language Through Science for English Language Learners

One-Day Work Session on Learning Progressions: Moving Up in the World of Educational Effectiveness (PDI-8)

Offered by The Center of Science and Mathematics in Context (COSMIC), University of Massachusetts, Boston

Arthur Eisenkraft, 2000–2001 NSTA President, and Center of Science and Math in Context (COSMIC), University of Massachusetts, Boston
Jennifer Dorsen and **Allison Scheff,** Boston Science Partnership, Boston, Mass.
Pamela Pelletier, Suzanne Gill, Jonathan McLaughlin, Beverly Nadeau, Erin Hashimoto-Martell, Haven Ripley Daniels, Fiona Bennie, and **Michael Clinchot,** Boston (Mass.) Public Schools
Hannah Sevian, National Science Foundation and University of Massachusetts, Boston
Level: K–12
Location: Yerba Buena Salon 11, Marriott

Explore vertical articulation of K–12 science curricula through vertical teaming, vertical collaborative coaching, and learning in science. Participants will map science concepts from elementary to high school curricula including AP.

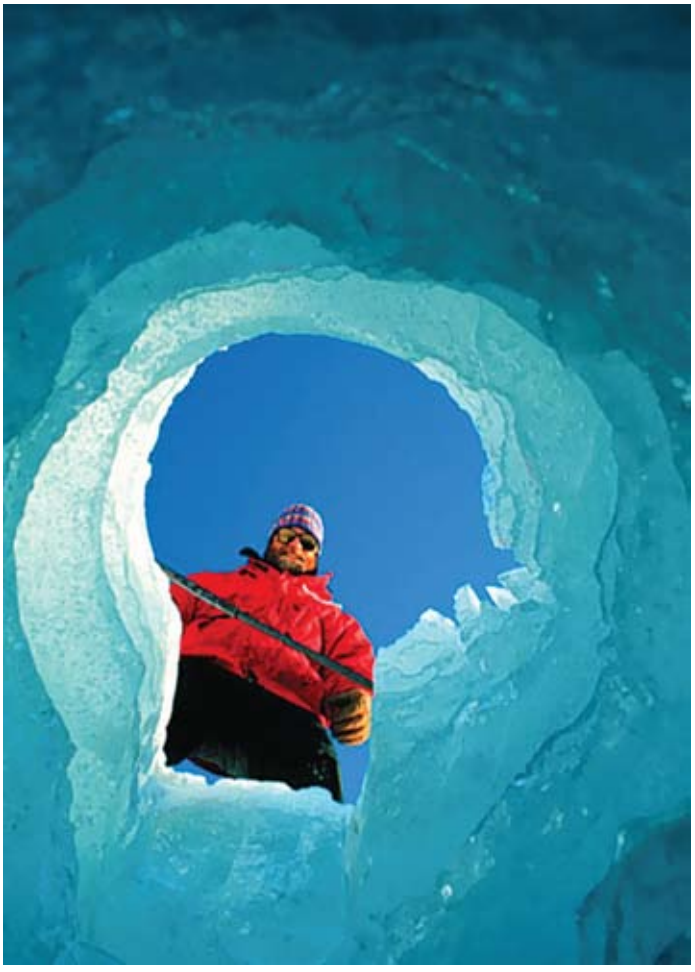
One-Day Work Session on Designing Effective Science Instruction: Developing Student Understanding Through Classroom Inquiry, Discourse, and Sense-Making (PDI-9)

Offered by Mid-continent Research for Education and Learning (McREL)

Anne Tweed, 2004–2005 NSTA President, and Mid-continent Research for Education and Learning (McREL), Denver, Colo.
Sarah LaBounty, Mid-continent Research for Education and Learning (McREL), Denver, Colo.
Level: K–16
Location: Yerba Buena Salon 12/13, Marriott

Improve your ability to plan and deliver effective lessons to diverse student populations using a three-part framework of content, understanding, and environment.

—Photo courtesy of John Priscu



Clues to the Cryosphere: Lessons from the Ice (SYM-4)

NSTA symposia are high-quality professional development opportunities that include a face-to-face learning symposium at the conference followed by two NSTA web seminars and a discussion forum within NSTA Communities that allow for extended interaction between participants and presenters. Designed to enhance teachers' knowledge of both science content and best teaching practices, symposia are standards based and presented by scientists, engineers, and educational specialists from NSTA partners such as FDA, NOAA, EPA, NSF, and the U.S. Forest Service. Admission to NSTA symposia is by ticket only and requires conference registration.

Tickets, if still available, can be purchased at the Ticket Sales Counter in the NSTA Registration Area.

Climate Change Here and Now: Impacts on Western Coasts, Ocean, and Atmosphere (SYM-1)

Carol Preston, Gulf of the Farallones National Marine Sanctuary, San Francisco, Calif.
Julie Bursek *(julie.bursek@noaa.gov),* Channel Islands National Marine Sanctuary, Santa Barbara, Calif.
Ann Garrett *(ann.garrett@noaa.gov),* NOAA Fisheries Southwest Region, Northern California Office, Arcata
Judy Koepsell *(judy.koepsell@noaa.gov),* NOAA's National Weather Service, Silver Spring, Md.
Peg Steffen *(peg.steffen@noaa.gov)* and **Bruce Moravchik** *(bruce.moravchik@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.
Level: Grades 5–12
Date/Time: Thursday, March 10, 8:00 AM–12:30 PM
Location: Golden Gate C2, Marriott
Registration Fee: $54

During this half-day climate symposium, scientists and education specialists from the National Oceanic and Atmospheric Administration (NOAA) will discuss the latest findings about the impacts of climate change on West Coast ecosystems, coastlines, water resources, and species. Participants will learn about regional efforts to monitor and understand climate changes and provide ideas and resources that translate climate science for the classroom. Participants will be provided with educational materials, including classroom activities that aim to create ocean- and climate-literate students who can make informed decisions in the future.

NOAA is pleased to provide a stipend of $60 to all symposium participants upon completion.

Related NOAA sessions open to all conference attendees. See the daily program for details.

Fri., March 11, 2:00–3:00 PM
Global Climate Change Impacts in the United States

Fri., March 11, 3:30–4:30 PM
Highlights from Ongoing Climate and Wetland Research in San Francisco Bay and at Other National Estuarine Research Reserves

Fri., March 11, 5:00–6:00 PM
Impacts of Climate Change on Fisheries and Protected Marine Resources

Sat., March 12, 2:00–3:00 PM
Climate Change Impacts to the North-Central California Coast

Sat., March 12, 3:30–4:30 PM
Corals, Tech, and Carbon

Sat., March 12, 5:00–6:00 PM
NOAA Climate Change Here and Now: Impacts on the West (Drought and Severe Storms)

NOAA/USFS/EPA Symposium: Climate Change Here and Now: Communicating and Teaching About Climate Change (SYM-2)

Vicki Arthur *(varthur@fs.fed.us)* and **Safiya Samman** *(ssamman@fs.fed.us),* USDA Forest Service, Washington, D.C.
Karen Scott *(scott.karen@epa.gov),* U.S. Environmental Protection Agency, Washington, D.C.
Bruce Moravchik *(bruce.moravchik@noaa.gov)* and **Peg Steffen** *(peg.steffen@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.
Level: General
Date/Time: Thursday, March 10, 1:30–6:00 PM
Location: Golden Gate C2, Marriott
Registration Fee: $54

During this half-day symposium, scientists and education specialists from EPA, NOAA, and the U.S. Forest Service will present information about how to address climate science and impacts, common misconceptions about climate, the processes of science, and controversial issues in the classroom. Participants will be provided with resources and classroom activities that highlight the choices we face in response to climate change and the development of climate-literate citizens. Visit *http://fs.usda.gov/conservationeducation* for more information.

The EPA, NOAA, and the U.S. Forest Service are pleased to provide a stipend of $60 to all symposium participants upon completion.

Related sessions open to all conference attendees. See the daily program for details.

Fri., March 11, 8:00–9:00 AM
Climate Change Research: What We Have Learned Over the Past 20 Years

Fri., March 11, 9:30–10:30 AM
Climate Change Education Resources Help You Bring Climate Change Education Home to Your Students

Fri., March 11, 11:00 AM–12 Noon
How EPA Communicates with the Public on the Climate Change Issue

Sat., March 12, 8:00–9:00 AM
EPA Climate Change Action Updates

Sat., March 12, 9:30–10:30 AM
Climate Toolkits: New Tools for Educators

Sat., March 12, 11:00 AM–12 Noon
Climate's Canary in a Coal Mine: Arctic Sea Ice

FDA/NSTA Symposium: Teaching Nutrition Science and the Food Label (SYM-3)

Crystal Rasnake and **Blakeley Denkinger,** U.S. Food and Drug Administration, College Park, Md.
Elena Stowell *(elena.stowell@kent.k12.wa.us),* Kentwood High School, Covington, Wash.
Mimi Cooper *(mimicooper@verizon.net),* Consultant, Green Cove Springs, Fla.
Level: Grades 5–12
Date/Time: Friday, March 11, 8:00 AM-12:30 PM
Location: Golden Gate C1, Marriott
Registration Fee: $54

Learn the basics of nutrition science, nutrition-related health trends in the U.S., the scientific basis for the percent daily values (% DVs) on the Nutrition Facts Label, what teaching resources FDA has developed, and much more. FDA scientists and master teachers will lead participants in hands-on, inquiry-oriented activities that enable students to experience several National Science Education Standards, including those for Science in Personal Health and Social Perspectives.

All participants will receive educational materials and information about resources available on the FDA website. A drawing for door prizes will take place at the end of the program, and refreshments will be available.

FDA is pleased to provide a stipend of $60 to all symposium participants upon completion.

Related FDA sessions open to all conference attendees. See the daily program for details.

Fri., March 11, 2:00–3:00 PM
The Science of Food Safety

Fri., March 11, 3:30–4:30 PM
Science and Our Food Supply (Supplementary Curriculum)

Fri., March 11, 5:00–6:00 PM
Elementary-Level Food Safety and Nutrition Education

Clues to the Cryosphere: Lessons from the Ice (SYM-4)

Ed Brook *(brooke@geo.oregonstate.edu),* Oregon State University, Corvallis
Christine Foreman *(cforeman@montana.edu)* and **Susan Kelly** *(susan.kelly@montana.edu),* Montana State University, Bozeman
Ross Powell *(ross@geol.niu.edu),* Northern Illinois University, DeKalb
Louise Huffman *(lhuffman@andrill.org),* University of Nebraska–Lincoln
Linda M. Morris *(linda.m.morris@dartmouth.edu),* Dartmouth College, Hanover, N.H.
Cristina Takas-Vesbach *(cvesbach@unm.edu),* The University of New Mexico, Albuquerque
Slawek Tulaczyk *(tulaczyk@pmc.ucsc.edu),* University of California, Santa Cruz
Michael Gooseff *(mgooseff@ungr.psu.edu),* The Penn State University, University Park
Level: Grades 7–12
Date/Time: Friday, March 11, 1:30–6:00 PM
Location: Golden Gate C2, Marriott
Registration Fee: $54

Rapid change coupled with new discoveries make the polar regions an exciting area to study and explore. Sponsored by the National Science Foundation's Polar Program Office, this interactive half-day symposium features scientists working in the Arctic and Antarctic. Join us to learn more about the latest in polar science research and participate in hands-on classroom activities on polar science.

Topics include an overview of the polar regions and the impact of changes there, and we will learn about ice cores and what they tell us about climate. We will also focus on microbial life in ice and discuss how this growing area of research is transforming our ideas about biodiversity and the carbon cycle. A one-hour panel discussion with six polar scientists will conclude the symposium and provide time for one-on-one interaction. All participants will receive educational materials and resources from a variety of NSF-funded polar projects and learn about ongoing education and outreach opportunities for educators.

Related NSF sessions open to all conference attendees. See the daily program for details.

Sat., March 12, 8:00–9:00 AM
The McMurdo Dry Valleys of Antarctica: Harshest Place on Earth or a Polar Oasis?

Sat., March 12, 9:30–10:30 AM
Science Is Cool! Using Polar Science Resources in the Classroom

Sat., March 12, 11:00 AM–12 Noon
Under the Ice: Studying One of the Last Unexplored Aquatic Environments on Earth

Sat., March 12, 12:30–1:30 PM
How Are Arctic Landscapes Responding to Permafrost Degradation Under a Warming Climate?

Sat., March 12, 2:00–3:00 PM
Warming Oceans, Rising Sea Levels, and the West Antarctic Ice Sheet

Sat., March 12, 3:30–4:30 PM
Icy Life on Earth and Beyond?

Sat., March 12, 5:00–6:00 PM
The Western Antarctic Ice Sheet Divide: A U.S. Deep Ice Coring Project

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

NSTA 2011 San Francisco National Conference
Professional Development Documentation Form

All attendees can evaluate concurrent teacher and exhibitor sessions online while simultaneously tracking professional development certification (based on clock hours). Use this form to keep track of all sessions/events attended during the San Francisco conference. Sessions/events such as field trips, short courses, featured speakers, the General Session, meetings, and exhibit hall visits are not available for online evaluation. However, these events still qualify for professional development.

Beginning March 29, 2011, San Francisco transcripts can be accessed at *www.nsta.org/transcripts* by logging on with your San Francisco Badge ID#. Keep this form and use it to add the following activities to your San Francisco transcript. Completed transcripts can be printed from this website and presented to an administrator who requires documentation of participation in the conference. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.

First Name: _____ **Last Name:** _____ **Badge ID#** _____

Visit ***www.nsta.org/evaluations*** to evaluate sessions (workshops, presentations, and exhibitor workshops) online. Attendees can use the computers at the Presenters/Presiders booth in the Registration Area or on the e-mail stations in both the Exhibit Hall and the Registration Area. See page 22 of the conference program for instructions.

Sample Questions:

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

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

Wednesday, March 9 6:30 AM–10:30 PM

Start Time	End Time	Activity/Event Title

Thursday, March 10 7:30 AM–12 Midnight

Start Time	End Time	Activity/Event Title

Friday, March 11 7:00 AM–12 Midnight

Start Time	End Time	Activity/Event Title

Saturday, March 12 8:00 AM–12 Midnight

Start Time	End Time	Activity/Event Title

Sunday, March 13 8:00 AM–12 Noon

Start Time	End Time	Activity/Event Title

Photo courtesy of Chabot Space & Science Center

Teachers from Oakland Unified School District assemble Galileoscopes at a workshop in October 2009 (SC-2).

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

Communicating Science PD: Practicing What You Preach (SC-1)

Kevin Beals *(kbeals@berkeley.edu)* and **Lynn Barakos** *(lbarakos@berkeley.edu)*, Lawrence Hall of Science, University of California, Berkeley
Level: General
Date/Time: Thursday, March 10, 8:00–11:00 AM
Location: Conference Theatre, Grand Hyatt
Registration Fee: $21

Learn how to lead professional development for science educators where we practice what we preach. We now know much about how people learn, and this information applies to both adult learners and children. Participants will not be told what to think about the pedagogy presented here, but rather will discover the benefits of these approaches to science teaching by directly experiencing how they support their own learning. Engage in hands-on activities and small group discussions. Handouts provided. Professional development modules are accessible for free online and cover pedagogical topics such as the learning cycle, the nature of science, questioning strategies, and addressing alternative conceptions.

Telescopes and Optics: Build a Galileoscope (SC-2)

Benjamin Burress *(bburress@chabotspace.org)*, Chabot Space & Science Center, Oakland, Calif.
Edna DeVore *(edevore@seti.org)*, SETI Institute, Mountain View, Calif.
Level: Elementary–High School
Date/Time: Thursday, March 10, 8:00–11:00 AM
Location: Union Square, Grand Hyatt
Registration Fee: $43

Explore hands-on optics activities and build an easy-to-assemble telescope. Learn about Galileo and how his astronomical discoveries revolutionized science and human history. Developed for the International Year of Astronomy 2009 by a team of leading astronomers, optical engineers, and science educators, this telescope enables users to see the celestial wonders that Galileo first glimpsed 400 years ago. These wonders include lunar craters and mountains, four moons circling Jupiter, the phases of Venus, Saturn's rings, and countless stars invisible to the unaided eye. Observation lesson plans are also provided.

An Ocean Sciences Curriculum Sequence for Grades 3–5 (SC-3)

Catherine Halversen *(chalver@berkeley.edu)*, **Craig Strang** *(cstrang@berkeley.edu)*, **Emily Weiss** *(weisse@berkeley.edu)*, and **Kevin Beals**, Lawrence Hall of Science, University of California, Berkeley
Level: Elementary
Date/Time: Thursday, March 10, 8:00–11:00 AM
Location: San Francisco A/B, Grand Hyatt
Registration Fee: $58

Immerse yourself in inquiry-based activities designed to bring ocean sciences to life for elementary classrooms nationwide. The Lawrence Hall of Science, University of California, Berkeley; Rutgers University; and the National Oceanic and Atmospheric Administration (NOAA) have collaborated to develop an innovative, new ocean sciences curriculum called the Ocean Sciences Sequence (OSS) for Grades 3–5. OSS addresses state and national science standards and the Ocean Literacy Scope & Sequence for Grades K–12. This short course will engage participants in activities from the curriculum and introduce the Ocean Literacy Scope & Sequence. Each participant will receive one unit and background information for the entire curriculum sequence on a CD, and a copy of the Ocean Literacy Scope and Se-

quence to take back to share with their students and colleagues. Refreshments will be served.

The Role of Discourse and Writing in Inquiry Science at the Upper Elementary Level (SC-4)

Jeff Winokur *(jwinokur@edc.org)*, Education Development Center, Inc., Newton, Mass.
Martha Heller-Winokur *(mwinokur@rcn.com)*, Teaching and Learning Alliance, Inc., Woburn, Mass.
Level: Grades 3–6
Date/Time: Thursday, March 10, 8:00–11:00 AM
Location: San Miguel, Grand Hyatt
Registration Fee: $41

This short course will focus on the role of discourse and writing in inquiry-based science, particularly the development of student scientific reasoning and conceptual understanding. Discuss the critical roles language plays and explore connections between literacy and science in classrooms in which students plan investigations, document work in science notebooks, develop written reports, and discuss and debate in small and large groups. View video clips of classrooms, review student work, and discuss implications for teaching both science and literacy. Attention will be paid to how speaking, listening, and writing can be reinforced and applied in science.

✔ Science as Inquiry: Using Language Processes to Understand Physical Processes (SC-5)

Claudio Vargas B. *(cvargasb@berkeley.edu)* and **Diana Vélez** *(dvelez@berkeley.edu)*, University of California, Berkeley
Joanna Totino, Lawrence Hall of Science, University of California, Berkeley
Level: Elementary–Middle Level
Date/Time: Thursday, March 10, 8:00–11:00 AM
Location: Sausalito, Grand Hyatt
Registration Fee: $41

Explore ways to use oral discourse and writing strategies, protocols for analyzing student work, and next-step strategies to develop science thinking, reasoning, and understanding. Participants will engage in a hands-on physical science lesson. Strategies will focus on guiding students through the complex processes of making sense of their hands-on science experience. Target instructional areas include critically and logically thinking about relationships between evidence and explanations, constructing and analyzing alternative explanations, and communicating scientific arguments. We will also model protocols for looking at student work (notebook entries) to check for understanding and deepening student learning with self-assessments.

Engaging Students in Model-based Reasoning (SC-6)

Cynthia Passmore *(cpassmore@ucdavis.edu)* and **Wendell Potter** *(whpotter@ucdavis.edu)*, University of California, Davis
SOLD OUT
Level: Secondary Level
Date/Time: Thursday, March 10, 1:00–5:00 PM
Location: San Miguel, Grand Hyatt
Registration Fee: $34

Come explore an innovative pedagogical approach that engages students in reasoning like scientists and takes advantage of what is known about how students learn. When using model-based reasoning, students must confront their prior knowledge and develop a conceptual framework they can work with. As students move from identifying phenomena to explaining it, they can monitor their own learning. In this course, we hope to motivate you to become better versed in this approach to science education. The majority of the course will be spent demonstrating how powerful model-based reasoning can be by engaging participants in a series of short activities that highlight different aspects of the approach.

✔ Inspire Middle and High School Girls Toward Careers in Science (SC-7)

Shyno Chacko Pandeya, WGBH, Boston, Mass.
Level: Middle Level–High School
Date/Time: Thursday, March 10, 2:00–5:00 PM
Location: Conference Theatre, Grand Hyatt
Registration Fee: $23

Connect your curriculum to your students' future careers! Learn about and access free research-based multimedia resources from a panel of STEM professionals and educators. Women in the field will talk about how mentors influenced their study and career paths. Be an advocate for your female students by sparking their interest in STEM careers. Learn why academically prepared girls steer away from STEM careers and how new research-based messaging campaigns are changing that trend. Participate in hands-on activities to develop marketing materials for your courses or activities that will encourage girls to join in.

English Language Learner Strategies for Success in Secondary Science (SC-8)

Jennifer Jordan-Kaszuba *(jennifer.jordan-kaszuba@esc13.txed.net)*, Education Service Center Region XIII, Austin, Tex.
Martha Alexander *(malexander@esc18.net)* and **Sandra Casimir** *(scasimir@esc18.net)*, Region 18 Education Service Center, Midland, Tex.
Judy York *(jyork@esc12.net)*, Education Service Center 12, Waco, Tex.
Carol Fletcher *(carol.fletcher@mail.utexas.edu)*, The University of Texas at Austin
Level: Secondary Level
Date/Time: Friday, March 11, 8:00–11:00 AM
Location: Union Square, Grand Hyatt
Registration Fee: $58

This session incorporates the work of the Texas Regional Collaboratives (TRC) for Excellence in Science and Mathematics Education, an organization of more than 60 grant programs from across Texas. Experience the frustration of being an English language learner student and then learn how to structure your classroom and lessons to help students develop their academic language skills. Discussion will center on research-based strategies involving classroom culture, peer-to-peer conversations, writing language objectives, total physical response, scaffolding instruction, and graphic organizers. For more details, go to *www.thetrc.org*.

Building a Classroom Planetarium (SC-9)

Jeff Adkins *(astronomyteacher@mac.com)*, Deer Valley High School, Antioch, Calif.
SOLD OUT
Level: General
Date/Time: Friday, March 11, 8:00–11:00 AM
Location: Merced A/B, Grand Hyatt
Registration Fee: $35

Learn how to build a geodesic dome in your classroom and turn it into a working planetarium—at minimal cost! New and improved instructions show how to construct sturdy domes capable of holding 20–25 students. I'll also share resources for using commercial small planetaria and creating your own projector (both traditional pinhole-based projectors and adapted classroom digital projectors). Take home a CD-ROM with session instructions and the open-source planetarium program *Stellarium*.

The Young Scientist: Engaging Three- to Five-Year-Old Children in Science (SC-10)

Karen Worth *(kworth@edc.org)*, Education Development Center, Inc., Newton, Mass.
SOLD OUT
Level: Preschool–Early Elementary
Date/Time: Friday, March 11, 8:00–11:00 AM
Location: San Miguel, Grand Hyatt
Registration Fee: $43

Learn how to provide rich and challenging early childhood experiences that engage young children in in-depth exploration of science concepts. Three- to five-year-olds want to make sense of their environment; they ask questions, explore, and theorize. The book *Taking Science to School: Learning and Teaching Science in Grades K–8* includes a synthesis of research on children's abilities by the time they enter kindergarten. The book makes a strong argument that young children's capabilities are vastly underestimated. Yet little attention is paid to engaging this potential by providing rich preschool science experiences. This short course is based on a four-year project funded by the National Science Foundation. Participants will view classroom videos and analyze student work samples and other classroom materials that emphasize the potential of science experiences to support children's science learning and lay a foundation for later science instruction.

✔ Physics on the Subway (SC-11)

Lee Trampleasure *(lee@trampleasure.net)*, Carondelet High School, Concord, Calif.
Level: Middle Level–College
Date/Time: Friday, March 11, 8:00 AM–12 Noon
Location: Sausalito, Grand Hyatt
Registration Fee: $40

Get on the BART! We'll ride the San Francisco subway and conduct experiments you can use with your students on your local subway or bus. After a short time in the classroom constructing simple tools, we will walk to BART and spend an hour taking measurements and making calculations. Learn how to take students on a subway to measure acceleration and observe relative motion. While electronic recorders (probeware like Vernier and PASCO®) will not be emphasized, one will be present and participants are invited to bring their own if they desire. The course will use high school–level mathematics, but the materials can be adapted for middle school physical science. For more details, go to *http://trampleasure.net/lee/index.php/science-pages/physics-on-the-subway*.

Exploring Birds and Citizen Science at the California Academy of Sciences (SC-12)

Jennifer M. Fee *(jms327@cornell.edu)*, Cornell Lab of Ornithology, Ithaca, N.Y.
Helena L. Carmena *(hcarmena@calacademy.org)* and **Megan K. Schufreider** *(mschufreider@calacademy.org)*, California Academy of Sciences, San Francisco
Level: Elementary–Middle Level
Date/Time: Friday, March 11, 8:00 AM–12:30 PM
Location: Off-site at California Academy of Sciences
Registration Fee: $101

How can you use your school yard for citizen science and inquiry? Join staff from the California Academy of Sciences and the Cornell Lab of Ornithology for an indoor and outdoor adventure that will arm you with tools to conduct citizen science counts and guide your students through all aspects of designing and conducting their own science investigations—from carefully observing birds to asking intriguing questions, from collecting and analyzing relevant data to sharing their results with peers. Participants will test their new skills firsthand with an outdoor eBird citizen science count. Take home a BirdSleuth: Most Wanted Birds curriculum kit—lessons and supplies that will jump-start participation by your class! For more details, go to *www.birds.cornell.edu/birdsleuth*.

NOAA Ship *Okeanos Explorer:* Why Do We Explore? ...and How Do We Explore? (SC-13)

Susan Haynes *(susan.haynes@noaa.gov)*, NOAA Office of Ocean Exploration and Research, Barrington, R.I.
Melissa Ryan *(melissa.ryan@noaa.gov),* NOAA Office of Exploration and Research, Mystic, Conn.
Paula Keener-Chavis *(paula-keener.chavis@noaa.gov),* Hollings Marine Laboratory, Charleston, S.C.
Level: Grades 5–12
Date/Time: Friday, March 11, 8:00 AM–3:00 PM
Location: San Francisco A/B, Grand Hyatt
Registration Fee: $23

Join the NOAA Office of Ocean Exploration and Research for this short course focused around NOAA's new ship and America's Ship for Ocean Exploration, the *Okeanos Explorer*, and the themes: Why Do We Explore?, How Do We Explore?, and What Do We Expect to Find? Delve into the benefits of ocean exploration targeting climate change, energy, human health, and ocean health. Explore the philosophy behind selecting sites for exploration, communication tools including telepresence technology, modern-mapping techniques, water column study, and remotely operated vehicles. This course will include online data exploration and inquiry-based lessons for grades 5–12. Handouts provided. For more details, go *http://oceanexplorer.noaa.gov/okeanos/edu/welcome.html*.

Science Notebooking and Academic Language Development for Upper Elementary Students (SC-14)

Joanna Totino, Lawrence Hall of Science, University of California, Berkeley
SOLD OUT
Level: Grades 3–5
Date/Time: Friday, March 11, 1:00–4:00 PM
Location: Union Square, Grand Hyatt
Registration Fee: $33

We will use science notebooks as an instructional strategy to support students in making sense of their hands-on experiences. Participants will explore science concepts while making academic language explicit and accessible to English language learners. We will integrate scaffolding strategies in a Full Option Science System (FOSS) hands-on lesson and learn how to use notebooks as an effective tool for building conceptual understanding. We will use strategies for vocabulary development, oral discourse, and lesson planning by adding language objectives to a FOSS lesson.

Bringing Nanotechnology into the Classroom (SC-15)

Morton M. Sternheim *(mort@umassk12.net)* and **Rob Snyder** *(snyder@umassk12.net)*, STEM Education Institute, University of Massachusetts, Amherst
SOLD OUT
Level: Middle Level–High School
Date/Time: Saturday, March 12, 8:00–11:00 AM
Location: Union Square, Grand Hyatt
Registration Fee: $50

Nanotechnology is accessible in the classroom! Make a nanofilm and explore the effects of decreasing the size of materials to 1/100,000th of the width of a hair. Other activities will center on what makes nanomaterials special. Educate your students on the novel applications of nanotechnology in areas such as electronics, catalysts, water purification, solar cells, sunscreens, coatings, medical diagnostics, therapy resources, and more. At this scale, new physical phenomena come into play where macroscopic and quantum concepts overlap. For more details, go to *www.umassk12.net/nano2011*.

Accessing Science Through Language, Reading, and Writing (SC-16)

Arthur Beauchamp *(acbeauchamp@ucdavis.edu)*, University of California, Davis

Level: Grades 6–12
Date/Time: Saturday, March 12, 8:00–11:00 AM
Location: Sausalito, Grand Hyatt
Registration Fee: $47

The opportunity for students to talk about their ideas and understanding of science must be present for students to build the academic vocabulary and discourse patterns of science. Experience a science literacy framework that increases engagement, understanding, achievement, and academic literacy. Learn how to strategically combine dialogue, reading, and writing techniques to construct more effective lessons. Investigate how dialogue can be used in combination with reading to support writing in the science classroom. Receive a science literacy framework book that contains sample lessons and provides techniques for incorporating dialogue, reading, and writing strategically into science instruction. For more details, go to *http://sasp.ucdavis.edu*.

Young Investigators in Environmental Health Science: Challenging and Exciting Your Students with Novel, Inquiry-based Environmental Activities (SC-17)

Sara Swearingen *(sswearingen@smithvilleisd.org)* and **Jason Peterson** *(jpeterson@smithvilleisd.org)*, Smithville Elementary School, Smithville, Tex.
Heather Reddick *(hreddick@mdanderson.org)*, The University of Texas MD Anderson Cancer Center, Smithville

Level: Elementary
Date/Time: Saturday, March 12, 8:00 AM–12 Noon
Location: Conference Theatre, Grand Hyatt
Registration Fee: $33

Discover new and exciting ways to use environmental health and science as an integral concept in elementary school classrooms. This short course will include hands-on, inquiry-based activities developed collaboratively by scientists and teachers. These lessons stimulate exploration of critical scientific concepts and foster Cognitive Academic Language Proficiency.

During the course, we will set up a mock crime scene to solve an environmental mystery. Participants will also explore an activity with "push-pull" spring scales to demonstrate forces in nature and how these forces affect the environment.

2011: NASA's Year of the Solar System (SC-18)

Stephanie S. Shipp *(shipp@lpi.usra.edu)* and **Christine Shupla** *(shupla@lpi.usra.edu)*, Lunar and Planetary Institute, Houston, Texas
Rachel Zimmerman-Brachman *(rachel.zimmerman-brachman@jpl.nasa.gov)*, Jet Propulsion Laboratory, Pasadena, Calif.

Level: Elementary–High School
Date/Time: Saturday, March 12, 8:00 AM–3:00 PM
Location: Merced A/B, Grand Hyatt
Registration Fee: $23

NASA's Year of the Solar System is a celebration of our exploration of the solar system, which began in October 2010 and continues for one Martian year (687 Earth days) ending in late summer 2012. NASA's diverse missions in this period create a rare opportunity to engage students, using NASA missions to reveal new worlds and new discoveries. Participants are invited to join the celebration! Activities and materials will be provided. For more about the Year of the Solar System, go to *http://solarsystem.nasa.gov/yss*.

Science Notebooks: Developing a Deeper Understanding (SC-19)

Trisha Herminghaus, **Judy Onslow** *(onslow_judy@asdk12.org)*, and **Texas Gail Raymond**, Anchorage Alaska School District
Joanna Hubbard, Begich Middle School, Anchorage, Alaska

Level: Elementary–High School
Date/Time: Saturday, March 12, 8:00 AM–3:00 PM
Location: San Francisco A/B, Grand Hyatt
Registration Fee: $27

Encourage scientific discourse in your students through the use of science notebooks. This short course is based on modeling formats developed by the Anchorage School District in Alaska and El Centro School District in California. The strategies include ideas for getting started, structuring science lessons, examining student work, summarizing conceptual understanding, and using self-assessment. Get a framework of the progression of skills necessary for students to create useful records of their scientific evidence and ideas.

Outdoor Biology Instructional Strategies—Revitalizing OBIS (SC-20)

Joanna Snyder *(joanna_snyder@berkeley.edu)* and **Terry Shaw** *(terryshaw@aol.com)*, Lawrence Hall of Science, University of California, Berkeley

SOLD OUT

Level: Grades 3–8
Date/Time: Saturday, March 12, 12:30–3:30 PM
Location: Sausalito, Grand Hyatt
Registration Fee: $26

Learn how to strengthen your students' connection to the natural world by using Outdoor Biology Instructional Standards (OBIS). OBIS is an outdoor program with a set of strategies and tools to help teachers engage young people in thinking about ecological principles in their local area. Research has shown that students' academic performance and their investment in the local environment increases as a result of guided experiences in the outdoors. Participants will learn effective strategies for guiding ecological inquiry and receive access to published teaching resources on an interactive website.

Create Your Own Interactive Whiteboard (SC-21)

Katy Scott *(kscott@mbayaq.org)* and **Jenny de la Hoz** *(jdelahoz@mbayaq.org)*, Monterey Bay Aquarium, Monterey, Calif.

Level: Grades K–12
Date/Time: Saturday, March 12, 1:00–4:00 PM
Location: Union Square, Grand Hyatt
Registration Fee: $88

Assemble and use inexpensive interactive technology with functionality nearly identical to a SMART Board or ActivBoard. Receive a Wiimote and free software for your classroom. Participants will also make an infrared pen, using $15 worth of electronic materials and a basic (grade 4) understanding of circuits. For educators without access to a projector, we'll demonstrate how to build your own, using an old overhead projector and a re-purposed computer monitor. For more details, go to *http://digitaldollar.edublogs.org*.

NSTA Press Session: Lecture-Free Teaching: A Learning Partnership Between Science Educators and Their Students (SC-22)

Bonnie Wood *(bonnie.s.wood@umpi.edu),* University of Maine at Presque Isle

Level: High School–College
Date/Time: Saturday, March 12, 2:00–6:00 PM
Location: Conference Theatre, Grand Hyatt
Registration Fee: $48

For this hands-on short course, each participant will receive a copy of the NSTA Press book *Lecture-Free Teaching: A Learning Partnership Between Science Educators and Their Students.* The first half will be a simulation of a typical lecture-free class meeting during which the instructor demonstrates the interplay of student preparation before class, cooperative learning, and classroom assessment techniques to achieve course content identical to that of a lecture-based course. During the second half, participants will discuss and follow the steps to lecture-free teaching by planning their own course revision or designing a new course.

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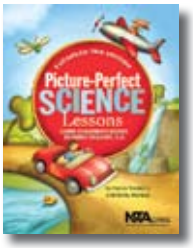
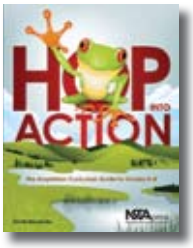


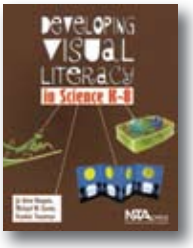
Picture-Perfect Science Lessons, Expanded 2nd Edition
Using Children's Books to Guide Inquiry, 3–6

Grades 3–6
Members: $27.96
Non-Members: $34.95



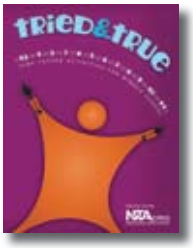
Hop Into Action
The Amphibian Curriculum Guide for Grades K-4

Grades K–4
Members: $18.36
Non-Members: $22.95



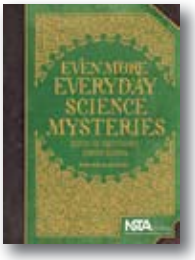
Developing Visual Literacy in Science, K–8

Grades K–8
Members: $19.96
Non-Members: $24.95



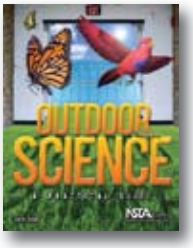
Tried and True
Time-Tested Activities for Middle School

Grades 5–8
Members: $20.76
Non-Members: $25.95



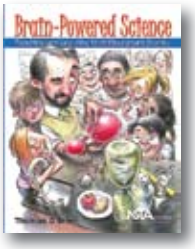
Even More Everyday Science Mysteries

Grades K–8
Members: $19.96
Non-members: $24.95



Outdoor Science

Grades 3–8
Members: $19.96
Non-members: $24.95



Brain-Powered Science

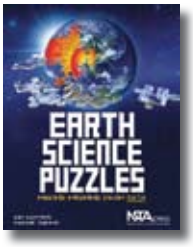
Grades 5–12
Members: $26.36
Non-members: $32.95

Designing Effective Science Instruction

Grades K–12
Members: $24.76
Non-members: $30.95

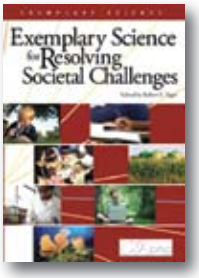
Predict, Observe, Explain
Activities Enhancing Scientific Understanding

Grades 7–12
Members: $23.96
Non-Members: $29.95



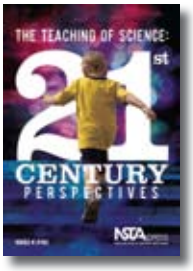
Earth Science Puzzles
Making Meaning From Data

Grades 8–12
Members: $20.76
Non-Members: $25.95



Exemplary Science for Resolving Societal Challenges

Grades PreK–College
Members: $20.76
Non-Members: 25.95



The Teaching of Science
21st-Century Perspectives

Grades K–12
Members: $22.36
Non-Members: $27.95

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Tickets for field trips can be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your field trip leader at the Moscone Center entrance at the South Driveway on Howard Street.

Science Classroom Visits: San Francisco Area $75*
preregistration only

W-1 Wednesday, March 10 7:00 AM–4:00 PM

SOLD OUT

Join us as we visit several schools in the San Francisco area. We'll visit Lowell High School, Abraham Lincoln High School, Alice Fong Yu Alternative School, and The Hamlin School. Lowell High School is a public school with a wide-ranging and rigorous curriculum that is ranked third internationally in Advanced Placement exam scores. With a graduation rate of nearly 100%, Lowell is the largest feeder school to the University of California system. Abraham Lincoln High School trains students in several laboratory techniques currently used in biotechnology labs throughout the world. Their programs emphasize the applications, implications, and limitations of current biotechnology. The Alice Fong Yu Alternative School, a public school, is the nation's first Chinese immersion school. Students develop their critical-thinking and problem-solving skills through student-directed projects, and they use Cantonese in discussions, poetry recitals, and everyday communications. The Hamlin School is an all-girls private school that focuses on Science, Technology, Engineering, and Mathematics (STEM) skills. Students master the skills that provide a foundation for lifelong learning as well as the habits of speculation, inquiry, and critical thinking. Lunch included in the ticket price.

An In-depth Tour of Bio-Rad Laboratories $64

T-1 Thursday, March 10 8:00 AM–2:15 PM

SOLD OUT

How do you develop a science education product? Bio-Rad ranks among the top five life science companies in the world and maintains a solid reputation for quality and innovation. In 1997, the Biotechnology Explorer Program was created with a mission to bridge the gap between science in the real world and science in the classroom. High school educators and higher are invited to visit Bio-Rad and learn more about the company history, product development, and manufacturing processes.

Attendees will participate in the Genes in a Bottle activity and discover how to fit a person in a bottle! Our DNA contains all of the information that makes us who we are. Participants will isolate their own DNA and capture their unique essence in a stylish glass necklace! Lunch, courtesy of Bio-Rad, is included in the ticket price.

Space Science: A Visit to NASA Ames $60

T-2 Thursday, March 10 7:30 AM–4:30 PM

SOLD OUT

Start off your day with a tour of NASA Ames Research Center. We'll take a drive around the center and visit two research facilities. Next, we'll tour NASA's Exploration Center, a science museum and education center. We'll see displays and interactive exhibits about NASA technology, missions, and space exploration, including a moon rock, meteorite, and other geologic samples. The facility boasts the largest Immersive Theater on the West Coast. See footage from NASA's exploration of Mars and Saturn's rings. After a visit to the gift

—*Photo courtesy of NASA*

Ames Exploration Encounter (T-2).

shop for NASA and space-related clothing, patches, posters, videos, and more, we'll enjoy a boxed lunch.

Finally, we'll experience NASA Ames Exploration Encounter (AEE), a unique educational program designed to inspire positive attitudes about science, technology, engineering, and math (STEM) for grades 4–6 students. Located in a renovated supersonic wind tunnel building, AEE makes math and science curriculum come alive! Students experience science in action and come to realize its connection to their lives through activities in four hands-on stations.

Note: All adults must have valid identification and permanent residents must bring original green card in order to receive a visitor's badge.

✔ The USS *Pampanito*—Where History Meets Science $36

T-3	Thursday, March 10	8:35–11:15 AM
T-7	Thursday, March 10	11:35 AM–2:15 PM
T-9	Thursday, March 10	2:35–5:15 PM

Join the Crew of the USS *Pampanito* and explore and experiment with the basic scientific principles that submarines used during World War II, as well as how builders used science to address virtually every design challenge faced with building a submarine. Come aboard and join in as we transform the USS *Pampanito* into a classroom, consisting of five hands-on stations: What's Your Angle? (Periscopes); Sink or Swim? (Buoyancy); Let's Get Charged! (Batteries and Electricity); I Can Hear You Loud & Clear! (Sonar); and Where in the World is the USS *Pampanito*? (Navigation and Code Breaking). Participants will be given individual workbooks for recording their findings as they take up the role of the USS *Pampanitos*' crew.

A National Historic Landmark, the USS *Pampanito* (SS-383) is a World War II Balao class Fleet submarine museum and memorial that completed six war patrols in the Pacific, serving from 1944 to 1945. During her wartime patrols, *Pampanito* racked up an impressive record with six Japanese ships sunk, and an additional four damaged. The *Pampanito* also took part in the rescuing of 73 British and Australian POWs as they were being transported to Japanese prison camps. The submarine was decommissioned in August 1945 and then transferred to the San Francisco Maritime National Park Association in 1982. Carefully restored to her condition in 1945, the USS *Pampanito* hosts approximately 90,000 visitors a year and is one of the most popular historic vessels in the country. Additionally, more than 10,000 students annually participate in *Pampanito's* educational day and overnight programs.

Taking Science Outdoors: Learning in San Francisco's Green School Yards $50

T-4	Thursday, March 10	8:45 AM–3:20 PM

Join San Francisco Green Schoolyard Alliance (SFGSA) and the Lawrence Hall of Science (LHS) for a collaborative workshop/field trip that will allow you to investigate San Francisco Unified School District's green school yards, see how the school yards have been transformed into inspirational gardens where children connect with nature daily, and hear about lessons learned during the construction and use of these ambitious green school yard projects. Participants will be introduced to LHS-developed outdoor initiatives, experience Outdoor Biology Instructional Strategies (OBIS) lessons, and develop a plan to get students outdoors on a more regular basis to enhance the science curriculum. Box lunch included.

—Photo courtesy of Bob Taylor©

USS *Pampanito* (T-3, T-7, and T-9).

Written in Stone: Lessons from the Field for the Earth Science Classroom — $49

T-5 Thursday, March 10 9:00 AM–3:00 PM

Be a "Geo-detective" in this hands-on field workshop in the Marin Headlands, which provides a natural laboratory showing how simple observations can be made to determine the tectonic evolution of California. Take back lessons from the field to use in your Earth science classroom. Box lunch included.

Environmental Epicenter Tour — $103

T-6 Thursday, March 10 9:30 AM–5:00 PM

There's no better place to get an exciting firsthand look at pioneering innovators in sustainability than San Francisco, the nation's environmental epicenter. On this engaging and entertaining adventure through the hub of one of the nation's greenest metropolitan areas, Bay Area Green Tour guests will meet inspired local leaders of sustainability who are driving the global green agenda. We'll profile a panorama of the following innovative, cutting-edge stops, pointing out local San Francisco points of interest along the way.

Located in a beautiful historic building along the Embarcadero waterfront on the San Francisco Bay, the Ferry Building Marketplace is committed to the artisan food community and houses a vibrant gathering of independently owned and operated food businesses that showcase small regional producers of fine foods and local wines from Northern California. Next we'll visit Crissy Field, a beautiful stretch of beach on the bay with a view of Golden Gate Bridge. Crissy Field hosts an environmental education center with school programs. After Crissy Field, we take a sightseeing tour of Presidio, Golden Gate Park, and Twin Peaks.

Next, we'll enjoy lunch on our own at Mission Pie, a corner café in the colorful Mission District. Their seasonally shifting menu of pies, baked goods, and light savory fare focuses on the produce of nearby farms that employ organic and sustainable methods. After lunch we'll visit Rickshaw Bags. Inspired by the creative energy of San Francisco, urban cycling, and an intense desire to make great products, Rickshaw operates with a strong set of humanistic, environmental, and social values that guide the way it conducts every aspect of its business. The company name derives from three Japanese characters meaning "human-powered vehicle," delightfully apropos for a company making bags for bicycle enthusiasts, and a metaphor for the strength of the human spirit.

—Photo courtesy of Bay Area Green Tours

Ferry Building Marketplace (T-6)

Explore the Exploratorium — $40

T-8 Thursday, March 10 1:45–5:15 PM SOLD OUT

S-3 Saturday, March 12 9:45 AM–2:15 PM

Come explore the Exploratorium, a San Francisco museum of science, art, and human perception. The Exploratorium creates tools and experiences that help people become active explorers—visit hundreds of explore-for-yourself exhibits and learn about professional development programs for educators. This field trip is sponsored by Exploratorium's Teacher Institute.

How Geologic Events Shape Our Lives — $60

F-1 Friday, March 11 8:00 AM–5:00 PM SOLD OUT

This three-part field trip begins with the U.S. Geological Survey (USGS), which provides scientific information to help educate the public about natural resources, natural hazards, geospatial data, and issues that affect our quality of life. Join us for a tour of the USGS Menlo Park Center to learn more about these resources. Attendees will get a chance to view earthquake simulations, take a virtual tour

—Photo courtesy of USGS

U.S. Geological Survey (USGS) Menlo Park (F-1)

of the San Andreas Fault in Google Earth, visit the California Geological Survey Map Sales office for a talk on USGS maps and a look at various rocks and minerals, and get a presentation on USGS educational resources. We'll then travel to Tule Ponds at Tyson Lagoon to walk the Hayward Fault, one of approximately 10 faults in the world that constantly "creeps," and see how it shapes the landscape. A large sag pond, Tyson Lagoon records more than 4,000 years of movement. This area is now a storm water retention facility and local high school students, under the guidance of scientists from the Math Science Nucleus, not only restore the area, but learn scientific monitoring. Our final stop will be Math Science Nucleus and the Wes Gordon Fossil Hall where we'll uncover the past. Ice Age fossils were discovered in Fremont in the 1940s by "The Boy Paleontologists." Two of the original group will share their experience at the Children's Natural History Museum where participants will go back through time by touching and viewing the fossils. Box lunch included.

The Center for Probing the Nanoscale, Stanford Linear Accelerator Center (SLAC), and the Stanford University Campus **$46**

F-2 Friday, March 11 8:00 AM–5:00 PM

SOLD OUT

Join Stanford researchers in exploring the exciting field of nanotechnology. We'll explore how properties of matter change at the nanoscale as we fabricate and study nanoscale objects and devices. Next, we'll take a fascinating tour of the Stanford Linear Accelerator Center to find out what accelerators are and how they are used. Finally, we'll take a walking tour of Stanford's beautiful campus followed by a breathtaking view of the surrounding area from atop the 285-foot Hoover Tower Observation Platform (optional). Lunch on own at Tressider Student Union.

Dynamic Nature: The Ebb and Flow of the Bay Area Watershed and Creating Opportunity for Local Community Involvement **$50**

F-3 Friday, March 11 8:30 AM–12:30 PM
F-7 Friday, March 11 12:30–4:30 PM

Have you ever walked from the Golden Gate Bridge to Stockton? You don't have to in order to gain an understanding of the San Francisco Bay and Delta system! Join a Park Ranger for a tour of the Bay Model, a 1 1/2-acre 3-D model of the San Francisco, San Pablo, and Suisun bays and a portion of the Sacramento-San Joaquin Delta. Due to renovations, the Bay Model is dry but is still an awesome sight to see with or without water. We'll also visit the Bay Model Visitor Center, which offers a unique opportunity to view the complete bay-delta system at a glance and learn about its geography, topography, and ecology. Finally, we'll visit the Bay Area Discovery Museum, a one-of-a-kind indoor/outdoor children's museum located at the foot of the Golden Gate Bridge.

Lawrence Hall of Science **$58**

F-4 Friday, March 11 9:00 AM–2:45 PM

SOLD OUT

Visit the Lawrence Hall of Science, UC Berkeley's Public Science Center and a leader in innovative science curriculum and teacher training. Start your morning watching students present ocean science activities that they created for school groups (and you). Take a tour of our exhibit floor and see how Lawrence Hall of Science incorporates inquiry-

based science learning in all our programs…and get the best view of the bay! Lunch on own at the Bay Café.

Hands On at Its Finest: The Tech Museum and Resource Area for Teachers (RAFT) $47

F-5 Friday, March 11 9:00 AM–4:05 PM

Experience a truly memorable day at The Tech Museum, which is singularly focused on inspiring the innovator in everyone. You'll be "wow'd" by The Tech's hands-on/interactive exhibits, divided among themed galleries. Spend your afternoon shopping for ideas and materials at the Resource Area for Teachers (RAFT), a thriving nonprofit organization that helps educators transform the learning experience through hands-on education. Lunch on own at the Tech Café.

Berkeley's Bounty: The Edible Schoolyard and the Center for Ecoliteracy in the David Brower Center $56

SOLD OUT

F-6 Friday, March 11 9:15 AM–4:15 PM

We'll first visit the Center for Ecoliteracy, which has developed a framework for sustainability education called Smart by Nature™. Allied with The Edible Schoolyard on many projects, the Center for Ecoliteracy is located in the David Brower Center, a LEED Platinum–certified green building, boasting many innovative design elements. After lunch, we'll experience The Edible Schoolyard, a Chez Panisse Foundation program whose mission is to create and sustain an organic garden and landscape wholly integrated into the school's curriculum, culture, and food program. Lunch on own in downtown Berkeley.

Educator's Evening Under the Stars at Chabot Space & Science Center $66

SOLD OUT

F-8 Friday, March 11 4:15–9:45 PM

Chabot Space & Science Center is offering a one-of-a-kind "evening of exploration" for NSTA conference attendees. Attendees will investigate the new Bill Nye Climate Lab (BNCL), which features air, water, and land galleries exploring how climate change affects Earth's interconnected systems; and how to use the Sun, wind, land, and water to generate clean energy. This solutions-based exhibit allows you to continue your search for solutions via our website long after your visit. Participants will also have the opportunity to explore the night sky while gazing through one of three observatory telescopes. (An optional astronomy activity will be prepared in case of weather limitations.) We'll also experience an all-digital show in the center's state-of-the-art planetarium and a special classroom program called the Energy Lab.

—*Photo courtesy of Justin Miel and CuriOdyssey*

River Otter (S-4)

—Photo courtesy of Justin Miel and CuriOdyssey

Bobcats (S-4)

✔ **Scientist for a Day on the *Robert G. Brownlee* $73**

S-1 Saturday, March 12 8:30 AM–12:30 PM SOLD OUT
S-5 Saturday, March 12 12:30–4:30 PM

Join the Marine Science Institute (MSI) crew for a three-hour expedition of the San Francisco Estuary aboard the 90-foot research vessel, the *Robert G. Brownlee.* Spend a half day as a scientist, discovering the estuary's ecosystem and discussing our own roles within it. Collect and examine plankton, run hydrology tests, and observe wetland ecology from the ship. Delve through mud samples, discovering the fascinating invertebrates that thrive at the bay's bottom. You will also use a trawl net to catch a wide variety of fish species, including sharks and rays! Then help volunteers measure fish for MSI's monitoring program and identify the fish with a dichotomous key before releasing them. This program offers participants the chance to enjoy the natural vitality of this area while learning valuable scientific skills. Dress in layers and according to the weather…and remember a hat and sunscreen. Be prepared to get a little dirty—NO OPEN-TOED SHOES ALLOWED! Eat a good breakfast before leaving for this field trip.

Hands-On Outdoor Experience Makes Science Come Alive $71

S-2 Saturday, March 12 9:15 AM–2:45 PM SOLD OUT

Join us at the Presidio of San Francisco, an inspiring urban outdoor classroom. During this once-in-a-lifetime event, we'll participate in the natural history of San Francisco with a hands-on environmental service learning project, get up close and personal with the fascinating geologic formations of the Bay Area, slip into a pair of waders and slosh into the Crissy Field tidal marsh to learn what makes this bayfront ecosystem exceptional, and experience a unique watershed at the intersection of the urban and natural environment. Box lunch included.

Note: This field trip will include about two miles of hiking. Please dress in layers, wear sturdy walking shoes, and bring sunscreen. Because of the hands-on nature of this trip, your clothes and shoes may get dirty.

Dine and Discover at Bay Area Science Centers $53

S-4 Saturday, March 12 11:15 AM–6:00 PM CANCELED

Enjoy a delicious lunch and decadent dessert while you visit two science centers on the San Francisco Peninsula—CuriOdyssey (formerly Coyote Point Museum for Environmental Education) and Hiller Aviation Museum.

We'll first visit Hiller Aviation Museum for lunch amidst an array of planes, helicopters, and other examples of aviation science history and future. Next, we'll visit CuriOdyssey for dessert and time to meet live animals and engage with interactive exhibits that provoke visitors to question and explore their world.

This is both a professional development and social opportunity. Participants will be able to develop their science content knowledge by exploring the museums' physical and natural science exhibits and participating in hands-on museum activities.

Monday, March 7

CSSS Annual Meeting
By Invitation Only
Yosemite A, Hilton..... 7:30 AM–5:00 PM

Tuesday, March 8

NSELA Board Meeting
By Invitation Only
Green, Hilton .....6:00 AM–6:00 PM

CSSS Annual Meeting
By Invitation Only
Yosemite A, Hilton..... 7:30 AM–5:00 PM

Wednesday, March 9

NSELA Professional Development Institute
By Registration Through NSELA
Continental 4, Hilton..... 6:30 AM–3:00 PM

CSSS Annual Meeting
By Invitation Only
Yosemite A, Hilton..... 7:30 AM–5:00 PM

GEMS Ocean Science Seminar
Golden Gate Salon C1, Marriott ..... 8:00 AM–12 Noon

Science Education for Students with Disabilities Pre-Conference Meeting
By Registration Through SESD
Willow, Marriott.....8:00 AM–5:00 PM

Science Olympiad Meeting #1
By Invitation Only
Union Square 13, Hilton..... 9:00 AM–12 Noon

CESI Presents: Engineering: It's Elementary
By Registration Through CESI
Golden Gate 6–8, Hilton ..... 9:00 AM–4:00 PM

RET Networking Meeting and Poster Session
Continental 6, Hilton ..... 1:00–5:00 PM

Hands-On Science for After School Seminar
Golden Gate Salon C1, Marriott ..... 1:00–5:00 PM

SCST Board Meeting
By Invitation Only
Executive Boardroom, Hilton..... 1:00–10:00 PM

New Science Teacher Academy Reception
By Invitation Only
Club Room, Marriott..... 5:00–8:00 PM

NSTA President's International Reception
Open to International Visitors and Invited Guests
Yerba Buena Salon 14/15, Marriott .....6:30–7:30 PM

NSELA Reception
For NSELA Members and Other Invited Guests
Continental 4, Hilton..... 7:00–9:00 PM

Science Olympiad Meeting #2
By Invitation Only
Union Square 13, Hilton ..... 7:30–10:30 PM

Thursday, March 10

NSELA Membership Meeting and Breakfast Sponsored by Pearson
For NSELA Members and Other Invited Guests
Continental 8, Hilton..... 7:30–9:30 AM

SEPA Board Meeting
By Invitation Only
Pacific D, Marriott.....8:00–9:30 AM

Preservice Teacher Preparation Committee Meeting
Union Square 3/4, Hilton ..... 8:00–10:30 AM

Informal Science Committee Meeting
Executive Boardroom, Hilton.....8:30–10:30 AM

Journal of College Science Teaching Advisory Board Meeting
Marina, Hilton.....8:30–10:30 AM

Science Scope Advisory Board Meeting
Presidio, Hilton.....8:30–10:30 AM

The Science Teacher Advisory Board Meeting
Seacliff, Hilton.....8:30–10:30 AM

Science and Children Advisory Board Meeting
Sunset, Hilton.....8:30–10:30 AM

NSTA Reports Advisory Board Meeting
Union Square 7, Hilton.....8:30–10:30 AM

Awards and Recognitions Committee Meeting
Union Square 9, Hilton .....8:30–10:30 AM

Special Education Advisory Board Meeting
Union Square 10, Hilton.....8:30–10:30 AM

Science Safety Advisory Board Meeting
Union Square 11, Hilton .....8:30–10:30 AM

Urban Science Education Advisory Board Meeting
Union Square 12, Hilton..... 8:30–11:30 AM

Global Conversations in Science Education Conference (M-2)
(Tickets Required: No Charge)
By Pregistration Only
Yerba Buena Salon 8, Marriott.....8:00 AM–2:00 PM

Preservice/New Teachers Breakfast (M-1)
Sponsored by Kendall Hunt Publishing Co.
(Tickets required: $12)
Yosemite B, Hilton..... 9:00–10:30 AM

NSTA International Lounge
Laurel, Marriott .....9:00 AM–5:00 PM

Professional Development in Science Education Committee Meeting
Union Square 13, Hilton ..... 9:30 AM–12 Noon

SESD Board Meeting
Open to Everyone
Pacific F, Marriott..... 10:00 AM–12 Noon

AMSE Board Meeting
By Invitation Only
Pacific D, Marriott.....10:30 AM–1:00 PM

NESTA Board of Directors Meeting
Walnut, Marriott..... 1:00–5:00 PM

College Science Teaching Committee Meeting
Marina, Hilton..... 1:30–4:00 PM

Middle Level Science Teaching Committee Meeting
Presidio, Hilton..... 1:30–4:00 PM

High School Science Teaching Committee Meeting
Seacliff, Hilton..... 1:30–4:00 PM

Preschool–Elementary Science Teaching Committee Meeting
Sunset, Hilton..... 1:30–4:00 PM

Research in Science Teaching Committee Meeting
Union Square 7, Hilton..... 1:30–4:00 PM

Nominations Committee Meeting
Union Square 9, Hilton ..... 1:30–4:00 PM

Coordination and Supervision of Science Teaching Committee Meeting
Union Square 10, Hilton..... 1:30–4:00 PM

Multicultural/Equity in Science Education Committee Meeting
Union Square 12, Hilton..... 1:30–4:00 PM

Retired Members Advisory Board Meeting
Union Square 13, Hilton..... 1:30–4:00 PM

Investment Advisory Board Meeting
Executive Boardroom, Hilton..... 3:00–4:00 PM

GLBT Educators Group Meeting
Pacific E, Marriott ..... 3:00–4:30 PM

CESI Board Meeting
By Invitation Only
Union Square 3 /4, Hilton ..... 3:00–9:00 PM

NSTA/CBC Outstanding Science Trade Books Committee Meeting
By Invitation Only
Green, Hilton ..... 4:30–6:00 PM

Glenn Center Donor Reception
By Invitation Only
Andrew Smith Hallidie Suite, Marriott.....5:30–7:00 PM

Friday, March 11

A Broad Spectrum for Science Learning Breakfast with Gretchen Walker (M-3)
(Tickets Required: $15)
Yerba Buena Salon 9, Marriott .....7:00–8:00 AM

Development Advisory Board Meeting
By Invitation Only
Executive Boardroom, Hilton..... 7:00–8:15 AM

Dorothy K. Culbert Chapters and Asscociated Groups Breakfast (M-4)
(Tickets Required: $50)
Yosemite B, Hilton.....7:00–8:30 AM

High School Breakfast (M-5)
(Tickets Required: $50)
Yerba Buena Salon 14, Marriott ..... 7:00–8:30 AM

NMLSTA Board Meeting (Part 1)
For NMLSTA Members Only
Union Square 9, Hilton ..... 7:00–9:00 AM

AMSE Alice J. Moses Breakfast
By Invitation Only
Club Room, Marriott ..... 7:00–9:00 AM

APAST Breakfast
By Invitation Only
Golden Gate Salon C3, Marriott ..... 7:00–9:00 AM

Association of Science Materials Centers' Networking Forum
($20 Preregistration Required)
Continental 8, Hilton ..... 7:30–9:30 AM

Aerospace Programs Advisory Board Meeting
Seacliff, Hilton ..... 8:30–10:30 AM

NCATE Workshop: Writing to Improve Your Program
Union Square 12, Hilton ..... 8:30 AM–3:30 PM

NSTA International Lounge
Laurel, Marriott ..... 9:00 AM–5:00 PM

AMSE Membership Meeting
By Invitation Only
Pacific F, Marriott ..... 10:00 AM–12 Noon

SEPA Luncheon
By Invitation Only
Golden Gate Salon C3, Marriott ..... 12 Noon–2:00 PM

NSELA/ASTE Luncheon (M-6)
(Tickets Required: $65)
Yosemite C, Hilton ..... 12 Noon–2:00 PM

NSTA/NMLSTA Middle Level Luncheon (M-7)
(Tickets Required: $65)
Continental 8, Hilton ..... 12 Noon–2:00 PM

National Lab Network Pep Rally
Union Square 1/2, Hilton ..... 12:30–1:30 PM

ExploraVision Ice Cream Social and Information Session
Golden Gate Salon B, Marriott ..... 2:00–3:00 PM

NSTA District Meet and Greet in Honor of Wendell G. Mohling
Sponsored by LEGO Education
Exhibit Hall, Moscone Center ..... 2:00–3:30 PM

CESI President's Roundtable
By Invitation Only
Union Square 14, Hilton ..... 3:00–4:00 PM

NMLSTA Ice Cream Social
Continental 6, Hilton ..... 3:00–4:30 PM

International Advisory Board Meeting
Seacliff, Hilton ..... 3:00–5:00 PM

GEMS Network Reception
Club Room, Marriott ..... 3:00–5:00 PM

SCST Business Meeting
Union Square 17/18, Hilton ..... 3:30–5:00 PM

GEICO/NSTA New Member Orientation
Sponsored by GEICO
By Invitation Only
Yosemite B, Hilton ..... 4:00–5:00 PM

APAST Social Reception and General Meeting
By Invitation Only
Golden Gate Salon C3, Marriott ..... 5:00–7:00 PM

Student Chapter and Student Members Reception
Open to All Preservice Teachers and Those Who Work with Them
Continental 8, Hilton ..... 5:30–7:00 PM

NMLSTA Board Meeting (Part 2)
For NMLSTA Members Only
Union Square 9, Hilton ..... 5:30–7:00 PM

Albert Einstein Distinguished Educator Fellowship Program Reception
Yerba Buena Salon 10, Marriott ..... 5:30–7:30 PM

NSTA Teacher Awards Gala (M-8)
(Tickets Required: $65)
Yerba Buena Salon 7, Marriott ..... 6:00–8:30 PM

California Reception
By Invitation Only
Continental 6, Hilton ..... 6:30–8:00 PM

NESTA Friends of Earth Science Reception
Club Room, Marriott..... 6:30–8:00 PM

SCST Dessert Social and Poster Session
Open to College Faculty and SCST members
Continental 4, Hilton..... 7:30–9:00 PM

Saturday, March 12

NESTA Earth and Space Science Resource Day Breakfast
By Ticket Through NESTA
Nob Hill A, Marriott .....7:00–8:30 AM

NSTA Past Presidents' Breakfast
For NSTA Past Presidents Only
Yosemite A, Hilton..... 7:30–8:15 AM

AMSE/NSTA Minority Caucus George Washington Carver Breakfast
By Invitation Only
Club Room, Marriott..... 7:30–9:30 AM

NSTA Recommends Reviewer/Publisher Coffee
By Invitation Only
Green, Hilton .....8:00–9:00 AM

Past Presidents Advisory Board Meeting
Yosemite A, Hilton.....8:15–9:15 AM

NSTA International Lounge
Laurel, Marriott .....9:00 AM–5:00 PM

COSEE Luncheon
By Invitation Only
Club Room, Marriott..... 11:30 AM–1:30 PM

NSTA/SCST College Luncheon (M-9)
(Tickets Required: $65)
Yosemite A, Hilton.....12 Noon–1:30 PM

CESI/NSTA Elementary Science Luncheon (M-11)
(Tickets Required: $65)
Yosemite B, Hilton..... 12 Noon–2:00 PM

Aerospace Educators Luncheon—NASA AESP 50th Anniversary Celebration (M-10)
(Tickets Required: $30)
Golden Gate B, Marriott..... 12 Noon–2:00 PM

Science Matters State Coordinators Luncheon and Leadership Meeting
By Invitation Only
Sponsored by PBS Educational Media, NOVA, WGBH Teachers' Domain, KQED Public Media, and Twin Cities Public Television (SciGirls).
Union Square 5/6, Hilton ..... 12 Noon–3:00 PM

NASA Lifelines for High School Climate Change Education Leaders Meeting
Sierra F, Marriott..... 3:00–5:00 PM

NESTA Annual Membership Meeting
Meeting Room Hall D, Moscone Center..... 5:00–6:30 PM

President's Annual Banquet (M-12)
(Tickets Required: $85)
Continental 4/5, Hilton..... 7:00–9:30 PM

Sunday, March 13

NSTA Life Members' Buffet Breakfast (M-13)
(Tickets Required: $55)
Powell, Hilton .....7:00–9:00 AM

Alliance of Affiliates (AoA)

Saturday, March 12

3:30–5:30 PM	Building Scientific Minds with the NSTA Alliance of Affiliates	Yosemite B, Hilton

Association for Multicultural Science Education (AMSE)

President: Eddie A. Chevis

Thursday, March 10

8:00–9:00 AM	Strategies and Resources: Enhancing the Learning of Students from Underrepresented Groups in the Sciences	Yerba Buena Salon 12/13, Marriott
10:30 AM–1:00 PM	AMSE Board Meeting (By Invitation Only)	Pacific D, Marriott
2:00–3:00 PM	Hands-On Optics and Photonics Activities	Yerba Buena Salon 12/13, Marriott
3:30–4:30 PM	Communicating Like Scientists: Reading Comprehension for English Language Learner Students	Yerba Buena Salon 12/13, Marriott
5:00–6:00 PM	Closing the Achievement Gap—African-American Males: A Success Story	Yerba Buena Salon 12/13, Marriott

Friday, March 11

7:00–9:00 AM	AMSE Alice J. Moses Breakfast (By Invitation Only)	Club Room, Marriott
10:00 AM–12 Noon	AMSE Membership Meeting	Pacific F, Marriott
12:30–1:30 PM	Achieving Academic Excellence, One Case at a Time	Pacific F, Marriott
2:00–3:00 PM	Engaging Middle School Students in STEM Through 21st-Century Skills	Pacific F, Marriott
3:30–4:30 PM	Teachers and Scientists Working Together	Pacific F, Marriott

Saturday, March 12

7:30–9:30 AM	AMSE/NSTA Minority Caucus George Washington Carver Breakfast (By Invitation Only)	Club Room, Marriott
12:30–1:30 PM	Exploring Critical Elements of Language Development Through Inquiry	Pacific A, Marriott

Association for Science Teacher Education (ASTE)

President: Meta Van Sickle

Thursday, March 10

8:00–9:00 AM	Teachers as Learners: Cognitive Benefits of Online Professional Development	Union Square 25, Hilton
9:30–10:30 AM	Hands-On Performance Assessment for K–12 Students: The Impetus for Inquiry in Our Classrooms	Union Square 25, Hilton
5:00–5:30 PM	Teachers as Watershed Researchers: A Professional Development Model	Union Square 25, Hilton

Friday, March 11

8:00–9:00 AM	Link Middle and High School Students to Ecology with Digital Media About Published Scientific Research	Union Square 1/2, Hilton
9:30–10:30 AM	Science Exploratoriums: Connecting Elementary Students, Preservice Teachers, Practicing Teachers, and University Science Educators	Union Square 1/2, Hilton
11:00 AM–12 Noon	Enhancing Technological Literacy Through Engineering Design in the Elementary Science Classroom	Union Square 17/18, Hilton
12 Noon–2:00 PM	NSELA/ASTE Luncheon (Tickets Required: M-6) Speaker: Randal Harrington	Yosemite C, Hilton
3:30–4:30 PM	Information, Networking, and Support for Preservice and New Teachers	Union Square 13, Hilton
5:00–6:00 PM	Investigate How K–8 Teachers Use Web-based Science Education Resources	Union Square 13, Hilton

Saturday, March 12

12:30–1:30 PM	Inquiry About Inquiry	Union Square 21, Hilton

Association of Science-Technology Centers (ASTC)

President: Margaret Glass

Saturday, March 12

8:00–9:00 AM	Museum Educators and Science Interconnections	Pacific E, Marriott
9:30–10:30 AM	CAISE: What We Know About Learning Science in Informal Environments	Pacific E, Marriott
11:00 AM–12 Noon	Building Skills for Raising Girls' Interest in Science and Engineering	Pacific E, Marriott

Council for Elementary Science International (CESI)

President: Kay Atchison Warfield

Wednesday, March 9

9:00 AM–4:00 PM	CESI Presents: Engineering: It's Elementary (By Registration Through CESI)	Golden Gate 6-8, Hilton

Thursday, March 10

3:00–9:00 PM	CESI Board Meeting (By Invitation Only)	Union Square 3/4, Hilton
3:30–4:30 PM	Buzzing About Science: Behind the Scene with Scientific Trade Books That Invite Inquiry	Golden Gate 8, Hilton

Friday, March 11

8:00–9:00 AM	Inquiring Minds Want to Know	Union Square 5/6, Hilton
9:30–10:30 AM	Environmental Education at Your Fingertips	Union Square 5/6, Hilton
12:30–1:30 PM	Science on Board	Union Square 21, Hilton
3:00–4:00 PM	CESI President's Roundtable (By Invitation Only)	Union Square 14, Hilton

Saturday, March 12

9:30–11:30 AM	Council for Elementary Science International Share-a-Thon	Continental 5, Hilton
12 Noon–2:00 PM	CESI/NSTA Elementary Science Luncheon (Tickets Required: M-11) Speaker: Kerry Ruef	Yosemite B, Hilton
2:00–3:00 PM	Enhance K–8 Classrooms with Ready, Set, Science!	Union Square 21, Hilton
3:30–4:30 PM	Health-based Human Biology Activities for Elementary Students	Union Square 21, Hilton
5:00–6:00 PM	Designing Effective Curriculum Guides to Improve School District Science Achievement	Union Square 21, Hilton

Council of State Science Supervisors (CSSS)

President: Peter McLaren

Monday, March 7

7:30 AM–5:00 PM	CSSS Annual Meeting (By Invitation Only)	Yosemite A, Hilton

Tuesday, March 8

7:30 AM–5:00 PM	CSSS Annual Meeting (By Invitation Only)	Yosemite A, Hilton

Council of State Science Supervisors (CSSS), cont.

Wednesday, March 9

7:30 AM–5:00 PM	CSSS Annual Meeting (By Invitation Only)	Yosemite A, Hilton

Thursday, March 10

8:00–9:00 AM	Simulation-based Science Assessments	Union Square 5/6, Hilton
9:30–10:30 AM	Beyond Social Networking: Building Digital Learning Communities by Contrasting Site Data	Union Square 5/6, Hilton
12:30–1:30 PM	Geo Focus: Bays	Union Square 5/6, Hilton
2:00–3:00 PM	Using Cross-curricular Instruction to Engage Students and Improve Performance	Union Square 5/6, Hilton
3:30–4:30 PM	Blended Learning Open Source Science or Math Studies	Union Square 5/6, Hilton

Friday, March 11

8:00–9:00 AM	Statewide Science Teacher Professional Development—Texas Style	Union Square 13, Hilton
9:30–10:30 AM	Improving Instructional Practice in Science	Union Square 13, Hilton
12:30–1:30 PM	iPhones in the STEM Science Classroom	Union Square 15/16, Hilton
2:00–3:00 PM	Implications and Uses of Resources from the National Research Council	Union Square 13, Hilton

National Association for Research In Science Teaching (NARST)

President: Dana L. Zeidler

Thursday, March 10

8:00–9:00 AM	Unpacking Mentorship: Voices from Science Teachers That Mentor Preservice Candidates	Union Square 14, Hilton
9:30–10:30 AM	Bringing Local Science into the Elementary Classroom with an Integrated Science Unit	Union Square 14, Hilton
12:30–1:30 PM	Professional Development Ideas to Support Science Specialists and Elementary Generalists	Union Square 14, Hilton
2:00–3:00 PM	Policy That Makes a Difference in How to Effectively Support New Secondary Science Teachers	Union Square 14, Hilton
3:30–4:30 PM	Investigating Climate Change and Evolution Across Deep Time Through Argument-driven Inquiry	Union Square 14, Hilton
5:00–6:00 PM	Learning Progressions as a Foundation for the Development of Formative Assessment That Informs Instruction	Union Square 15/16, Hilton

National Association for Research In Science Teaching (NARST), cont.

Friday, March 11

8:00–9:00 AM	Public Physics Web Lectures as an Instructional Resource	Union Square 25, Hilton
9:30–10:30 AM	Science Times: Current, Socio-scientific News Stories Written for Students	Union Square 25, Hilton
12:30–1:30 PM	Profile of a Successful Science Fair Coach: How Theory and Research Translate into Classroom Practice	Union Square 5/6, Hilton
2:00–3:00 PM	Drawing Your Way from Research to the Classroom	Union Square 5/6, Hilton

National Middle Level Science Teachers Association (NMLSTA)

President: Rajeev Swami

Thursday, March 10

8:00–9:00 AM	Inquiry on the Cheap	Union Square 23/24, Hilton
9:30–10:30 AM	Density and Other Labs Using Plastics	Union Square 23/24, Hilton
12:30–1:30 PM	Making Sense of Drops on Cents: Understanding the Influence of Variables on Outcomes	Union Square 23/24, Hilton
2:00–3:00 PM	Rolling Racers: Having Fun Integrating Math and Science	Union Square 23/24, Hilton
3:30–4:30 PM	The Basics of Grant Writing	Union Square 23/24, Hilton

Friday, March 11

7:00–9:00 AM	NMLSTA Board Meeting (Part 1) (For NMLSTA Members Only)	Union Square 9, Hilton
9:30–10:30 AM	NMLSTA Share-a-Thon	Continental 4, Hilton
11:00 AM–12 Noon	Rube Goldberg: The Ultimate STEM Assessment	Union Square 25, Hilton
12 Noon–2:00 PM	NSTA/NMLSTA Middle Level Luncheon (Tickets Required: M-7) Speakers: Tory Brady and Sandra Robins	Continental 8, Hilton
3:00–4:30 PM	NMLSTA Ice Cream Social	Continental 6, Hilton
5:30–7:00 PM	NMLSTA Board Meeting (Part 2) (NMLSTA Members Only)	Union Square 9, Hilton

Saturday, March 12

9:30–10:30 AM	Finding Success with Grant Proposal Writing: Basic First Steps	Union Square 21, Hilton
11:00 AM–12 Noon	Win Big! Write a Grant	Union Square 21, Hilton

National Science Education Leadership Association (NSELA)

President: Janey Kaufmann

Tuesday, March 8

6:00 AM–6:00 PM	NSELA Board Meeting (By Invitation Only)	Green, Hilton

Wednesday, March 9

6:30 AM–3:00 PM	NSELA Professional Development Institute (By Registration Through NSELA)	Continental 4, Hilton
7:00–9:00 PM	NSELA Reception (For NSELA Members and Other Invited Guests)	Continental 4, Hilton

Thursday, March 10

7:30–9:30 AM	NSELA Membership Meeting and Breakfast Sponsored by Pearson (For NSELA members and Other Invited Guests)	Continental 8, Hilton
8:00–9:00 AM	NSDL's Science Literacy Maps	Union Square 21, Hilton
9:30–10:30 AM	Action Research for Science Teachers: Useful Tools for Starting a Rewarding Professional Learning Community	Union Square 21, Hilton
12:30–1:30 PM	Examining Student Perceptions Toward Professional Development	Union Square 21, Hilton
2:00–3:00 PM	Improve Student Science Achievement with Standards-based Test Data	Union Square 21, Hilton
3:30–4:30 PM	Leaders in Middle School Science Professional Development: One District's Journey	Union Square 21, Hilton

Friday, March 11

8:00–9:00 AM	Tools and Ideas for Leaders	Union Square 21, Hilton
9:30–10:30 AM	NSELA Working Groups—Network with Science Education Leaders	Union Square 21, Hilton
11:00 AM–12 Noon	It's All About the "Right" Questions, Not the "Right" Answers	Union Square 21, Hilton
12 Noon–2:00 PM	NSELA/ASTE Luncheon (Tickets Required: M-6) Speaker: Randal Harrington	Yosemite C, Hilton
3:30–4:30 PM	Publishing in *Science Educator*, the NSELA Journal	Union Square 21, Hilton
5:00–6:00 PM	Digital Content, Media Mobility, and the Networked Learner: Why Technology Has Become an Essential Element of Science	Union Square 21, Hilton

Society for College Science Teachers (SCST)

President: Connie Russell

Wednesday, March 9

1:00–10:00 PM	SCST Board Meeting (By Invitaton Only)	Executive Boardroom, Hilton

Thursday, March 10

8:00–9:00 AM	How to Use Real-World Issues to Illustrate Science in Your Classroom	Union Square 17/18, Hilton
	The Effects of an Inquiry-focused Undergraduate Biology Lab Course on Student Interest and Understanding of Scientific Research Practices	
	Database Use and the Science Student: Information Literacy Education and the Science Classroom	
9:30–10:30 AM	The Thousand-Word Picture: Reframing STEM Standards, Outcomes, and Strategies for the 21st-Century Workplace	Union Square 17/18, Hilton
	Merging of Two Worlds: Academic and Industrial Science	
	Developing College Students' Scientific Literacy and Understanding of the Nature of Science Through Climate Change Discussions	
12:30–1:30 PM	Aligning Assessment to Instruction: Group Testing in a Large Lecture Science Classroom	Union Square 17/18, Hilton
	Peer-based Science Study Groups: Benefits for Student Peer Leaders	
2:00–3:00 PM	Enhancing Science Education Through Video Conferencing	Union Square 17/18, Hilton
	Interdisciplinary Student Projects with Interdisciplinary Groups	
	A Model of Visual Literacy Skills in Undergraduate Biology Education	
3:30–4:30 PM	Assessing the Benefits and Failures of Student, Peer, and Self-Evaluations	Union Square 17/18, Hilton
	Predictors of Success in a Human Anatomy Course for Non-Majors	
	Improving Student Success in Introductory College Biology Courses	
5:00–6:00 PM	Assessing Learning Outcomes of Technology in Large Lecture Introductory Science Courses: Will We Ever Find Something That Works?	Union Square 17/18, Hilton
	Goldilocks Figured It Out: Finding the Amount of Classroom Inquiry That Is "Just Right"	
	Impact of Pedagogy Training Intervention on Student Achievement and the Student Perception of Learning	

Society for College Science Teachers (SCST), cont.

Friday, March 11

8:00–9:00 AM	Transforming Laboratory Experiments Using Sensor Technology	Union Square 17 /18, Hilton
	Science Outcomes Assessment Project	
	Using Public Databases to Enhance Learning of Molecular Biology and Genetics	
9:30–10:30 AM	Unit Dimensional Analysis Through Drug Dosage Calculations	Union Square 17/18, Hilton
	Pulling Students into Science Through Citizen Science and Investigations Focusing On Birds	
	The Art and Science of Sound: Mapping Biodiversity Through Bird Song and Landscapes	
12:30–1:30 PM	SCST Marjorie Gardner Lecture: SCALE-UP: A Student-centered Active Learning Environment for Undergraduate Programs	Union Square 17/18, Hilton
2:00–3:00 PM	Meeting the Challenges of Teaching Inquiry in Introductory Biology Courses at Two- and Four-Year Colleges	Union Square 17/18, Hilton
	NSF Funding Opportunities and the Evolving Face of STEM Education	
3:30–5:00 PM	SCST Business Meeting	Union Square 17/18, Hilton
7:30–9:00 PM	SCST Dessert Social and Poster Session (Open to College Faculty and SCST Members)	Continental 4, Hilton

Saturday, March 12

9:30 AM–12 Noon	NSTA/SCST 2011 Joint Session: Symposium on Nanotechnology	Continental 2, Hilton
12 Noon–1:30 PM	NSTA/SCST College Luncheon (Tickets Required: M-9) Speaker: Melanie M. Cooper	Yosemite A, Hilton

Find the Answers on the NSTA Avenue (#2401)

Pick up your "NSTA Navigator" to guide you through member benefits, products, services, programs, and partners—free gifts, too!

Share with Others

- ***NSTA Membership.*** Learn about your NSTA member benefits, pick up a sample journal and test our newest social networking platform, NSTA Communities. If you're a student, ask about our student chapters and other ways we support young professionals.

Enhance Your Skills

- ***NSTA Learning Center.*** Select high-quality, online learning opportunities to build content knowledge. Use our suite of tools for self-assessment and to document your progress.
- ***Web Seminars.*** Update your content knowledge with these free, 90-minute, live, online presentations. Voice questions and share in rich conversations with the presenters and other educators.
- ***SciGuides.*** Use these online resources, aligned with the national Standards, to locate lessons organized by grade level and specific content themes.

Expand Your Mind

- ***NSTA Press***® publishes 25 new titles each year. Browse at the Science Bookstore, and connect with authors to have your new book signed. Submit your new book idea to *http://mc.manuscriptcentral.com/nstapress.*
- ***SciLinks***®***.*** Link to science resources on the internet, using sites recommended by science educators. You'll find accurate information, effective pedagogy, and reliable content.

Add Your Voice

- ***Science Matters*** is a major public awareness and engagement campaign designed to rekindle a national sense of urgency and action among schools and families about the importance of science education and science literacy.
- The **John Glenn Center for Science Education Campaign.** NSTA's five-year, $43 million national campaign to make excellence in science teaching and learning a reality for all will fund a series of forward-thinking programs and a state of the art facility designed to promote leadership, learning, and advocacy in science education.

Distinguish Yourself

- ***NSTA Awards.*** 17 programs offer awards to science teachers K–College.
- ***Toshiba/NSTA ExploraVision® Awards*** is a team-based K–12 competition that awards up to $240,000 in savings bonds annually.
- ***Toyota TAPESTRY*** has awarded over $11 million in grants for K–12 science teachers over the past 20 years.
- ***THE DUPONT CHALLENGE©*** *Science Essay Competition* is for grades 7–12, with cash prizes and an expense-paid trip to Disney World® and the Kennedy Space Center.
- ***Siemens We Can Change the World Challenge*** is a national student sustainability competition that encourages students to develop actionable local solutions for a "greener" world.
- ***Disney's Planet Challenge*** is a project-based environmental competition for grades 3–8 that empowers students to make a difference in their homes, schools, and communities.
- The ***Pete Conrad Spirit of Innovation Awards*** challenges teams of high school students to create innovative products in three categories: aerospace exploration, clean energy, and cyber security.
- The ***NSTA New Science Teacher Academy*** supports science teachers during the often challenging, initial years by enhancing confidence, classroom excellence, and teacher content knowledge.
- ***NSTA's Shell Science Lab Challenge*** provides science laboratory equipment and professional development support to middle and high schools with limited resources. Learn how you can win a $20,000 lab makeover support package.
- The ***Mars Education Challenge*** awards cash prizes and trips to teachers who develop ways to fit Mars science and exploration into classes. Winners also can participate in fields studies with planetary scientists.

NSTA National Science Teachers Association

Delta Education

WORKSHOP EASY SCHEDULE

K-8 SCIENCE NOTEBOOK Solutions with FOSS® (Full Option Science System)

Thursday	8:30–11:00	Using Science Notebooks with Middle School
Friday	8:30–11:00	Middle School Science Notebooks to Assess Learning (*For Experienced Users*)
Saturday	8:00–10:00	Using Science Notebooks with K–6
	1:30–4:00	Elementary Science Notebooks for Formative Assessment (*For Experienced Users*)

Elementary SCIENCE INQUIRY AND LITERACY INTEGRATION Solutions with *Seeds of Science/Roots of Reading*®

Thursday	8:30–10:00	Variation and Adaptation Unit
	11:00–12:30	Shoreline Science Unit
	2:30–4:00	Chemical Changes Unit

K-8 OUTDOOR SCIENCE Solutions with FOSS® (Full Option Science System)

Thursday	12:00–1:15	Beyond the Classroom Walls
Friday	12:00–2:00	Taking Science Outdoors K–8

K-8 ADMINISTRATOR/SUPERVISOR SCIENCE Solutions from Delta Education®

Thursday	1:00–2:30	What's Going on in There? Inquiry Science for Supervisors
Friday	12:00–1:15	Kit Refurbishment and Materials Management made easy
Saturday	11:00–12:30	California Leadership Academy for FOSS®

MIDDLE SCHOOL SCIENCE Solutions with FOSS® (Full Option Science System)

Thursday	8:30–11:00	Using Science Notebooks with FOSS® Middle School
	2:00–4:30	Chemical Interactions Module
Friday	8:30–11:00	Middle School Science Notebooks to Assess Learning with FOSS® (*For Experienced Users*)
	3:00–5:00	Planetary Science Module

K-8 CLASSROOM Solutions from Delta Education®

Thursday	10:00–11:15	Introducing DSM® Delta Science Modules
	3:00–4:30	Science Gnus: Science Inquiry Skills in the Stories of Famous and not so Famous
Friday	8:00–9:15	Put Some Spark into Science Investigations
	2:00–3:15	Working as One with Hands and Minds

800-258-1302
www.DeltaEducation.SchoolSpecialty.com

Seeds of Science Roots of Reading · FOSS Full Option Science System · DSM Third Edition DeltaScienceModules

School Specialty Science

6:30 AM–3:00 PM Workshop

NSELA Professional Development Institute
(By Registration Through NSELA) *Continental 3/4, Hilton*
For details, visit *www.nsela.org*.

7:30 AM–5:00 PM Meeting

CSSS Annual Meeting
(By Invitation Only) *Yosemite A, Hilton*

8:00 AM–12 Noon Meeting

GEMS Ocean Science Seminar
Golden Gate Salon C1, Marriott
Visit *www.lhsgems.org* for more information.

8:00 AM–5:00 PM Meeting

Science Education for Students with Disabilities Preconference Meeting
(By Registration Through SESD) *Willow, Marriott*
Science educators, special education teachers, parents, and/or administrators at all levels learn and share information and strategies on teaching science to students with disabilities. For more information, please contact Patricia Davidson at *pdavidson@usi.edu*.

8:30 AM–4:00 PM NSTA PDIs

PDI **Using Mathematical Representations to Talk About, Model, and Explain Scientific Phenomena (PDI-1)**
(Middle Level) *Yerba Buena Salon 1, Marriott*
Tickets Required: $150; by preregistration only
Offered by TERC *(www.terc.edu)*
Sally Crissman and **Sue Doubler,** TERC, Cambridge, Mass.
For description, see page 58.

PDI **Inquiring into Inquiry: Creating an Inquiry-based Classroom (PDI-2)**
(Elementary–High School) *Yerba Buena Salon 2, Marriott*
Tickets Required: $150; by preregistration only
Offered by BSCS Center for Professional Development *(www.bscs.org)*
Elizabeth Edmondson, BCSC, Colorado Springs, Colo.
For description, see page 58.

Science Area

A science area category is associated with each session. These categories are abbreviated in heavy type at the right immediately following the session title. On page 187, you will find the conference sessions grouped according to their assigned science area category.

The science areas and their abbreviations are:

(Bio) = Biology/Life Science
(Chem) = Chemistry/Physical Science
(Earth) = Earth/Space Science
(Env) = Environmental Science
(Gen) = Integrated/General Science
(Phys) = Physics/Physical Science

Strands

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

Embracing Technology in the 21st-Century Classroom

Accessing Language Through Science and Mathematics Content

Exploring Earth, Wind, and Fire

Building Scientific Minds: Inspiring Teaching and Effective Learning

Other Icons

The following icons will be used throughout this program.

Global Conversations in Science Education Conference

NSTA Avenue Sessions

NSTA Press Sessions

Professional Development Institutes

PDI **Deepening Science Thinking and Reasoning Through Discussion and Writing in K–5 Inquiry-based Science (PDI-3)**

(Elementary) *Yerba Buena Salon 3, Marriott*

Tickets Required: $150; by preregistration only

Offered by the Center for Science Education, Education Development Center, Inc. *(cse.edc.org)*

Jeff Winokur and **Karen Worth,** Education Development Center, Inc., Newton, Mass.

Martha Heller-Winokur, Teaching and Learning Alliance, Inc., Woburn, Mass.

For description, see page 59.

PDI **Science in Context: Helping Students Develop 21st-Century Skills Through Issue-oriented Science (PDI-4)**

(Middle Level–High School) *Yerba Buena Salon 4, Marriott*

Tickets Required: $150; by preregistration only

Offered by Science Education for Public Understanding Program (SEPUP) of the Lawrence Hall of Science, University of California, Berkeley *(www.sepuplhs.org)*

Barbara Nagle, John Howarth, Maia Willcox, and **Laura Lenz,** Lawrence Hall of Science, University of California, Berkeley

For description, see page 59.

PDI **Going with the Conceptual Flow: Bridging the Gap Between Your State Standards, Curriculum Materials, and Student Learning (PDI-5)**

(Elementary–High School) *Yerba Buena Salon 5, Marriott*

Tickets Required: $150; by preregistration only

Offered by WestEd *(www.wested.org)*

Kathy DiRanna, Jo Topps, and **Karen Cerwin,** WestEd, Santa Ana, Calif.

For description, see page 60.

PDI **Improving Student Learning Through Formative Assessment (PDI-6)**

(Grades 3–8) *Yerba Buena Salon 6, Marriott*

Tickets Required: $150; by preregistration only

Offered by Lawrence Hall of Science

Brian Campbell, Linda De Lucchi, Kathy Long, Larry Malone, and **Terry Shaw,** Lawrence Hall of Science, University of California, Berkeley

Cathleen Kennedy, Educational Consultant, San Carlos, Calif.

For description, see page 60.

PDI **Science for English Language Learners: Adaptations for Inquiry Science Teaching While Building Language Skills (PDI-7)**

(Elementary–High School) *Yerba Buena Salon 10, Marriott*

Tickets Required: $150; by preregistration only

Offered by University of Nevada, Reno/David T. Crowther

David T. Crowther, University of Nevada, Reno

For description, see page 60.

8:30 AM–4:00 PM PDI Work Sessions

PDI **One-Day Work Session on Learning Progressions: Moving Up in the World of Educational Effectiveness (PDI-8)**

(K–12) *Yerba Buena Salon 11, Marriott*

Tickets Required: $100; by preregistration only

Offered by The Center of Science and Mathematics in Context (COSMIC), University of Massachusetts, Boston

Arthur Eisenkraft, 2000–2001 NSTA President, and Center of Science and Math in Context (COSMIC), University of Massachusetts, Boston

Jennifer Dorsen and **Allison Scheff,** Boston Science Partnership, Boston, Mass.

Pamela Pelletier, Suzanne Gill, Jonathan McLaughlin, Beverly Nadeau, Erin A. Hashimoto-Martell, Haven Ripley Daniels, Fiona M. Bennie, and **Michael Clinchot,** Boston (Mass.) Public Schools

Hannah Sevian, National Science Foundation and University of Massachusetts, Boston

For description, see page 61.

PDI **One-Day Work Session on Designing Effective Science Instruction: Developing Student Understanding Through Classroom Inquiry, Discourse, and Sense-Making (PDI-9)**
(K–16) *Yerba Buena Salon 12/13, Marriott*
Tickets Required: $100; by preregistration only
Offered by Mid-continent Research for Education and Learning (McREL)
Anne Tweed, 2004–2005 NSTA President, and Mid-continent Research for Education and Learning (McREL), Denver, Colo.
Sarah LaBounty, Mid-continent Research for Education and Learning (McREL), Denver, Colo.
For description, see page 61.

9:00 AM–12 Noon Meeting

Science Olympiad Meeting #1
(By Invitation Only) *Union Square 13, Hilton*

9:00 AM–4:00 PM Meeting

CESI Presents: Engineering—It's Elementary
($110, By Registration Through CESI) *Golden Gate 6–8, Hilton*
Join in the science conversation as we improve teaching in STEM subjects, inspire student learning in those subjects, and achieve a national/international commitment to improve education in those subjects. Learn what engineers do and support the knowledge of building, designing, and taking things apart as our curiosity and thirst for new technologies expand. Participants will be actively engaged, receive free instructional materials, and lunch will be provided. Visit *www.cesiscience.org* for more information.

1:00–5:00 PM Meetings

RET Networking Meeting and Poster Session
Continental 6, Hilton
For more information, visit *www.stem.neu.edu/ret.htm*.

Hands-On Science for After School Seminar
Golden Gate Salon C1, Marriott
Visit *www.lhsgems.org* for more information.

1:00–10:00 PM Meeting

SCST Board Meeting
(By Invitation Only) *Executive Boardroom, Hilton*

5:00–8:00 PM Reception

New Science Teacher Academy Reception
(By Invitation Only) *Club Room, Marriott*

6:30–7:30 PM Reception

NSTA President's International Reception
Yerba Buena Salon 14/15, Marriott
This reception is open to international visitors and invited guests.

7:00–9:00 PM Reception

NSELA Reception
(For NSELA Members and Invited Guest) *Continental 4, Hilton*

7:30–10:30 PM Meeting

Science Olympiad Meeting #2
(By Invitation Only) *Union Square 13, Hilton*

—*Jack Hollingsworth, San Francisco Convention &Visitors Bureau*

San Francisco's fog adds to the mystery of the Japanese Tea Garden in Golden Gate Park.

Thursday, March 10

	Presentations/Workshops	General Sessions/Special Events	General Sessions/Special Events	Exhibitor Workshops
8:00 AM	**First-Timers' Meeting** 8:00–9:00 AM Continental 5, Hilton	**Featured Presentation** 8:15–9:45 AM Gateway Ballroom, Moscone *Science Matters National Town Hall on Science Education*		
9:00 AM				
10:00 AM		**Featured Presentation** 9:30–10:30 AM 135, Moscone Speaker: Chad W. Dorsey		
11:00 AM		**General Session** 11:00 AM–12:30 PM Gateway Ballroom, Moscone Speaker: Jeff Goldstein		
12 Noon				
1:00 PM		**Mary C. McCurdy Lecture** 12:30–1:30 PM 135, Moscone Speaker: Dennis Bartels		
2:00 PM		**Featured Panel** 2:00–3:00 PM 135, Moscone Panelists: Francis Q. Eberle, Stephen L. Pruitt, Helen R. Quinn *Next Generation of Science Education Standards*		
3:00 PM				
4:00 PM	**First-Timers' Meeting** 3:30–4:30 PM Continental 5, Hilton	**Featured Presentation** 3:30–4:30 PM 135, Moscone Speaker: Kenji Hakuta	**The Planetary Society Lecture** 3:30–5:30 PM Gateway Ballroom, Moscone Speaker: Bill Nye	
5:00 PM				
6:00 PM		**Special Evening Session** 6:00 PM–12 Midnight Yosemite A, Hilton Union Square *A Video Showcase of Inspiring Award-winning Teachers, Part I*		
7:00 PM				
8:00 PM				

7:30–9:00 AM Exhibitor Workshops

Come Learn How to Fingerprint Your Own DNA: Affordable Classroom PCR That Works (Bio)
(Grades 9–College) *110, Moscone Center*
Sponsor: EDVOTEK
Jack Chirikjian *(info@edvotek.com)* and **Tom Cynkar** *(info@edvotek.com),* EDVOTEK, Bethesda, Md.
Learn how to prepare your own DNA for fingerprinting and discover how these procedures are integrated into classroom experiments using PCR and electrophoresis. Participants prepare a PCR sample, separate amplified DNA by electrophoresis, and stain with InstaStain™, a nonliquid dye that reduces time and mess. We'll also discuss non-DNA-based identification methods.

Move Beyond the Textbook (Gen)
(Grades K–12) *206, Moscone Center*
Sponsor: Discovery Education
Presenter to be announced
Learn how Discovery Education Science Techbook helps engage students by reaching them with dynamic curricular resources and easy-to-implement hands-on labs and activities. *Note:* Free hands-on kits will be provided to the first 50 attendees.

Effective STEM Challenges for the Classroom (Gen)
(Grades K–8) *236/238, Moscone Center*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.
Join Michael DiSpezio for this high-energy, entertaining, and engaging workshop that explores effective and realistic STEM construction challenges. Experience how a bit of guidance can direct student experience toward addressing specific content standards in science and mathematics. You'll engineer and test catapults and models of air bag–cushioned Mars landers.

Forensics Made Easy—See What's New! (Bio)
(Grades 8–College) *256, Moscone Center*
Sponsor: Swift Optical Instruments, Inc.
David Doty *(david@swiftoptical.com)* and **Cynthia Syverson-Mercer** *(cynthia@swiftoptical.com),* Swift Optical Instruments, Inc., San Antonio, Tex.
From the latest in equipment to the ease of software applications, Swift makes teaching forensics fun for your students and easy on your budget. Swift's new comparison microscope features side-by-side examination of evidence or other comparison studies. Motic imaging software goes even further and let's you compare, annotate, and make definitive conclusions. Join us for a lively investigative demonstration.

Paint It RED! Using Technology to Teach Physical Science (Phys)
(Grades 6–11) *270/272, Moscone Center*
Sponsor: Science Kit & Boreal Laboratories
Matt Benware *(mbenware@sciencekit.com),* Science Kit & Boreal Laboratories, Tonawanda, N.Y.
Are you looking for new and innovative ways to use technology to help teach physical science? Learn how to better engage the iPod generation by integrating technology that looks and feels familiar to your students so that you can spend more time on real science concepts.

Put Me in Coach! The Physics of Baseball (Phys)
(Grades 9–College) *274/276, Moscone Center*
Sponsor: CENCO Physics
Paul Robinson *(pablo@laserpablo.com),* San Mateo High School, San Mateo, Calif.
Make your physics class even more of a home run by incorporating both basic and advanced physics principles tied to America's pastime—baseball! Giants jerseys optional.

Fun, Fabulous Foldables® (Gen)
(Grades K–12) *303, Moscone Center*
Sponsor: McGraw-Hill School Education Group
Dinah Zike, Dinah-Might Adventures, LP, San Antonio, Tex.
Experience how these 3-D graphic organizers can transform your science lesson into an engaging, interactive learning experience. These interactive tools offer endless possibilities for collecting data, building understanding, and assessing student comprehension.

Inquiry in the Classroom (Gen)
(Grades K–8) *305, Moscone Center*
Sponsor: Pearson
Zipporah Miller, Author, Bowie, Md.
More inquiry in more places. Whether you're a lab-oriented teacher or a textbook-focused teacher, Zipporah Miller will show you a variety of hands-on/minds-on inquiry options to keep all your students engaged.

Using MasteringBiology® to Improve Learning Outcomes **(Bio)**
(Grades 9–College) *307, Moscone Center*
Sponsor: Pearson
Shannon Datwyler, California State University, Sacramento
Are you interested in enhancing your students' learning while collecting diagnostic information to support just-in-time teaching? Join me as I share my experiences with the MasteringBiology tutorial and homework system, along with practical, time-saving tips for creating assignments and using student data to boost student performance in college-level and AP courses.

7:30–9:30 AM Meeting

NSELA Membership Meeting and Breakfast Sponsored by Pearson
(For NSELA Members and Invited Guests) *Continental 8, Hilton*

8:00–8:30 AM Exhibitor Workshop

Education Flight Projects **(Bio)**
(Grades K–12) *309, Moscone Center*
Sponsor: NASA Education
Cindy McArthur *(cynthia.l.mcarthur@nasa.gov),* NASA Johnson Space Center, Houston, Tex.
Receive an overview of the projects and activities associated with NASA's human space flight program.

8:00–8:50 AM Exhibitor Workshop

NASA Kepler Mission: In Search of Other "Earths" **(Earth)**
(Grades 5–12) *310, Moscone Center*
Sponsor: NASA Education
Tony Leavitt *(anthony.d.leavitt@nasa.gov),* NASA Ames Research Center, Moffett Field, Calif.
The NASA Kepler telescope is studying 100,000 stars over five years to search for Earth-sized planets orbiting in their "habitable zone." Learn how scientists use planet transits to discover new planets with the potential for life!

8:00–9:00 AM Presentations

SESSION 1 (two presentations)
(High School–College) *Continental 3, Hilton*
Online Courses and Materials That Provide True Technology Integration Across the Sciences **(Gen)**
Daniel N. Damelin *(ddamelin@concord.org),* The Concord Consortium, Concord, Mass.
These innovative, cross-curricular, model-based activities are supported by an online professional development model. Hear about past results and new opportunities and take home a free CD.

Using Online Data for Investigations in Ecology and Animal Behavior **(Env)**
Nancy M. Trautmann *(nmt2@cornell.edu)* and **Colleen M. McLinn** *(cmm252@cornell.edu),* Cornell Lab of Ornithology, Ithaca, N.Y.
Using citizen-science data or Cornell's web-based video and sound files, high school through undergraduate students can conduct authentic inquiries into ecological relationships and animal behavior.

SESSION 2
Is This Your First NSTA Conference? **(Gen)**
(General) *Continental 5, Hilton*
NSTA Board and Council
Feeling overwhelmed by all there is to see and do at an NSTA Conference on Science Education? Join us for an interactive and participatory (fun!) walk through the conference program book. By the end of the session we guarantee you'll know just how to get the most from your conference experience. Refreshments courtesy of Carolina Biological Supply Company.

SESSION 3
Science Olympiad: The Best-kept Secret in Science Education! **(Gen)**
(Elementary–High School) *Continental 6, Hilton*
Thomas B. Grayson Jr. and **Tami G. Grayson,** Greenhill School, Addison, Tex.
Tired of teaching the same old stuff? Learn the what, why, and how of Science Olympiad. Best decision you'll ever make!

SESSION 4
AP Biology Teachers' Open Forum **(Bio)**
(High School–College) *Golden Gate 1, Hilton*
Franklin Bell *(bellf@mercersburg.edu),* Mercersburg Academy, Mercersburg, Pa.
Join AP Biology teachers and the development committee

for a discussion of teaching strategies, course activities, misconceptions from the past exam, and other issues in AP Biology.

SESSION 5
Naturally Selecting an Effective Teaching Method (Bio)
(Middle Level) *Golden Gate 2, Hilton*
Karen L. Mesmer *(kmesmer@baraboo.k12.wi.us),* Jack Young Middle School, Baraboo, Wis.
As a part of the Exemplary Science series, this session presents an effective way to teach natural selection to middle school students.

SESSION 6
Legal Issues Surrounding the Teaching of Science (Gen)
(Supervision/Administration) *Golden Gate 5, Hilton*
Susan J. Giullian (*susan.guillian@ucdenver.edu),* University of Colorado, Denver
Jennifer Weese, Meridian Elementary School, Broomfield, Colo.
Karen E. Johnson *(karen.johnson@adams12.org),* STEM Magnet Lab School, Northglenn, Colo.
What would a prudent person do? We'll look at issues related to personal responsibility and ways to advocate for administrative support and avoid litigation.

SESSION 7

Clue into Climate (Gen)

(Middle Level) *Golden Gate 6, Hilton*

Andrea Aust *(scienceed@kqed.org),* KQED Public Media, San Francisco, Calif.

Use free digital media-based resources—including video and audio, interactive diagrams, and standards-based lessons—to engage middle school students in learning about climate.

SESSION 8

NSTA Press Session: Reflective Questions for Educators: Keeping Yourself Thoughtful (Gen)

(General) *Golden Gate 8, Hilton*

Joan A. Gallagher-Bolos *(katiramom@gmail.com),* Glenbrook North High School, Northbrook, Ill.

Dennis W. Smithenry *(dsmithenry@gmail.com),* Elmhurst College, Elmhurst, Ill.

Teaching is fluid. It requires flexibility. It demands honesty. What do you do to model critical thinking regarding your own profession?

SESSION 9

NARST Session: Unpacking Mentorship: Voices from Science Teachers Who Mentor Preservice Candidates (Gen)

(General) *Union Square 14, Hilton*

Shelly Rodriguez *(shelly.rodriguez@austin.utexas.edu),* The University of Texas at Austin

Steven S. Fletcher *(stevenf@stedwards.edu),* St. Edward's University, Austin, Tex.

Uncover the professional learning that occurs during the mentoring process as we share interviews with science teachers taking part in a STEM teacher preparation program.

SESSION 10 (two presentations)

(General) *Union Square 17/18, Hilton*

SCST Session: How to Use Real-World Issues to Illustrate Science in Your Classroom (Gen)

Brian Shmaefsky *(brian.r.shmaefsky@lonestar.edu),* Lone Star College–Kingwood, Tex.

Explore ways to use current and relevant science issues in the news to reinforce science teaching.

SCST Session: The Effects of an Inquiry-focused Undergraduate Biology Lab Course on Student Interest and Understanding of Scientific Research Practices (Gen)

Matthew Kloser *(mkloser@stanford.edu)* and **Sara E. Brownell** *(seb52@stanford.edu),* Stanford University, Palo Alto, Calif.

Discuss results of a study that compared an undergraduate modular-based traditional lab course with a more inquiry-focused course featuring a single, longitudinal research experience.

SESSION 11

NSELA Session: NSDL's Science Literacy Maps (Gen)

(General) *Union Square 21, Hilton*

Ted Willard *(twillard@aaas.org),* AAAS Project 2061, Washington, D.C.

See how to use the Science Literacy Maps in NSDL to browse concepts as you look for digital resources to meet your students' needs.

SESSION 12

The Life-changing Benefits of Connecting Children with Nature (Gen)

(General) *Union Square 22, Hilton*

Kathleen French *(kfrench2@unl.edu),* University of Nebraska, Lincoln

Explore research-based, field-tested principles for creating developmentally appropriate outdoor learning environments that support science learning and rich skill development across the curriculum.

SESSION 13

ASTE Session: Teachers as Learners: Cognitive Benefits of Online Professional Development (Gen)

(Middle Level–High School) *Union Square 25, Hilton*

Janice Koch *(janice.koch@hofstra.edu),* Hofstra University, Fulton, Md.

Susan Van Gundy *(vangundy@ucar.edu),* The National Science Digital Library, Boulder, Colo.

Howard Lurie *(howard_lurie@wgbh.org),* WGBH, Boston, Mass.

Ro Kinzler, American Museum of Natural History, New York, N.Y.

Presider: Robert V. Steiner *(rsteiner@amnh.org),* American Museum of Natural History, New York, N.Y.

Learn about the benefits of online science resources for both adult and student learners. Discover professional development features available with electronic media.

SESSION 14 (two presentations)
(General) *Yosemite A, Hilton*

PolarTREC: A Truly Awesome Experience That Inspires Teachers and Students (Gen)
Janet Warburton *(warburton@arcus.org)* and **Kristin Timm** *(kristin@arcus.org),* Arctic Research Consortium of the United States, Fairbanks, Alaska
Polar TREC matches teachers with researchers for 2–8 week teacher research experiences (TRE) in the Arctic and Antarctic. PolarTREC can serve as a model teacher research experience program for others interested in working with the scientific community.

Science Instruction in Elementary School as an Ethical Responsibility (Gen)
Grinell Smith *(grinell.smith@sjsu.edu)* and **Colette Rabin,** San Jose State University, San Jose, Calif.
Researchers found that positioning science instruction as an ethical responsibility and an issue of equity may lead to increased science instructional time in elementary classes.

SESSION 15 (two presentations)
(High School–College) *Yosemite C, Hilton*

Assessment of Formats for Peer Evaluation (Gen)
Jack T. Tessier *(tessiejt@delhi.edu),* SUNY Delhi, N.Y.
I compared student attitudes and grades in association with three methods of peer evaluation. Join me as I share the results.

Integrated Learning Experiences in Action: It's a What? (Gen)
CANCELED
Ana M. Corbacho *(amcorbacho@ucdavis.edu),* University of California, Davis
Examine the use of integrated activities to foster the academic, social, and professional identity development of science students. Handouts.

SESSION 16

Bringing Together Women Science Professionals and Girls to Encourage Girls' Interest in STEM Learning and Careers (Gen)
(Middle Level–High School/Informal Ed) *Golden Gate A, Marriott*
Melissa J. Koch *(melissa.koch@sri.com),* **Christopher J. Harris,** and **Patrik Lundh** *(patrik.lundh@sri.com),* SRI International, Menlo Park, Calif.
Kiku Johnson *(kjohnson@girlsinc-alameda.org),* Girls Incorporated of Alameda County, San Leandro, Calif.
Learn how to incorporate women science professionals into your curriculum to encourage girls' interest in STEM learning and careers. We have data on what works!

SESSION 17

U.S. EPA Environmental Education Resources and Tools for Teachers and Students (Env)
(Informal Education) *Golden Gate Salon C3, Marriott*
Ruth McCully *(mccully.ruth@epa.gov)* and **Megan Gavin** *(gavin.megan@epa.gov),* U.S. Environmental Protection Agency, Washington, D.C.
From grants to awards to classroom tools and curricula, the U.S. EPA provides resources to enhance environmental education programs. We'll share specifics on teacher training programs, education grants, youth awards, and free classroom tools that focus on today's environmental issues.

SESSION 18

NASA: Bring NASA Science into Your Classroom (Earth)
(General) *Pacific B, Marriott*
John Ensworth *(john_ensworth@strategies.org),* The Institute for Global Environmental Strategies, Arlington, Va.
Laura Peticolas *(laura@ssl.berkeley.edu),* University of California, Berkeley
Learn about NASA's Science Mission Directorate (SMD) and how to navigate the many NASA SMD sessions for Earth/space, physics, chemistry, biology, and general science teachers.

SESSION 19

Understanding Lightning and Lightning Safety (Earth)
(General) *Pacific C, Marriott*
John S. Jensenius *(john.jensenius@noaa.gov),* NOAA National Weather Service, Gray, Maine
This nontechnical presentation explains in detail what causes lightning and what happens during a lightning discharge. See slow motion video of actual lightning discharges.

SESSION 20

Why Teach Evolution? (Bio)
(General) *Sierra A, Marriott*
Steven Newton *(newton@ncse.com),* National Center for Science Education, Oakland, Calif.
Discover why evolution should be taught. Discuss biological evolution as a central component to science curricula.

SESSION 21

Teaching the Periodic Table Using the Nature of Science (Chem)

(High School) *Sierra H, Marriott*

Jesse L. Wilcox *(jwilcox.23@gmail.com),* Valley Southwoods Freshman High School, West Des Moines, Iowa

Scott M. Moore, Ankeny High School, Ankeny, Iowa

These activities help students understand the process of constructing the periodic table and the significance of the periodic trends. Handouts provided.

SESSION 22 (two presentations)

(Middle Level–High School) *Sierra I, Marriott*

Forensic Science Through Unsolved Cases (Gen)

Sarah E. Eales *(sarah_eales@gwinnett.k12.ga.us),* Peachtree Ridge High School, Suwanee, Ga.

Forensics can be overwhelming for both teachers and students due to the extensiveness of content. Learn how to integrate thematic units based around unsolved cases.

Twenty Science Questions Teenagers Frequently Ask (Gen)

William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.

A survey of U.S. teenagers reveals some surprising science questions. Come learn what are they and get some answers.

SESSION 23 (two presentations)

(Middle Level–High School) *Sierra J, Marriott*

Nature of Science: An Action Plan Promoting Student Understanding (Gen)

Allison R. Levine and **Anne K. Abole** *(katieabole@gmail.com),* New York, N.Y.

Jed Nicholas Panganiban *(panganib41485@gmail.com),* Columbia University and Bushwick Leaders' High School, Brooklyn, N.Y.

Jeffrey G. Williams *(jgw2122@columbia.edu),* New York Medical College, Valhalla

We developed an action research plan that examined why many colleagues have struggled to implement nature of science within daily lessons. We'll share multiple activities to dispel student misconceptions of the nature of science.

Understanding and Teaching the Role of Science and Technology in Sustainability in the 21st Century (Gen)

Kai Ling Ng *(kailing.ng@rgs.edu.sg),* Raffles Girls' School, Singapore

I'll share an interdisciplinary approach to understanding sustainability through problem-based learning and 21st-century skills.

SESSION 24

PDI **BSCS Pathway Session: Looking for PCK (Pedagogical Content Knowledge) in All the Wrong Places? (Bio)**

(High School/Supervision) *Yerba Buena Salon 2, Marriott*

Janet Carlson *(info@bscs.org)* and **April L. Gardner,** BSCS, Colorado Springs, Colo.

Learn about a study of pedagogical content knowledge among biology teachers and how it changed as they participated in Project PRIME.

SESSION 25

PDI **ELL Pathway Session: Seven Strategies to Scaffold Language and Learning (Gen)**

(Middle Level–High School) *Yerba Buena Salon 10, Marriott*

John Carr *(jcarr@wested.org),* WestEd, Oakland, Calif.

Ursula M. Sexton *(usexton@wested.org),* WestEd, Redwood City, Calif.

Discuss seven integrated, research-based strategies embedded in inquiry-based content lessons to scaffold language and learning for English language learners and students with learning disabilities.

SESSION 26

Stand and Deliver: How to Present at an NSTA Conference! (Gen)

(General) *200, Moscone Center*

Melvina Jones *(mjteachme@aol.com),* NSTA Director, Preschool/Elementary, and John Burroughs Education Campus, Washington, D.C.

Jim Harris, Jackson Middle School, Jackson, Ala.

Mary Smigel, Montessori Academy of Lancaster, Pa.

Bonnie C. Embry *(bce3209@insightbb.com),* NSTA Director, Distrct VIII, Lexington, Ky.

The Preschool/Elementary Committee will share how to prepare and submit a proposal for presentation at an NSTA conference.

SESSION 27

 **Fab Vocab Strategies You Can Use Today! (Gen)**

(General) *224/226, Moscone Center*

Kristine K. Denton *(kristine.denton@ops.org),* King Science and Technology Magnet Center, Omaha, Neb.

Explore fun, quick, and engaging vocabulary games and activities that will improve language instruction in any science classroom.

National Earth Science Teachers Association Events at 2011 San Francisco NSTA Conference

Friday, March 11

- 9:30-10:30 **NESTA Geology Share-a-Thon**, Moscone, Meeting Room Hall D
- 11:00-12:00 **NESTA Oceans & Atmospheres Share-a-Thon**, Moscone, Meeting Room Hall D
- 12:30-1:30 **NESTA Space Science Share-a-Thon**, Moscone, Meeting Room Hall D
- 2:00-3:00 **American Geophysical Union Lecture!**
  "Our Eye on the Sun - the Latest from SDO - the Solar Dynamics Observatory", by Dr. Todd Hoeksema, Moscone 104
- 6:30-8:00 **NESTA Friends of Earth Science Reception**, Marriott San Francisco Marquis, Club Room

Saturday, March 12

NESTA Earth and Space Science Resource Day: Earthquake Hazards and Seismology

All events at the Moscone Center, Meeting Room Hall D, <u>except Breakfast</u>

- 7:00-8:30 **NESTA Resource Day Breakfast**
  "***Bringing a earthquake seismology into your classroom with the Quake-Catcher Network***", Prof. Jesse Lawrence, Stanford University, Marriott San Francisco Marquis, Nob Hill A
- 9:30-10:30 **NESTA Earthquake Hazards and Seismology Share-a-Thon**
- 11:30-2:30 Three **NESTA Advances in Earth and Space Science Lectures**!
  - 11:30-12:30 "***Earthquake Forecasting in California***", by Cynthia Pridmore, California Geological Survey
  - 12:30-1:30 "***Imaging the Earth Beneath our Feet – Pictures of the Earthquake-Producing Machinery in the Western US and Alaska***", by Dr. Gary Fuis, USGS
  - 1:30-2:30 "***The Tortoise and the Hare: A Tale of Faults that Creep***", by Prof. Matthew d'Alessio, Cal State Northridge
- 3:30-5:00 **NESTA Rock and Mineral Raffle**
- 5:00-6:30 **NESTA Annual Membership Meeting**

NESTA gratefully acknowledges cosponsorship of our events by the American Geophysical Union and the Incorporated Research Institutions for Seismology

SESSION 28

ISTE: Mobile Learning in Science **(Gen)**
(General) *232/234, Moscone Center*
Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* ISTE/Red Lion (Pa.) Area School District
Explore how to use iPads, iPods, and other mobile devices in your science classroom. Bring your mobile device, including cell phones, to participate.

SESSION 29

In the Mood for Moodle? **(Gen)**
(General) *250, Moscone Center*
Amy C. Lumley *(amyl@coffeyville.edu)* and **Pam R. Oliver** *(pamo@coffeyville.edu),* Coffeyville Community College, Coffeyville, Kans.
Learn how we made the switch to Moodle for online science courses. We'll also share free online activities.

SESSION 30

Notebooking for Meaning **(Gen)**
(General) *252/254, Moscone Center*
Karen L. Ziminski *(karen.ziminski@gmail.com),* Clarence R. Edwards Middle School, Charlestown, Mass.
Erin A. Hashimoto-Martell *(ehashimoto@boston.k12.ma.us),* Nathan Hale Elementary School, Boston, Mass.
These notebooking techniques increase student engagement and their love of learning. Students will take pride in their notebooks and therefore increase the level of their work.

SESSION 31 (two presentations)
(General) *262, Moscone Center*

Young Adult Literature for the Science Classroom **(Gen)**
Sarah R. Young *(sarahyoung@rowlandhall.org),* Rowland Hall Middle School, Salt Lake City, Utah
Move away from textbooks and into a library. Here's how to use recent young adult literature to teach physical science skills and content to your students.

A Formal Literacy Component to the Science Curriculum **(Gen)**
Jack Giannattasio *(jgiannattasio@clarkschools.org),* A.L. Johnson High School, Clark, N.J.
We'll look at a literacy component that is aimed at good conclusion writing, placing students in a position to acquire necessary writing skills.

8:00–9:00 AM Workshops

Linking Assessment to Teaching: Ideas and Evidence **(Earth)**
(Middle Level) *Continental 1, Hilton*
Jonathan Osborne *(osbornej@stanford.edu),* Stanford University, Stanford, Calif.
Karen Clayman, A.P. Giannini Middle School, San Francisco, Calif.
Deb Farkas *(farkasd@sfusd.edu),* San Francisco (Calif.) Unified School District
Linda Morell *(lindamorell@berkeley.edu),* University of California, Berkeley
Researchers and teachers look at arguing from evidence with a focus on condensation.

Science + Writing = Learning **(Gen)**
(Elementary–Middle Level) *Continental 7, Hilton*
Julie A. Alexander *(jualexan@columbia.k12.mo.us)* and
Learn how to use science notebooks in your classroom. We'll look at notebook components, math integration, supporting data, and assessments.

NSTA Press Session: Successfully Integrating Science, Math, and Art Instruction **(Gen)**
(Elementary–Middle Level) *Continental 9, Hilton*
John Eichinger, California State University, Los Angeles
We'll engage in several hands-on activities from my NSTA Press books *Activities Linking Science with Math, K–4,* and *Activities Linking Science with Math, 5–8.*

IMP(rove) YOUR RIDE! Redesigning Homemade Cars to Include Lights and Horns **(Phys)**
(Elementary) *Golden Gate 3, Hilton*
James L. Neujahr *(jneujahr@ccny.cuny.edu),* City College of New York, N.Y.
Cindi Van Petten *(cin155@aol.com)* and **Janice Porter** *(porter42b@aol.com),* P.S. 005 Dr. Ronald McNair, Brooklyn, N.Y.
Alberto Camacho, P.S. 42, Claremont Community School, Bronx, N.Y.
Make a simple electric car using inexpensive parts; then design and test a circuit that adds switches, lights, and a horn to your car.

Science Is Magic, Magic Is Not Science **(Chem)**
(Elementary) *Golden Gate 4, Hilton*
Sharad Tewary *(sharadtewary@hotmail.com),* Boulder Country Day School, Boulder, Colo.
These simple experiments for grades K–5 children arouse curiosity and encourage the spirit of inquiry.

Ready-to-Go Space Science Activities for the K–5 Classroom (Earth)
(Elementary) Golden Gate 7, Hilton
Ruth L. Paglierani *(ruthp@ssl.berkeley.edu),* University of California, Berkeley
Make the most of students' curiosity about space! Use these fun hands-on activities that integrate literacy and math to explore the solar system.

CSSS Session: Simulation-based Science Assessments (Gen)
(Middle Level) Union Square 5/6, Hilton
Matt D. Silberglitt *(msilber@wested.org),* WestEd, Oakland, Calif.
Deborah L. Tucker *(deborahlt@aol.com),* Science Education Consultant, Napa, Calif.
Gail Hall, Vermont Dept. of Education, Montpelier
Investigate simulation-based formative and summative science assessments being piloted in several states. Bring your own laptop to explore samples of the assessments.

Bike Gears: It's All in the Teeth (Phys)
(Middle Level) Union Square 15/16, Hilton
Mark B. Atwood *(marlinwood@verizon.net),* Nazareth Intermediate School, Nazareth, Pa.
Explore the relationship between two gears on a bicycle and learn how different gear combinations affect distance traveled, speed, and energy applied.

Stop Idling! Interdisciplinary Climate Change Activities (Gen)
(Elementary–Middle Level) Union Square 19/20, Hilton
Meagan Musselman *(meagan.musselman@coe.murraystate.edu),* Murray State University, Murray, Ky.
These ready-to-use hands-on activities help teach issues related to climate change.

NMLSTA Session: Inquiry on the Cheap (Phys)
(Elementary–Middle Level) Union Square 23/24, Hilton
Rajeev Swami *(chem276@yahoo.com),* NMLSTA President, and Central State University, Wilberforce, Ohio
Annette Barzal *(abarzal@earthlink.net),* Science Adventures, Medina, Ohio
These engaging and effective ways to explain physical science concepts require only household materials.

Association for Astronomy Education: Think Scientifically—NASA Solar Science Hidden in a Storybook (Gen)
(General) Golden Gate Salon C1, Marriott
Aleya Van Doren *(aleya.vandoren@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.
Alison Houpt, South Mountain Middle School, Allentown, Pa.
Presider: Aleya Van Doren
Explore a science literature program that integrates children's stories with solid science, math, and literacy content, along with hands-on labs and activities. Take home the program.

Biomimicry: Human Solutions Inspired by Nature (Bio)
(General) Pacific H, Marriott
Hilary Staples *(hstaples@sandomenico.org),* San Domenico School, San Anselmo, Calif.
Bring observation, innovation, and sustainable solutions to class. Look to the adaptations of nature to solve the environmental and design issues of our time.

Hands-On Learning Activities for AP Biology (Bio)
(High School) Pacific I, Marriott
Kristen R. Dotti *(kristen.dotti@catalystlearningcurricula.com),* Christ School, Arden, N.C.
Water noodle operons, human protein chains, redox reaction games—could this be AP science? Come see hands-on learning with rigorous AP content.

Teaching Earth Science Content with iPods, Laptops, and Other Portable Accelerometers (Earth)
(Middle Level–High School) Willow, Marriott
Michael Hubenthal *(hubenth@iris.edu)* and **John Taber** *(taber@iris.edu),* IRIS, Washington, D.C.
Explore a variety of strategies for using accelerometers in modern "gizmos" as a hook to teach students about seismic waves and earthquakes.

PDI **SEPUP Pathway Session: Developing Literacy and Addressing Content Standards Through Issue-oriented Science (Bio)**
(Middle Level–High School) Yerba Buena Salon 4, Marriott
Laura Lenz and **Maia Willcox** *(mwillcox@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Engage in literacy strategies that work well in issue-oriented science lessons and discuss ways to use these strategies in your secondary science classroom.

AMSE Session: Strategies and Resources: Enhancing the Learning of Students from Underrepresented Groups in the Sciences (Phys)
(General) *Yerba Buena Salon 12/13, Marriott*
Cherry C. Brewton *(cbrewton@georgiasouthern.edu),* Georgia Southern University, Statesboro
This session shares strategies and resources that enhance the science learning of students from underrepresented groups. Building scientific minds is emphasized and a sample unit and activities are shared.

Stop at This Station (and Think)! (Phys)
(Middle Level–High School) *Yerba Buena Salon 14, Marriott*
Meera Chandrasekhar *(meerac@missouri.edu)* and **Dorina Kosztin** *(kosztind@missouri.edu),* University of Missouri, Columbia
Move between stations to explore forces, energy, electricity, and magnetism; discuss your observations; and learn to channel feedback to reach specific conceptual goals.

Catapulting into Physics (Phys)
(High School) *Yerba Buena Salon 15, Marriott*
Matthew J. Stier *(stier.matt@iccsd.k12.ia.us)* and **Mary Lestina** *(lestina.mary@iccsd.k12.ia.us),* Iowa City High School, Iowa City, Iowa
Explore the use of project-based assessment using catapults for a physics unit within a general science course.

How to Engage and Assess Students Within Online 3-D Virtual Environments (Gen)
(Middle Level–College) *111, Moscone Center*
Jonathan S. Davies, West Linn High School, West Linn, Ore.
Alex Cohen, New West Technologies/U.S. Dept. of Energy, Washington, D.C.
Explore this free user-friendly fusion of a learning management system and a 3-D virtual environment. Create high-fidelity virtual instruction with performance-based assessments. Bring your laptop.

Two for One: Understanding Science Through Literacy Skills (Gen)
(Elementary–High School) *112, Moscone Center*
Mark A. Forget *(mforget@maxteaching.com),* University of Findlay, Ohio
Presider: Janice Nixon *(jnixon@sdale.org),* Springdale Junior High School, Springdale, Ark.
These classroom activities engage students of all ability levels in higher-order thinking through reading, writing, and cooperative learning.

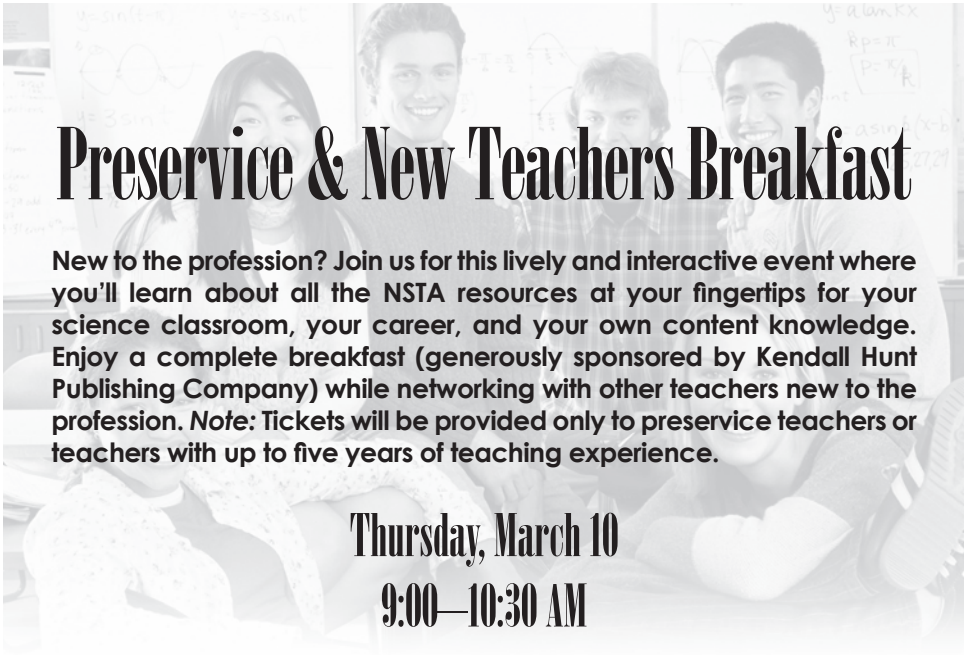
Budding Scientist (Gen)
(Preschool–Elementary) *212, Moscone Center*
Jenny Sue Flannagan *(jennfla@regent.edu),* Regent University, Virginia Beach, Va.
Heather Newton *(hnewton@aol.com),* Bullfrogs and Butterflies, Virginia Beach, Va.
Scientists are born in preschool! Come learn how a partnership with a local university has transformed preschoolers into budding scientists. Sample activities provided.

Activities from Across the Earth System (Earth)
(Elementary–Middle Level) *220/222, Moscone Center*
Randy M. Russell, University Corporation for Atmospheric Research, Boulder, Colo.
David F. Mastie *(mastie@umich.edu),* Retired Educator, Chelsea, Mich.
Educators and scientists share their repertoire of hands-on, inquiry-based activities spanning the five "spheres" of Earth system science. Handouts.

✔ **Chemistry Is Elementary! Giving Elementary Science Teachers the Confidence, Skills, and Experience to Teach Chemistry (Chem)**
(Elementary) *228/230, Moscone Center*
Cheryl L. Heitzman *(cheitzman@perspectives.org)* and **Darin S. Munsell** *(dsmunsell@yahoo.com),* Illinois Institute of Technology, Chicago
Get hands-on experience to help you confidently create safe and effective chemistry inquiry labs for elementary students. We'll share lesson plans, strategies, and rubrics.

8:00–9:00 AM Exhibitor Workshop

How to Start a Biotech Program (Bio)
(Grades 7–College) *308, Moscone Center*
Sponsor: Bio-Rad Laboratories
Kirk Brown *(biotechnology_explorer@bio-rad.com),* Tracy High School, Tracy, Calif.
Stan Hitomi *(biotechnology_explorer@bio-rad.com),* San Ramon Valley Unified School District, Danville, Calif.
Biotech is where it's at! Hear words of wisdom from the nation's leading biotech programs and find out how they got to where they are now. Learn how to set the foundation for engaging students using relevant real-world lab experiences and curricula and what building blocks will allow you to continue to address the world's rapidly changing scientific landscape.



Preservice & New Teachers Breakfast

New to the profession? Join us for this lively and interactive event where you'll learn about all the NSTA resources at your fingertips for your science classroom, your career, and your own content knowledge. Enjoy a complete breakfast (generously sponsored by Kendall Hunt Publishing Company) while networking with other teachers new to the profession. *Note:* Tickets will be provided only to preservice teachers or teachers with up to five years of teaching experience.

Thursday, March 10
9:00–10:30 AM

Hilton San Francisco Union Square, Yosemite B

Tickets Required (M-1; $12) and, if still available, must be purchased at the Registration Area by 8:00 PM on **Wednesday, March 9.**

This event is generously sponsored by Kendall Hunt Publishing Company.

Kendall Hunt publishing company

NSTA National Science Teachers Association

8:00–9:15 AM Exhibitor Workshops

Experimental Design (Gen)
(Grades K–6) *123, Moscone Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
Having trouble getting students ready for science fairs? Learn how to take students from guided investigations to open inquiries. This strategy helps students develop investigative questions, learn the process of experimental design, and implement the scientific method. Delta products will be featured and teacher resources provided.

Introducing Inquiry Investigations™ Hands-On Inquiry Activities Focusing on Technology (Gen)
(Grades 7–10) *124, Moscone Center*
Sponsor: Frey Scientific/School Specialty Science
Lou Loftin, Consultant, Reno, Nev.
Explore the new hands-on active learning science modules and kits geared for students in grades 7–10. See how technology and inquiry help students to understand essential science content. Participant teams work together to construct a working telephone and learn about new USB technology (direct to computer data recording) using Datalogger probes.

8:00–9:30 AM Meeting

SEPA Board Meeting
(By Invitation Only) *Pacific D, Marriott*

8:00–9:30 AM Exhibitor Workshops

Chemistry and the Atom: Fun with Atom-building Games! (Chem)
(Grades 5–12) *131, Moscone Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
Our understanding of matter is so abstract that students have a hard time making sense of these fascinating concepts. Experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

Rise Above the Storm: Introducing STEM in High School (Gen)
(Grades 9–12) *132, Moscone Center*
Sponsor: PASCO Scientific
Presenter to be announced
Participate in an engineering design challenge that integrates PASCO probeware technology in this hands-on workshop. Walk away with many ideas for rich project-based activities that can help your students learn and apply science, technology, engineering, and math skills—all clearly mapped to relevant national standards in the STEM disciplines (NSES, NCTM, NETS, and ITEA).

Rise Above the Storm: Introducing STEM in Middle School **(Gen)**
(Grades 6–8) *133, Moscone Center*
Sponsor: PASCO Scientific
Presenter to be announced
Participate in an engineering design challenge that integrates PASCO probeware technology in this hands-on workshop. Walk away with many ideas for rich project-based activities that can help your students learn and apply science, technology, engineering, and math skills—all clearly mapped to relevant national standards in the STEM disciplines (NSES, NCTM, NETS, and ITEA).

Chemistry with Vernier **(Chem)**
(Grades 9–College) *301, Moscone Center*
Sponsor: Vernier Software & Technology
Jack Randall *(info@vernier.com)* and **Don Volz** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Experiments such as acid-base titration and Boyle's law from our popular *Chemistry with Vernier* and *Advanced Chemistry with Vernier* lab books will be performed in this hands-on workshop. Conduct these experiments using LabQuest and our LabQuest Mini. See our Mini GC Gas Chromatograph and SpectroVis Plus spectrophotometer in action!

Introducing Vernier DataQuest Data Collection for TI-Nspire™ Technology **(Gen)**
(Grades 9–12) *302, Moscone Center*
Sponsor: Vernier Software & Technology
Verle Walters *(info@vernier.com)* and **Rick Sorensen** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Join us for a demonstration of the DataQuest application for TI-Nspire technology. DataQuest brings a full-featured data collection to Texas Instrument's next-generation calculator. DataQuest is an easy-to-use application with many of the features you have come to expect from Vernier, including multichannel data collection, expanded sensor support, and powerful data analysis features.

8:00–10:00 AM Workshops

PDI **TERC Pathway Session: From Cells to Sea Ice: Analyzing Data from Digital Images** **(Gen)**
(Middle Level–High School) *Yerba Buena Salon 1, Marriott*
Nick Haddad *(nick_haddad@terc.edu),* TERC, Cambridge, Mass.
Expand the possibilities for inquiry and data analysis using the freely available ImageJ software to analyze digital images. Laptop computers recommended.

PDI **EDC Pathway Session: Elementary Science Discussions: The Art of Whole Group Talk** **(Gen)**
(Elementary) *Yerba Buena Salon 3, Marriott*
Karen Worth *(kworth@wheelock.edu),* Education Development Center, Inc., Newton, Mass.
Learn about the importance of whole-group discussions for deepening student science reasoning and understanding. We will cover the skills needed to engage students in discussions.

PDI **LHS Pathway Session: Looking at Student Work: Where to Focus/What to Do** **(Gen)**
(Elementary) *Yerba Buena Salon 6, Marriott*
Brian Campbell *(brcampbell@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Gloria Ferguson *(gloria.ferguson@esd112.org),* Educational Service District 112, Vancouver, Wash.
Ellen Mintz *(ellen_mintz@charleston.k12.sc.us),* Charleston (S.C.) County Schools
Join us as we share a variety of student work and strategies/protocols to help you focus on what's important when looking at student work. Next-step strategies will also be discussed.

8:00–10:30 AM Meeting

Preservice Teacher Preparation Committee Meeting
Union Square 3/4, Hilton

8:00–11:00 AM Short Courses

Communicating Science PD: Practicing What You Preach (SC-1)
(General) *Conference Theatre, Grand Hyatt*
Tickets Required: $21
Kevin Beals *(kbeals@berkeley.edu)* and **Lynn Barakos** *(lbarakos@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
For description, see page 65.

An Ocean Sciences Curriculum Sequence for Grades 3–5 (SC-3)
(Elementary) *San Francisco A/B, Grand Hyatt*
Tickets Required: $58
Catherine Halversen *(chalver@berkeley.edu)***, Craig Strang** *(cstrang@berkeley.edu),* **Emily Weiss** *(weisse@berkeley.edu),* and **Kevin Beals,** Lawrence Hall of Science, University of California, Berkeley
For description, see page 65.

The Role of Discourse and Writing in Inquiry Science at the Upper Elementary Level (SC-4)
(Grades 3–6) *San Miguel, Grand Hyatt*
Tickets Required: $41
Jeff Winokur *(jwinokur@edc.org),* Education Development Center, Inc., Newton, Mass.
Martha Heller-Winokur *(mwinokur@rcn.com),* Teaching and Learning Alliance, Inc., Woburn, Mass.
For description, see page 66.

Science as Inquiry: Using Language Processes to Understand Physical Processes (SC-5)
(Elementary–Middle Level) *Sausalito, Grand Hyatt*
Tickets Required: $41
Claudio Vargas B. *(cvargasb@berkeley.edu)* and **Diana Vélez** *(dvelez@berkeley.edu),* University of California, Berkeley
Joanna Totino, Lawrence Hall of Science, University of California, Berkeley
For description, see page 66.

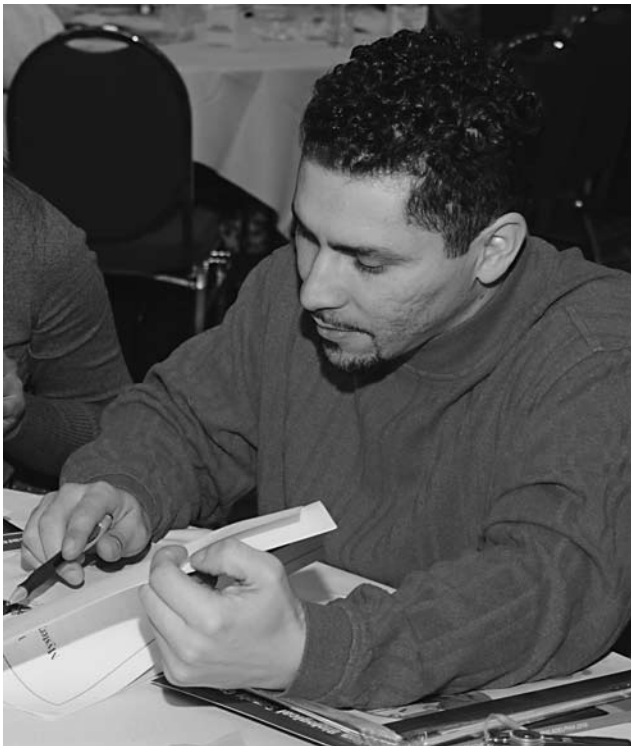
Telescopes and Optics: Build a Galileoscope (SC-2)
(Elementary–High School) *Union Square, Grand Hyatt*
Tickets Required: $43
Benjamin Burress *(bburress@chabotspace.org),* Chabot Space & Science Center, Oakland, Calif.
Edna DeVore *(edevore@seti.org),* SETI Institute, Mountain View, Calif.
For description, see page 65.

8:00–11:00 AM Workshop

PDI **WestEd Pathway Session: The TLC Is a PLC! (Gen)**
(General) *Yerba Buena Salon 5, Marriott*
Kathy DiRanna and **Karen Cerwin** *(kcerwin@wested.org),* WestEd, Santa Ana, Calif.
Want to conduct a lesson study at your site? Learn how embedded professional development in classrooms links to school culture, teacher development, and student achievement.

8:00 AM–12:30 PM NSTA Symposium

Climate Change Here and Now: Impacts on Western Coasts, Ocean, and Atmosphere (SYM-1)
(Grades 5–12) *Golden Gate C2, Marriott*
Tickets Required: $54
Carol Preston, Gulf of the Farallones National Marine Sanctuary, San Francisco, Calif.
Julie Bursek *(julie.bursek@noaa.gov),* Channel Islands National Marine Sanctuary, Santa Barbara, Calif.
Ann Garrett *(ann.garrett@noaa.gov),* NOAA Fisheries Southwest Region, Northern California Office, Arcata
Judy Koepsell *(judy.koepsell@noaa.gov),* NOAA's National Weather Service, Silver Spring, Md.
Peg Steffen *(peg.steffen@noaa.gov)* and **Bruce Moravchik** *(bruce.moravchik@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.
For description, see page 62.



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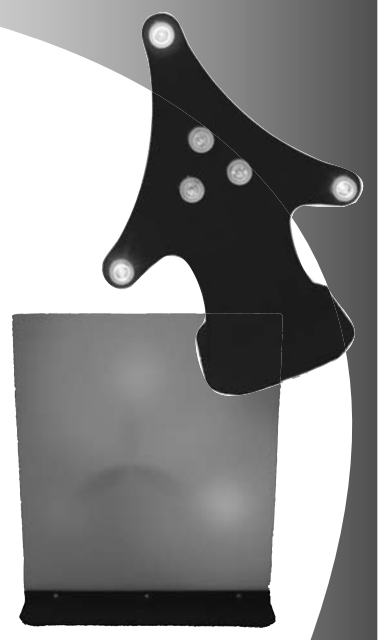

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8:00 AM–2:00 PM Global Conversations in Science Education Conference

Cultural Influences on Science Education (M-2)

SOLD OUT

(General) *Yerba Buena Salon 8, Marriott*

Tickets Required, no charge; by preregistration only

NSTA has planned this special day dedicated to science education from an international perspective. The day commences with a plenary talk by Dr. Glen S. Aikenhead, Professor Emeritus, Aboriginal Education Research Centre, University of Saskatchewan, Saskatoon, Canada. This plenary session will be followed by concurrent sessions; a poster session; a luncheon plenary speaker, Ian Milne, Educational Consultant, Primary Science Education Consulting Group, Auckland, New Zealand; and a panel discussion. The day will conclude with short presentations from participants on current trends, issues, and best practices from around the world.

8:00–9:00 AM	Welcome and Introductions Norman Lederman, Conference Chair Alan McCormack, NSTA President Ben Akpan, President, International Council of Associations for Science Education Richard Needham, Chair, Association for Science Education Hans Persson, Chair, NSTA International Advisory Board
9:00–9:30 AM	Plenary Session (p. 114) *Building Cultural Bridges Between Scientific and Indigenous Ways of Knowing Nature* Glen S. Aikenhead, Professor Emeritus, Aboriginal Education Research Centre, University of Saskatchewan, Sasktatoon, Canada
9:30–9:45 AM	Break
9:45–10:45 AM	Concurrent Sessions (p. 126)
10:45–11:15 AM	Poster Session (p. 130)
11:15 AM–12:15 PM	Concurrent Sessions (p. 134)
12:15–1:15 PM	Luncheon Plenary Session (p. 140) *Exploring and Explaining Experiences: The Place of Doing Science in a Culturally Diverse Classroom* Ian Milne, Educational Consultant, Primary Science Education Consulting Group, Auckland, New Zealand
1:15–1:35 PM	Panel Discussion (p. 150)
1:35–1:50 PM	Updates from Around the World (p. 153)
1:50–2:00 PM	Closing Remarks

8:15–9:45 AM Featured Presentation

Science Matters National Town Hall on Science Education (Gen)

(General) *Gateway Ballroom, Moscone Center*

So what has happened to the science education in YOUR school this past year? Californians are still reeling from the worse budget crisis ever, a crisis that has hit K–12 education—and teachers—particularly hard. During this special national town hall meeting, sponsored by NSTA Science Matters and Northrop Grumman Corporation, education, policy, and industry leaders will discuss science education in California and compare its present state to trends nationwide. During this interactive forum, speakers will highlight critical issues, address some of the unique challenges facing science teachers and students this year, and respond to your questions about what to expect in the future. Science Matters is NSTA's public awareness campaign to bring content, news, and information that supports quality science education to parents and teachers nationwide. The Science Matters network of more than 45,000 teachers and parents is now in 34 states and the District of Columbia.

8:30–9:00 AM Presentations

SESSION 1

(General) *Sierra B, Marriott*

GreenSchools! (Env)

Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.

Mark Spencer *(mspencer@stopwaste.org),* StopWaste.org, Oakland, Calif.

Project Learning Tree's (PLT) GreenSchools! program connects PLT classroom activities and environmental service-learning projects. Learn more about the program, how to organize GreenSchools! training, and get free access to PLT GreenSchools! resources and materials online.

SESSION 2

(General) *113, Moscone Center*

Strategies for Successful Team Teaching (Gen)

Crystal L. Marsh *(clm2003@gmail.com)* and **Marsha Wallace** *(marswall@hotmail.com),* Salk School of Science, New York, N.Y.

Here are some tools for creating successful partnerships with your co-teachers, with positive outcomes for students.

8:30–10:00 AM Exhibitor Workshop

Variation and Adaptation: Seeds of Science/Roots of Reading® (Gen)

(Grades 2–5) *125, Moscone Center*

Sponsor: Delta Education/School Specialty Science–Seeds

Jacqueline Barber, Jen Tilson, Megan Goss, Suzy Loper, and **Traci Wierman,** Lawrence Hall of Science, University of California, Berkeley

Ground yourself in the Variation and Adaptation unit by exploring heredity, relatedness, extinct organisms, and the fossil record! Experience an integrated approach to firsthand inquiry, using content-rich science books, scientific discourse, and writing activities that provide rich and varied opportunities to learn essential science concepts and vocabulary. Take home samples.

8:30–10:30 AM Meetings

Informal Science Committee Meeting

Executive Boardroom, Hilton

***Journal of College Science Teaching* Advisory Board Meeting**

Marina, Hilton

***Science Scope* Advisory Board Meeting**

Presidio, Hilton

***The Science Teacher* Advisory Board Meeting**

Seacliff, Hilton

***Science and Children* Advisory Board Meeting**

Sunset, Hilton

***NSTA Reports* Advisory Board Meeting**
Union Square 7, Hilton

Awards and Recognitions Committee Meeting
Union Square 9, Hilton

Special Education Advisory Board Meeting
Union Square 10, Hilton

Science Safety Advisory Board Meeting
Union Square 11, Hilton

8:30–11:00 AM Exhibitor Workshop

Using Science Notebooks with FOSS Middle School (Gen)
(Grades 5–8) *130, Moscone Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Jessica Penchos, Lawrence Hall of Science, University of California, Berkeley
Virginia Reid, Consultant, Olympia, Wash.
The FOSS Middle School curriculum will be used to demonstrate the use of science notebooks with students, grades 6–8. Learn how to implement student science notebooks in your classroom to increase student understanding of inquiry and science content and to enhance literacy skills. Handouts provided.

8:30–11:30 AM Meeting

Urban Science Education Advisory Board Meeting
Union Square 12, Hilton

8:40–9:30 AM Exhibitor Workshop

Learning Through Engineering Design Challenges (Phys)
(Grades 9–12) *309, Moscone Center*
Sponsor: NASA Education
Sharon Bowers *(sharon.bowers@nianet.org),* National Institute of Aerospace, and Virginia City Beach Public Schools, Hampton, Va.
The RealWorld—InWorld NASA Engineering Design Challenge invites high school–aged students to solve real-world problems in both face-to-face and virtual settings.

9:00–9:30 AM Global Conversations in Science Education Conference Plenary Session

Building Cultural Bridges Between Scientific and Indigenous Ways of Knowing Nature (Gen)
(General) *Yerba Buena Salon 8, Marriott*
Tickets required; by preregistration only

Glen S. Aikenhead, Professor Emeritus, Aboriginal Education Research Centre, University of Saskatchewan, Saskatoon, Canada

SOLD OUT

From a cultural viewpoint, school science is like a foreign culture to many students, especially American Indians and other indigenous peoples worldwide. This discourages their enrolment and achievement in high school and postsecondary science programs. Building cultural bridges involves cross-cultural (bicultural) science curricula and culturally responsive teaching, as evidenced by research and practice.

Glen Aikenhead is professor emeritus at the Aboriginal Education Research Centre at the University of Saskatchewan, Canada, where he worked from 1971 to 2006.

In the 1970s to 1980s, Aikenhead did pioneering work on an approach to teaching science that connected school science to students' everyday lives, known today as Science Technology in a Society (STS). In the 1990s, his research focused on integrating Western and Aboriginal sciences, which resulted in the province of Saskatchewan implementing an indigenous cross-cultural science curriculum.

He has authored numerous research papers and publications. Most recent is the 2006 publication, Science Education for Everyday Life: Evidence-based Practice.

9:00–9:50 AM Exhibitor Workshop

NASA Participatory Exploration Science (Gen)
(Grades 1–12) *310, Moscone Center*
Sponsor: NASA Education
Melvin Ferebee *(melvin.j.ferebee@nasa.gov),* NASA Langley Research Center, Hampton, Va.
Join us as we review opportunities for teachers and students to engage with NASA. We'll include opportunities for STEM and non-STEM students to integrate art and science using everything from scientific data to imagination, with an emphasis on using social media outlets.

9:00–10:30 AM Breakfast

Preservice and New Teachers Breakfast (M-1)

(Tickets Required: $12) *Yosemite B, Hilton*

Sponsored by Kendall Hunt Publishing Co.

New to the profession? Join us for this lively and interactive function where you'll learn about all the resources at your fingertips from NSTA for your science classroom, your career, and your own content knowledge. Enjoy a complete breakfast (generously sponsored by Kendall Hunt Publishing Company) while networking with other teachers new to the profession.

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 8:00 PM on Wednesday.

Note: Tickets will be provided only to preservice teachers or teachers with up to five years of teaching experience.

9:00–11:30 AM Exhibitor Workshop

Bio-Rad: Determine Your Genotype with PCR (Bio)

(Grades 9–College) *306, Moscone Center*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.

Finally, a wet lab to apply Hardy-Weinberg! Learn how trace DNA amounts are used by forensic scientists to identify genetic ancestry. Using the PV92 PCR Informatics kit, you will extract DNA from your cheek cells (or hair follicles) and use the polymerase chain reaction (PCR) and gel electrophoresis to identify inherited variations in your genotype at the PV92 locus. Learn how to apply DNA fingerprinting to test the Hardy-Weinberg equilibrium theory within your classroom population and how to go online to compare your results to worldwide population data using bioinformatics.

9:00 AM–5:00 PM Meeting

NSTA International Lounge

Laurel, Marriott

Please stop by the NSTA International Lounge to relax or meet colleagues.

9:30–10:00 AM Presentation

SESSION 1

Safety First! (Chem)

(Middle Level–College) *Sierra H, Marriott*

Leslie Flynn, University of Iowa, Iowa City

Presider: Andrew M. Milbauer *(andrew.milbauer@conserve-school.org),* Conserve School, Land O' Lakes, Wis.

It's a challenge to create a science classroom that is both exciting and safe. Come learn how.

9:30–10:30 AM Featured Presentation

Deeply Digital Science Teaching: Looking into the Future of Educational Technology (Gen)

(General) *135, Moscone Center*

Chad W. **Dorsey** *(cdorsey@concord.org),* President and CEO, The Concord Consortium, Concord, Mass.

Presider: Sharon Janulaw *(sjanulaw@vbbn.com),* NSTA District XVI Representative, Strand Leader, Embracing Technology in the 21st-Century Classroom, NSTA San Francisco National Conference, and Sonoma State University, Rohnert Park, Calif.

Computers and technology are finally becoming available in science classrooms across the country. Yet we still tap into only a fraction of the potential they offer. Get a sneak peek of what lies just ahead in educational technology and learn about cutting-edge software you can use today for free. Come start yourself on the road to a "deeply digital" classroom.

Prior to his position at the Consortium, Chad Dorsey was a science and educational technology specialist at the Maine Mathematics and Science Alliance, a nonprofit organization supporting education in Maine and the nation. He has taught high school physics in Maine, worked at the Munich International School in Germany, and served in school leadership roles for several high school reform initiatives. He is also co-author of the NSTA Press book, Uncovering Student Ideas in Science, 25 Formative Assessment Probes. *Dorsey first met computers when his family hooked an Apple II to their fancy new color TV set. He's been a shameless geek ever since.*

9:30–10:30 AM Presentations

SESSION 1

Techno-Matter…What? Integrating Project-based Science Instruction with Technology (Chem)

(Middle Level) *Continental 2, Hilton*

Rebecca S. Frammolino *(rframmolino@eanesisd.net)* and **Marti Stary** *(mstary@eanesisd.net),* West Ridge Middle School, Austin, Tex.

Have fun and elicit thinking while actively engaging students with a matter and energy project-based, technology-rich learning experience that leaves them wanting more. Handouts provided.

SESSION 2

AP Environmental Science Teachers Open Forum (Env)

(High School–College) *Continental 3, Hilton*

Arthur N. Samel *(ansamel@bgsu.edu),* Bowling Green State University, Bowling Green, Ohio

Join AP Environmental Science (APES) teachers and the APES Chief Reader to discuss misconceptions identified during the 2010 exam grading and other AP Environmental Science issues.

SESSION 3

Developing Projects That Win (Gen)

(Middle Level) *Continental 6, Hilton*

Juliet Ham-Kovich *(hamjulie@hotmail.com)* and **Leticia Isabel Ortega** *(lortega@lausd.net),* Ellen Ochoa Learning Center, Cudahy, Calif.

Presider: Kathy Stevens, Los Angeles Unified School District, Cudahy, Calif.

Learn how one urban school prepared their students to compete successfully in NASA's Reduced Gravity Opportunity and NASA National Student Symposium.

SESSION 4 (two presentations)

(High School–College) *Golden Gate 1, Hilton*

Microfluidics: Implementing an Affordable Lab and Curriculum (Phys)

Joseph W. Childs *(jchilds@cpsd.us),* Cambridge Rindge and Latin School, Cambridge, Mass.

Learn about the equipment, materials, and processes required to design and produce affordable microfluidic devices in a high school or small college environment.

Gel Filtration Chromatography: An Experiment for High School and College Natural Science Laboratory Programs (Bio)

Linda S. Brunauer *(lbrunauer@scu.edu),* Santa Clara University, Santa Clara, Calif.

Laura E. O'Brien *(lobrien@cv.k12.ca.us),* Castro Valley High School, Castro Valley, Calif.

This biotechnology laboratory exercise involves chromatographic separation of biomolecules based on size followed by data collection requiring simple visual inspection of microplates.

SESSION 5 (two presentations)

(Elementary–Middle Level) *Golden Gate 2, Hilton*

Video Games: A Tool for Students with Learning Disabilities (Bio)

Matthew T. Marino *(matthewmarino@wsu.edu),* Washington State University, Pullman

James D. Basham, University of Cincinnati, Ohio

Enhance your science instruction of students with learning disabilities using video games. We'll discuss the challenges those students face in middle school science class and how video games can increase the accessibility of standards-based science content. Participants will be invited to develop and pilot a new line of life science video games.

Animal Communication Research on the California Singing Fish—From the Field to the Classroom (Bio)

Joseph A. Sisneros *(sisneros@u.washington.edu),* University of Washington, Seattle

Daphne A. Rawlinson *(drawlins@houstonisd.org),* West University Elementary School, Houston, Tex.

Come explore California's singing fish and get a CD filled with midshipman fish sounds, photographs, and activities suitable for the elementary and middle school classrooms.

SESSION 6

Partnering Teachers, Scientists, and Informal Science Educators to Improve Teaching and Learning (Env)

(Elementary/Informal Education) *Golden Gate 6, Hilton*

Ruth McDonald *(ruth.mcdonald@lincoln.k12.or.us),* Lincoln County School District, Newport, Ore.

Edith S. Gummer *(edith.gummer@educationnorthwest.org),* Education Northwest, Portland, Ore.

Laurie Beutler *(lbeutler@siletzvalleyschools.org),* Siletz Valley School, Siletz, Ore.

Jennifer Stobie *(jennifer.stobie@lincoln.k12.or.us),* Crestview Heights School, Waldport, Ore.
Beth Parsons, Taft Elementary School, Lincoln City, Ore.
Dana Spink, Toledo Elementary School, Toledo, Ore.
Mary G. Koike, Newport High School and Isaac Newton Magnet School, Newport, Ore.
Come learn how the Oregon Coast Aquatic and Marine Science Partnership is improving science teaching and student achievement through a focus on inquiry- and field-based learning.

SESSION 7

NSTA Press Session: Constructive Class Climate: Building a Self-Sufficient, Collaborative Community of Scientists (Chem)
(General) *Golden Gate 8, Hilton*
Joan A. Gallagher-Bolos *(katiramom@gmail.com),* Glenbrook North High School, Northbrook, Ill.
Dennis W. Smithenry *(dsmithenry@gmail.com),* Elmhurst College, Elmhurst, Ill.
Come see Whole Class Inquiry and learn about the strategy that allows you to nurture an entire class to investigate and accomplish a task together.

SESSION 8

NARST Session: Bringing Local Science into the Elementary Classroom with an Integrated Science Unit (Gen)
(Elementary) *Union Square 14, Hilton*
William R. Veal *(vealw@cofc.edu),* College of Charleston, S.C.
Learn how the local environmental context can be used for an integrated social studies and science unit.

SESSION 9 (three presentations)
(College/Informal Education) *Union Square 17/18, Hilton*

SCST Session: The Thousand-Word Picture: Reframing STEM Standards, Outcomes, and Strategies for the 21st-Century Workplace (Gen)
Heide Hlawaty *(hhlawaty@mcny.edu)* and **Richard Grallo** *(rgrallo@mcny.edu),* Metropolitan College of New York, N.Y.
A more STEM-literate workforce is critical. Discuss ways to enhance undergraduate understanding in those areas using strategies that incorporate cognitive processes, learning styles, and methodologies that appeal to nontraditional students.

SCST Session: Merging of Two Worlds: Academic and Industrial Science (Bio)
Tamara Mandell *(tmandell@cerhb.ufl.edu),* University of Florida, Alachua
Discover how we integrated the learning of science to the application of scientific concepts and skills that bridge "discovery" with the development and manufacture of products, such as biopharmaceuticals, that benefit mankind.

SCST Session: Developing College Students' Scientific Literacy and Understanding of the Nature of Science Through Climate Change Discussions (Gen)
Renee M. Clary *(rclary@geosci.msstate.edu),* Mississippi State University, Mississippi State, Miss.
James H. Wandersee, Louisiana State University, Baton Rouge
Find out how to counter media-influenced alternative conceptions about current scientific issues. Mandatory, online discussions using reputable scientific materials can result in students with more scientifically developed opinions.

SESSION 10

NSELA Session: Action Research for Science Teachers: Useful Tools for Starting a Rewarding Professional Learning Community (Gen)
(General) *Union Square 21, Hilton*
Ann Hammersly *(ahammersly@susd.org),* Chaparral High School, Scottsdale, Ariz.
We will look at how to start an action research–based science PLC, including techniques such as incorporating PLC protocols and Curriculum Topic Studies.

SESSION 11

English Learners Access Science (Gen)
(Elementary–Middle Level) *Union Square 22, Hilton*
Virginia Nelson *(vnelson@ttsd.k12.or.us),* Charles F. Tigard Elementary School, Tigard, Ore.
The science log, notebook, or journal is the best vehicle available for simultaneously providing access to the mainstream curriculum and the English language.

SESSION 12

ASTE Session: Hands-On Performance Assessment for K–12 Students: The Impetus for Inquiry in Our Classrooms (Gen)

(General) *Union Square 25, Hilton*

Deborah L. Tucker *(deborahlt@aol.com),* Science Education Consultant, Napa, Calif.

Grant M. Gardner *(grantmgardner@msn.com),* Assessment Services, Inc., Pepperell, Mass.

Assessing inquiry is essential to instruction. Join us and engage in a hands-on performance task and explore the uses and advantages of this form of assessment.

SESSION 13

A Required Studio-Type, Inquiry-based Course for K–8 Preservice Students in Chemistry (Chem)

(Elementary–Middle Level/College) *Yosemite C, Hilton*

Martin L. Brock *(martin.brock@eku.edu),* Eastern Kentucky University, Richmond

This successful limited enrollment course required by education faculty incorporates content standards and embedded assessments.

SESSION 14

Family Science Night—Excite the Community! (Gen)

(Middle Level–High School) *Golden Gate Salon A, Marriott*

Robert T. Jefferson Jr. *(mrrtj@yahoo.com),* Tantasqua Regional Senior High School, Fiskdale, Mass.

Learn how to plan, organize, and fund a family science night that actively engages students and their families in a participatory atmosphere.

SESSION 15 (two presentations)

(Elementary–High School) *Golden Gate Salon C3, Marriott*

Experiencing Astronomy Research in Schools (Earth)

Zodiac T. Webster *(webster_zodiac@colstate.edu),* Columbus State University, Columbus, Ga.

Juan-Carlos Aguilar *(jaguilar@doe.k12.ga.us),* Georgia Dept. of Education, Atlanta

Sarah J.U. Higdon *(shigdon@georgiasouthern.edu),* Georgia Southern University, Statesboro

Modern astronomy research in high school classrooms is possible. Get an overview of the software and learn where to find data for your investigations.

Interdisciplinary Space Exploration Using the WorldWide Telescope (Earth)

Mari Westerhausen *(mari@azlearns.com),* Coronado Elementary School, Gilbert, Ariz.

High-resolution images from the world's foremost ground- and space-based telescopes and the latest astronomical data are presented in a media-rich, immersive, seamless environment that transforms your desktop into a virtual observatory. Come explore interdisciplinary space units that integrate science, math, language arts, and even social studies using Microsoft's WorldWide Telescope.

SESSION 16 (two presentations)

(Middle Level–High School) *Pacific B, Marriott*

Presider: Chris Dede *(chris_dede@harvard.edu),* Harvard University, Cambridge, Mass.

EcoMUVE: Exploring Ecosystems and Complex Causal Patterns in Immersive Virtual Worlds (Env)

Shari J. Metcalf and **Chris Dede** *(chris_dede@harvard.edu),* Harvard University, Cambridge, Mass.

Discover the multi-user virtual environment EcoMUVE and learn how to promote science learning and understanding of complex causality through interactive and immersive virtual worlds.

EcoCasting: Using NetLogo Models of Aquatic Ecosystems to Teach Scientific Inquiry (Env)

Colleen K. Buzby *(c-buzby@northwestern.edu)* and **Colin Sheaff** *(colin-sheaff@northwestern.edu),* Northwestern University, Evanston, Ill.

Scientists at Northwestern University are investigating unusual bioaccumulation patterns in invaded food webs of the Great Lakes. The EcoCasting project has developed a computer model–based curriculum for high school environmental science classes to investigate the data to understand what is causing the anomalies.

SESSION 17

PBLs in the Classroom (Earth)

(Middle Level–College) *Pacific C, Marriott*

Cindy L. Wandling *(cwandling@verizon.net),* Winfield High School, Winfield, W.Va.

Examine three Project Based Learning units that spanned one term and involved junior and senior students in a regular and inclusion classroom.

SESSION 18

Promoting Science Engagement Among Underrepresented Minorities Through Partnerships (Bio)

(General) *Pacific I, Marriott*

Sabine Jeske *(sabine.jeske@ucsf.edu),* **Rebecca Smith,** and **Ben W. Koo** *(ben.koo@ucsf.edu),* University of California, San Francisco

Presider: Ben W. Koo

Learn about a program that partners early-career research scientists with high school science teachers to promote access to and engagement in science among students underrepresented in the sciences.

SESSION 19

Is a Picture Worth a Thousand Words? (Bio)

(Middle Level–High School) *Sierra A, Marriott*

Patricia L. Waller, Allentown, Pa.

I'll share strategies for helping students use images to learn science concepts.

SESSION 20

Exploring New York City Parks with EPA and GLOBE (Env)

(Informal Education) *Sierra B, Marriott*

Peter Schmidt *(peter.schmidt@qc.cuny.edu),* Queens College, Flushing, N.Y.

Students got their hands dirty and practiced the scientific method as they explored local parks using GLOBE protocols supported by an EPA grant.

SESSION 21

Science 2.0: Integrating Technology in the Science Classroom (Gen)

(Middle Level–High School) *Sierra J, Marriott*

D.J. West, Schoolcraft College, Livonia, Mich.

Discover a variety of strategies to engage middle level and high school students through practical uses of technology.

SESSION 22

Celebrating African-American Scientists and Inventors Through Hands-On Science (Gen)

(General) *Yerba Buena Salon 7, Marriott*

Tyraine D. Ragsdale *(grandhank@grandhank.com),* Grand Hank Productions, Inc., Philadelphia, Pa.

Introduce students to the important contributions made to science and technology by African-Americans. This high-impact series is a novel approach to teaching and learning science through event-based instruction.

SESSION 23

Reflections on SETI After 50 Years (Gen)

(General) *113, Moscone Center*

Robert E. Strong *(robert@smartcenter.org)* and **Elizabeth A. Strong** *(libby@smartcenter.org),* SMART-Center, Wheeling, W.Va.

For more than half a century, humanity has tried to answer the fundamental question, "Are we alone in the universe?". Let's examine this question.

SESSION 24

Keys to Increasing Student Success in Science and Math: Current Research and Recommendations for Change (Gen)

CANCELED

(General) *200, Moscone Center*

Andresse St. Rose *(strosea@aauw.org),* American Association of University Women, Washington, D.C.

Research in cognitive science, sociology, and psychology offers keys to improving student success in science and math. We'll offer recommendations for classroom practice.

SESSION 25

Wikis, Blogs, and Virtual Worlds: New Tools for Teaching Science (Gen)

(General) *250, Moscone Center*

Carolyn J. Lowe *(clowe@nmu.edu),* Northern Michigan University, Marquette

What is a blog, why tweet, what good is a wiki, and what's an avatar? Come find out how they can increase learning.

SESSION 26

UTeach: Getting Master Science Teachers Involved in Training the Next Generation of Science Teachers (Gen)

(General) *252/254, Moscone Center*

Lynn Kirby *(lkirby@mail.utexas.edu),* **Mary H. Walker** *(mwalker@austin.utexas.edu),* and **Jason Ermer** *(jermer@austin.utexas.edu),* The University of Texas at Austin

UTeach is a national model for preservice training of highly qualified science and math teachers that emphasizes multiple field experiences mentored by master classroom teachers throughout all four years of college.

SESSION 27

Claims and Evidence: It Doesn't Begin in Middle School (Gen)

(General) *262, Moscone Center*

Oluwafunmilayo D. Ajayi *(skoolteach04@yahoo.com),* Chicago, Ill.

We'll look at scaffolding the use of claims and evidence with K–5 students.

9:30–10:30 AM Workshops

Disaster…Naturally! (Earth)

(Middle Level) *Continental 1, Hilton*

Zamaria Rocio, San Diego (Calif.) City Schools

Bring your laptop to use this technology-supported inquiry curriculum with embedded assessments. This program allows students to investigate the effects of a hurricane on a national rain forest in the Caribbean. Also, find out about a summer RET opportunity in Puerto Rico's rain forest.

Gardening in the Classroom (Bio)

(Elementary) *Continental 7, Hilton*

Nancy Bridge *(nancy.bridge@ocps.net),* Olympia High School, Orlando, Fla.

How does your garden grow? Plant seeds of success and teach science concepts through the hands-on activity of growing a garden in your classroom. Standards- and inquiry-based nutrients for life curriculum will be provided and participants will make a mini garden monster to take back to their classrooms.

K–2 My World and Me: Integrated Science for Life (Gen)
(Preschool–Elementary) *Golden Gate 3, Hilton*
Barbara Z. Tharp *(btharp@bcm.edu)* and **Michael Vu** *(mv12@bcm.edu),* Baylor College of Medicine, Houston, Tex.
Encouraging the integration of reading, writing, and math with hands-on investigations makes science come alive. Access lessons online.

Hydrogelling in the Desert (Env)
(Elementary) *Golden Gate 4, Hilton*
Maria Cieslak *(mariacieslak@yahoo.com,* and **Francine Gollmer** *(sgollmer@aol.com),* Gene Ward Elementary School, Las Vegas, Nev.
Can hydrogels increase plant viability? Get hands-on ELL-friendly activities to accurately measure water gels using calipers, balances, soil moisture sensors, and temperature probes.

Shaping Children's Views of Science by Doing and Knowing About Inquiry (Gen)
(Elementary) *Golden Gate 7, Hilton*
Judith S. Lederman *(ledermanj@iit.edu),* Illinois Institute of Technology, Chicago
Guide children from exploring and observing to open-ended inquiry and the development of scientific literacy using these research-based techniques.

CSSS Session: Beyond Social Networking: Building Digital Learning Communities by Contrasting Site Data (Gen)
(General) *Union Square 5/6, Hilton*
Betsy A. Stefany *(bastefany@gmail.com),* SABENS, Lebanon, N.H.
Shelby Mahan, Cayucos, Calif.
Discover the engaging activity of using digital data collection to explore, map, and share environmental topics. Meet online content developer and emerging young adult author Shelby Mahan. Participants will be introduced to safe online collaboration systems and best practices.

Earth as a System: Seasons and the Seas (Gen)
(Middle Level) *Union Square 19/20, Hilton*
Joyce B. Tugel *(jtugel@mmsa.org),* Maine Mathematics and Science Alliance, Augusta
Transform the study of seasons into an exploration of interactions between land, oceans, and atmosphere with these lessons from a NOAA-funded project.

NMLSTA Session: Density and Other Labs Using Plastics (Gen)
(Elementary–High School) *Union Square 23/24, Hilton*
Annette Barzal *(abarzal@earthlink.net),* Science Adventures, Medina, Ohio
Rebecca H. Knipp, Sunman-Dearborn Intermediate School, West Harrison, Ind.
Rajeev Swami *(chem276@yahoo.com),* NMLSTA President, and Central State University, Wilberforce, Ohio
Let's investigate the density of plastic. We'll share information about the NMLSTA/ACC Hands On Plastics module featuring use of the learning cycle and authentic assessment. Free mini kit of plastic resins.

NASA Brings You Newton's Laws of Motion (Phys)
(Middle Level–High School) *Golden Gate Salon C1, Marriott*
David P. Beier *(dbeier@barstowschool.org),* The Barstow School, Kansas City, Mo.
A NASA Astrophysics Ambassador will walk you through more than 20 hands-on investigations exploring Newton's laws of motion. FREE NASA materials to all participants!

Lights, Camera, Action! Introducing the Nature of Science and Scientific Inquiry Using Instructional Videos (Earth)
(Middle Level–College) *Willow, Marriott*
Catherine M. Koehler *(ckoehler@iit.edu),* Illinois Institute of Technology, Chicago
Ian C. Binns *(ianbinns@lsu.edu),* Louisiana State University, Baton Rouge
Mark A. Bloom *(m.bloom@tcu.edu),* Texas Christian University, Fort Worth
Explore the use of instructional films such as *Contact* to introduce notions of nature of science and scientific inquiry.

PDI **BSCS Pathway Session: Science Teachers Learning from Lesson Analysis (STeLLA) (Gen)**
(Elementary/Supervision) *Yerba Buena Salon 2, Marriott*
Elizabeth Edmondson, BSCS, Colorado Springs, Colo.
What are my students thinking/understanding? Engage in lesson video analysis using strategies from the Student Thinking Lens shown to improve teaching and student learning.

PDI **SEPUP Pathway Session: Alternative Energy and Transportation: Hydrogen Fuel Cell and Other Bus Technologies (Chem)**
(High School) Yerba Buena Salon 4, Marriott
Jim Zoellick *(jimz@humboldt.edu),* Humboldt State University, Arcata, Calif.
Learn about the chemistry of hydrogen fuel cells as you compare buses powered by hydrogen fuel cells to other bus technologies.

NMEA Session: A Whale of a Tale Share-a-Thon (Env)
(General) Yerba Buena Salon 9, Marriott
Lauren M. Rader *(lrader@oceanology.org),* Project Oceanology, Groton, Conn.
Johnette Bosarge, National Marine Educators Association, Ocean Springs, Miss.
David M. Christopher *(dchristopher@aqua.org),* National Aquarium, Baltimore, Md.
Kathleen Meehan Coop *(kmeehancoop@oceanleadership.org),* National Ocean Sciences Bowl, Washington, D.C.
Ann Coopersmith *(coopersm@hawaii.edu),* University of Hawaii Maui College, Kahului
Justine F. Glynn *(justine@gmri.org),* Gulf of Maine Research Institute, Portland
Patricia Harcourt *(patharcourt@charter.net),* COSEE-West, Los Angeles, Calif.
Susan E. Haynes *(susan.haynes@noaa.gov),* NOAA Office of Ocean Exploration and Research, Silver Spring, Md.
Meghan Marrero, U.S. Satellite Laboratory, Inc., Rye, N.Y.
Diana Payne *(diana.payne@uconn.edu),* Connecticut Sea Grant, Groton
Christopher J. Petrone *(petrone@vims.edu),* Virginia Institute of Marine Science, Gloucester Point
Pam Stryker *(pstryker@texas.net),* Barton Creek Elementary School, Austin, Tex.
Sharon Walker, Institute for Marine Mammal Studies, Gulfport, Miss.
Presider: Justine F. Glynn
Regional Chapters of the National Marine Educators Association provide opportunities for networking, hands-on activities, take-home resources, and an opportunity to learn about marine and aquatic programs for teachers and students.

PDI **ELL Pathway Session: Engaging ELL Students in Scientific Discourse Using Seven Strategies (Bio)**
(Middle Level–High School) Yerba Buena Salon 10, Marriott
Ursula M. Sexton *(usexton@wested.org),* WestEd, Redwood City, Calif.
John Carr *(jcarr@wested.org),* WestEd, Clayton, Calif.
Experience an interactive, language-rich tasks lesson structured with high levels of collaboration and participant talk to facilitate academic language success in your science classrooms.

Tackling the Global Warming Challenge in a Rapidly Changing World (Env)
(Middle Level–High School/Inf) Yerba Buena Salon 11, Marriott
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
Help students develop critical-thinking skills, science understanding, and global warming solutions. Handouts provided.

Geoscience ROCKS! Discover the Excitement of Geosciences Research in Antarctica (Earth)
(General) Yerba Buena Salon 12/13, Marriott
Betty Trummel *(boop82@aol.com),* Husmann Elementary School, Crystal Lake, Ill.
Explore geosciences activities and materials produced as a result of an exciting partnership between the scientists and educators of the ANDRILL (Antarctic DRILLing) Program.

Intersections of Art, Writing, and Science (Gen)
(Middle Level–High School) Yerba Buena Salon 15, Marriott
Sandra K. Enger *(engers@uah.edu),* The University of Alabama in Huntsville
Lee R. Enger, Quincy University, Quincy, Ill.
We will share ideas for incorporating art, digital images, and writing in journals or science notebooks.

Nanoparticles: Engaging Students with Hands-On Nanotechnology Laboratory Activities (Gen)
(General) 111, Moscone Center
Joe Muskin *(jmuskin@illinois.edu),* University of Illinois, Urbana
Matt Ragusa *(mtragusa@gmail.com),* Neuqua Valley High School, Naperville, Ill.
Nanoparticles offer interesting opportunities to solve modern problems. Come make nanoparticles and learn how to apply them to either a chemistry or biology classroom.

Model-based Teaching, Learning, and Assessment in Science **(Gen)**

(General) *212, Moscone Center*

Barbara C. Buckley *(bbuckle@wested.org),* WestEd, Redwood City, Calif.

Jodi Davenport *(jdavenp@wested.org),* WestEd, Oakland, Calif.

Bring standards or learning goals from your classroom to frame as target models that help organize instruction and assessment for promoting scientific thinking.

Eating Your Way Through the Earth Science Standards **(Earth)**

(Elementary–Middle Level) *220/222, Moscone Center*

Mike Eier *(meier@findlaycityschools.org),* Glenwood Middle School, Findlay, Ohio

Presider: Wendell Badertscher, Glenwood Middle School, Findlay, Ohio

Your students will literally eat up Earth science standards as they engage in various inquiry activities that use candy and food as motivators.

Engaging Students in Biology Through Real-World Connections **(Bio)**

(Middle Level–High School) *228/230, Moscone Center*

Alan Ascher *(alan.ascher@csi.cuny.edu),* College of Staten Island, N.Y.

Barbara Poseluzny *(poseluzny1@aol.com),* Ossining, N.Y.

Illustrate real-world applications and enhance the biology curriculum with these activities that feature hands-on inquiry. Topics include stem cell research, medical issues, and diabetes and kidney disease.

9:30–10:30 AM Exhibitor Workshop

Get Their Heads into the Clouds: Exploring Space Science with the GEMS® Space Science Sequence **(Earth)**

(Grades 3–8) *122, Moscone Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Meeting your space science educational standards in the time allotted can be challenging. Explore how GEMS Space Science Sequences' inquiry-based activities, student discourse, supportive readings, and assessment system build depth of understanding in key space science concepts in the time allotted to teach space science. Handouts.

9:30–11:00 AM Presentation

SESSION 1

ISTE: Technology + Science: Making IT Work **(Gen)**

(General) *232/234, Moscone Center*

Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* ISTE/Red Lion (Pa.) Area School District

Come see how to tap into your students' creative side. We will demonstrate, including student examples, how to enhance your classroom teaching using technology.

9:30–11:00 AM Workshop

NSTA Press Session: *Inside-Out:* Grades 3–8 Environmental Science in the Field and the Classroom **(Env)**

(Elementary–Middle Level) *Continental 9, Hilton*

J. Adam Frederick *(frederic@mdsg.umd.edu),* Center of Marine Biotechnology, Baltimore, Md.

Sarah Haines *(shaines@towson.edu),* Towson University, Towson, Md.

This extended workshop will provide hands-on engagement and the practical application of classroom and field-based activities presented in the book I*nside-Out*.

9:30–11:00 AM Exhibitor Workshops

Experiments for Environmental Science, Ecology, and Agribiotechnology (Bio)
(Grades 9–College) *110, Moscone Center*
Sponsor: EDVOTEK
Jack Chirikjian *(info@edvotek.com)* and **Tom Cynkar** *(info@edvotek.com),* EDVOTEK, Bethesda, Md.
This workshop links biotechnology to AP environmental science, ecology, and agribiotechnology courses. A selection of new experiments will feature activities on bioremediation, detection of environmental infectious agents in water and foods, and the detection of biological toxicants.

Introduction to Electrophoresis (Bio)
(Grades 9–12) *120, Moscone Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Explore the basics of electrophoresis. Separate brightly colored dyes on agarose gels to determine which dyes are present in an unknown mix. This process uses economical, sturdy gel boxes that can be powered by inexpensive power supplies or batteries. Load your own gels and perform electrophoresis.

AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (Bio)
(Grades 9–12) *121, Moscone Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Are you ready for a forensic dissection activity that is on the cutting edge? Engage students and revitalize your instruction of mammalian structure and function with a "real" classroom autopsy! Participants, working in pairs, dissect a Carolina's Perfect Solution pig by modeling the autopsy protocols of a forensic pathologist.

Exploring the OHAUS Scout Pro Through Educational Software (Gen)
(Grades 6–12) *134, Moscone Center*
Sponsor: Frey Scientific and Ohaus Corp.
Ken Rainis *(ken.rainis@schoolspecialty.com),* Frey Scientific/School Specialty Science, Nashua, N.H.
OHAUS Scout Pro virtual labs combine the power of hands-on exploration with interactive lab simulations to enhance student learning! Participants will explore the unique instructional qualities of the adjunct CD-ROM/balance package, including learning about balance theory and balance setup and use, as well as participate in several virtual and benchtop balance activities.

A Systematic Approach to Academic Language (Gen)
(Grades 4–12) *202/204, Moscone Center*
Sponsor: EduChange and Teachers for Learners
Catherine Saldutti *(catherine@educhange.com),* EduChange, Inc., New York, N.Y.
Academic language acquisition meets differentiated instruction for ALL students in classrooms where instruction focuses on conceptual knowledge building. Come see how this cross-curricular, patented, hands-on system truly supports content learning.

It's How They Learn: 50 Ways to Use Discovery Education Content (Gen)
(Grades K–12) *206, Moscone Center*
Sponsor: Discovery Education
Presenter to be announced
More than half of the schools in the U.S. incorporate Discovery Education digital content into their instruction. Come see why services like Discovery Education *streaming*Plus and Discovery Education Science work for students.

Sparking Interest and Learning with Chemistry: A Part 1 Experience (Chem)
(Grades 9–12) *236/238, Moscone Center*
Sponsor: Houghton Mifflin Harcourt
Mickey Sarquis and **Jerry Sarquis,** Miami University, Middletown, Ohio
Join Jerry and Mickey Sarquis, recognized leaders in chemistry education and authors of *Modern Chemistry*, for a session full of hands-on activities and engaging demos using inexpensive and readily available materials. Learn how to spark imagination and interest in chemistry with simple but powerful tricks and tips.

The Sky Through the Ages (Earth)
(Grades 5–12) *256, Moscone Center*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Aurora, Ont., Canada
When our ancestors looked up at the night sky, what did they see and how did they explain what they saw? Where are Earth and its constellation headed? What will the sky look like in 2012? Join us on the big screen as we use the Starry Night curriculum to recreate the night skies at different times throughout history!

Paint It RED! Using Technology to Teach Life Science (Bio)
(Grades 6–11) *270/272, Moscone Center*
Sponsor: Science Kit
Ashley Goff, Science Kit, Tonawanda, N.Y.
Are you looking for new and innovative ways to use technology to help teach life science? Learn how to better engage the iPod generation by integrating technology that looks and feels familiar to your students so that you can spend more time on real science concepts.

ScholAR's Got a Brand-new Bag and It's RED! (Chem)
(Grades 9–12) *274/276, Moscone Center*
Sponsor: ScholAR® Chemistry
Paul Schneeberger *(pschneeberger@vwreducation.com),* ScholAR Chemistry, Tonawanda, N.Y.
Learn how to incorporate fun and exciting inquiry activities easily into your classroom using ScholAR's new In-the-Bag Inquiry Activity series. These easy-to-perform demonstrations are designed to engage students and then incorporate guided inquiry exercises so students can further explore and understand concepts. Learn how to perform a variety of In-the-Bag inquiry demonstrations and learning activities.

Using Modern Molecular Modeling Techniques in Middle and High School Science Classes (Chem)
(Grades 8–College) *300, Moscone Center*
Sponsor: Wavefunction, Inc.
Paul Price *(sales@wavefun.com),* Wavefunction, Inc., Irvine, Calif.
Do you see your students struggle with the key concepts of molecular science? Would you like to teach more effectively with the help of simulations that are scientifically sound? Bring your laptop to this hands-on workshop and learn how to truly engage your students.

Fun, Fabulous Foldables® **(Gen)**
(Grades K–12) *303, Moscone Center*
Sponsor: McGraw-Hill School Education Group
Dinah Zike, Dinah-Might Adventures, LP, San Antonio, Tex.
Experience how these 3-D graphic organizers can transform your science lesson into an engaging, interactive learning experience. These interactive tools offer endless possibilities for collecting data, building understanding, and assessing student comprehension.

Flinn Favorite Biology Lab Activities and Games **(Bio)**
(Grades 7–12) *304, Moscone Center*
Sponsor: Flinn Scientific, Inc.
Maureen Hunt, Flinn Scientific, Inc., Batavia, Ill.
Students learn better and faster when they are actively involved in fun hands-on activities that create learning opportunities along the way. We'll share some inquiry-based labs, interactive demonstrations, and collaborative games you can use to motivate your students. We'll focus on core topics like cell biology, genetics, ecology, and more. Handouts.

From Science to Engineering **(Gen)**
(Grades K–8) *305, Moscone Center*
Sponsor: Pearson
Kathryn C. Thornton, University of Virginia, Charlottesville
Typical science activities focus on demonstrating a science concept whereas engineering focuses on solving a problem. Brainstorm ideas on how to extend your science activities into engineering design.

Creating and Using Scenario-based Science Tests in the Classroom **(Gen)**
(General) *307, Moscone Center*
Sponsor: Pearson
Dennis Fulkerson, Leigh Ann Lipscomb, and **Mary Muehl,** Pearson, Iowa City, Iowa
Assess your students' science knowledge by designing test scenarios specifically tailored to your courses. Scenario-based science tests present traditional science test items in the context of natural phenomena, classroom investigations, and real-life applications of the scientific process.

9:30 AM–12 Noon Meeting

Professional Development in Science Education Committee Meeting
Union Square 13, Hilton

9:40–10:10 AM Exhibitor Workshop

eClips **(Gen)**
(Grades K–12) *309, Moscone Center*
Sponsor: NASA Education
Rebecca Jaramillo *(rebecca.jaramillo@nianet.org),* NASA Langley Research Center, Hampton, Va.
Participants will be introduced to NASA eClips video segments and educator resources. NASA eClips videos are short educational segments that inspire and engage students, helping them see real-world connections.

9:45–10:45 AM Global Conversations in Science Education Conference Concurrent Sessions

Tickets required; by preregistration only
These sessions will feature papers from national and international science educators on issues relating to cultural influences on science teaching and learning spanning grades K–16.

SOLD OUT

Concurrent Session #1 *Nob Hill A, Marriott*
Presider: Allison Antink, Illinois Institute of Technology, Chicago

Culture of Environmental Change
Sus M. Hunter-Jivung, Lord Tweedsmuir High School, Surrey, B.C., Canada

Junior Science at Ficino School, Auckland, New Zealand
Lesley J. Milne, Ficino School, Auckland, New Zealand

Astronomy and New Media: Interactive Tools for Teachers
Ma. Antonieta Garcia Ureta, Colina El Pino, La Serena, Chile

Concurrent Session #2 *Nob Hill B, Marriott*
Presider: Gary Holliday, Illinois Institute of Technology, Chicago

Fostering Teacher Leadership via U.S.–Russia Teacher Professional Development (USRTPD): Program Experiences and Cultural Influences
Wendy M. Frazier and **Rebecca K. Fox,** George Mason University, Fairfax, Va.

Inquiry for Citizenship: Evaluating Claims to Knowledge
Frank W. Jenkins, University of Alberta, Edmonton, Canada

An Authentic Inquiry Curriculum in a High-Stakes Assessment System: A UK Perspective
Antony Sherborne, Sheffield Hallam University, Sheffield, U.K.

Concurrent Session #3 *Nob Hill C, Marriott*
Presider: Selina Bartels, Illinois Institute of Technology, Chicago

Science in Reggio-Emilia–inspired Preschools/Schools in Sweden
Bodil Nilsson, University of Stockholm, Sweden

Culturally Responsive Science Education in Taiwan: A Study on Place-based Science Teaching for Young Children Conducted in a Northern Taiwan Tayal Tribal Village
Shu-Chen Chien, National Taiwan Normal University, Taipei
Shu-feng Chen, National Taitung University, Taitung, Taiwan
Chao-Ti Hsiung, National Taipei University of Education, Taipei, Taiwan

Are You Looking to Implement a New Integrated Science and Literacy-based K–6 Curriculum?
Ania D. Driscoll-Lind and **Janet Bradshaw,** American School in London, England

10:00–10:10 AM Exhibits Opening/Ribbon Cutting Ceremony

Hall B Lobby, Moscone Center

Presider: Alan McCormack, NSTA President, and San Diego State University, San Diego, Calif.

Welcoming Remarks: Jerry Valadez, Chairperson, NSTA San Francisco National Conference, and Central Valley Science Project, Fresno, Calif.

Musical Entertainment: The Ruth Asawa School of the Arts String Quartet under the direction of Stephan Moore, music conductor.

Special Guests: Alan McCormack; Jerry Valadez; Pat Shane, NSTA Retiring President, and The University of North Carolina at Chapel Hill; Patricia Simmons, NSTA President-Elect, and North Carolina State University, Raleigh; Karen Ostlund, NSTA President-Elect-Elect, and Retired Professor, Austin, Tex.; Tim Williamson, President, California Science Teachers Association, and Los Angeles County Office of Education, Downey; Charles Abel, President, San Diego Science Educators Association, El Cajon, Calif.; Denise Antrim, NSTA Director, District XVI, and Orange County Dept. of Education, Costa Mesa, Calif.; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Natalie Yakushiji, Program Coordinator, NSTA San Francisco National Conference, and Lawrence Hall of Science, University of California, Berkeley; Lisa Ernst, Local Arrangements Coordinator, NSTA San Francisco National Conference, and Alice Fong Yu Alternative School, San Francisco, Calif.; Rick Smith, NSTA Managing Director, Advertising, Exhibits, and Workshops, Arlington, Va.

10:00–10:30 AM Presentation

SESSION 1
Wow! How'd You Do That? Part 2 **(Gen)**
(General) *Yosemite A, Hilton*
Todd F. Hoover *(thoove2@bloomu.edu),* Bloomsburg University, Bloomsburg, Pa.
What better way to engage your students than to present them with something that goes against the way they have interpreted the world in the past? These discrepant events do just that!

10:00–11:15 AM Exhibitor Workshops

Introducing the Delta Science Module Program **(Gen)**
(Grades K–8) *123, Moscone Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
The Delta Science Modules (DSM) program is a complete K–8 hands-on, literacy-enhanced science curriculum. This workshop will involve you with all parts of the DSM program, including activities, literacy connections, kit components, assessments, and ideas for building a standards-based curriculum. Receive literacy samples and activity resources.

Inquiry Investigations™ Forensics Science Curriculum Module and Kits (Gen)
(Grades 7–12) *124, Moscone Center*
Sponsor: Frey Scientific/School Specialty Science
Lou Loftin, Consultant, Reno, Nev.
Using our new Inquiry Investigations forensic series with more than 55 activities, students learn foundational analysis skills that help them solve multifaceted cases. See how program software allows the preparation of web-based content, along with individualized assessment. Participants will perform skill-based investigative techniques and case investigations and receive a program resource CD and correlations.

Bio-Rad: ELISA and Swine Flu (Bio)
(Grades 7–College) *308, Moscone Center*
Sponsor: Bio-Rad Laboratories
Leigh Brown *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Swine flu is thought to be a rearrangement of four known strains of influenza A virus. The new strain, H1N1, is transmitted from person to person. Discover how this disease is transmitted using a hands-on ELISA experiment and also learn how vaccinations work.

10:00–11:30 AM Exhibitor Workshops

Genetics: Crazy Traits and Adaptation Survivor (Bio)
(Grades 5–12) *131, Moscone Center*
Sponsor: CPO Science/School Specialty Science
Patsy Eldridge, CPO Science/School Specialty Science, Nashua, N.H.
Students learn new vocabulary when they study genetics such as traits, alleles, and genotypes. How can you predict the traits of offspring when you know the genetic makeup of the parents? These ideas will come alive as you create crazy creatures with a unique kit, and study the resulting population.

Investigating Mitochondrial Genetics (Bio)
(Grades 9–12) *132, Moscone Center*
Sponsor: PASCO Scientific
Presenter to be announced
Explore the connections between mitochondrial DNA, the electron transport chain, and human health and disease when you participate in this hands-on activity from PASCO's *Advanced Biology* teacher's guide. This activity fuses modern molecular biology technology from Edvotek™ and PASCO with traditional pedigree analysis to provide a high-level experimental biology experience in the classroom.

AP Physics: Momentum and Impulse (Phys)
(Grades 9–12) *133, Moscone Center*
Sponsor: PASCO Scientific
Presenter to be announced
Explore the physics of collisions, forces, and momentum when you participate in this standards-based probeware lab activity from PASCO's new *Advanced Physics* lab manual. In this hands-on workshop, you'll learn how you can use PASCO's SPARKscience solution to meet AP lab requirements and build a deeper student understanding of the required content.

***Physics with Vernier* (Phys)**
(Grades 9–College) *301, Moscone Center*
Sponsor: Vernier Software & Technology
Rick Sorensen *(info@vernier.com)* and **David L. Vernier** *(info@verier.com),* Vernier Software & Technology, Beaverton, Ore.
Experiments such as sound waves, motion of a cart on a ramp, and video analysis from our popular *Physics with Vernier* lab book will be performed in this hands-on workshop. A variety of new physics accessories will be available to try, as well. Conduct these experiments using LabQuest and our LabQuest Mini.

Water Quality with Vernier (Env)
(Grades 7–College) *302, Moscone Center*
Sponsor: Vernier Software & Technology
Robyn Johnson *(info@vernier.com)* and **Mike Collins** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Learn how to use LabQuest and sensors to study water quality in the field. Try LabQuest's new Data Matrix mode, designed to make field data management easy. Learn how to map your sampling sites and data on Google Maps and ArcGIS using the Vernier GPS Sensor and Logger *Pro* software.

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Introducing the FlexCam® 2

Booth # 1813

10:00–11:50 AM Exhibitor Workshop

Problem-based Instruction Units for Physical Science **(Phys)**
(Grades K–8) *310, Moscone Center*
Sponsor: NASA Education
Diane McElwain *(diana.mcelwain@nasa.gov),* NASA Glenn Research Center, Cleveland, Ohio
Combining an inquiry-based curriculum design and NASA's online educational resources, participants can transform their classrooms into a learning environment where students investigate the challenges found within NASA's future lunar outpost. Participants will engage in a discussion of the problem-based learning model and the inclusion of STEM activities.

10:00 AM–12 Noon Meeting

SESD Board Meeting
Pacific F, Marriott
The annual business meeting of Science Education for Students with Disabilities, an associated group with NSTA. Open to everyone—please join us!

10:10 AM–6:00 PM Exhibits

Halls A–C Moscone Center
Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

10:20–11:10 AM Exhibitor Workshop

Mass *vs.* Weight **(Phys)**
(Grades 5–8) *309, Moscone Center*
Sponsor: NASA Education
Steve Culivan *(stephen.p.culivan@nasa.gov),* NASA Stennis Space Center, Stennis Space Center, Miss.
Mass *vs.* Weight is a "heavy duty" topic. Classroom activities, integrated with video demonstrations by astronauts, guide participants on an exploration of Newton's laws.

10:30 AM–1:00 PM Meeting

AMSE Board Meeting
(By Invitation Only) *Pacific D, Marriott*

10:45–11:15 AM Global Conversations in Science Education Conference Poster Session

(General) *Yerba Buena Salon 8, Marriott*
Tickets required; by preregistration only
Presider: Norman Lederman, Illinois Institute of Technology, Chicago
SOLD OUT
Here's an opportunity to have focused, unrestricted interactions with your science teaching colleagues from around the world. Posters representing all grade levels will focus on projects from various cultures and will highlight similarities and differences across cultures.

From the Swedish School Goals for Students' Knowledge: Two Different Planning Models
Anna C.L. Lindblom, Kvarnback School, Jordbro, Sweden
Elisabeth Hagman, Lundaskolan, Haninge, Sweden

Application of Assumption Reversal in Science Education
Ji Young Park, Korea National University of Education, Cheong won goon, South Korea

Teachers Teaching Other Teachers to Improve Science Education in Mexican Secondary Schools
Carlos M. Castro-Acuña and **Ramiro E. Domínguez-Danache,** National Autonomous University of Mexico, Mexico City

Incorporating Online Writing into a General Physics Experiment Course
Hao-Chang Lo, National Taichung University of Education, Taichung, Taiwan

Teaching Science Creatively
Wendy Patricia Liddell and **Rebekah Banks,** Singapore American School

The Strategy of Cognitive Conflict in the Learning Cycle Approach: Design and Practice of Learning Activities on the Conception of Shadow Formation
Yun-Ju Chiu, Chang Gung University, Taoyuan, Taiwan

The "Holy Sun" in the "Holy Land"
Taha Massalha, The Academic Arab College of Education, Haifa, Israel
Rachel Abadi, Levinsky College of Education and Kibbutzim College, Tel-Aviv, Israel

Interactive Teaching Methods in High School Physics
Renata Holubova, Palacky University, Olomouc, Czech Republic

A New Pedagogical Experiment in Korea: Science Core High School
Heekyong Kim, Kangwon National University, Chuncheon-si, South Korea
Bongwoo Lee, Dankook University, Yongin-si, South Korea
Jeongwoo Son, Gyongsang National University, Jinju-si, South Korea
Youngjoon Shin, Gyeongin National University of Education, Incheon, South Korea

Science Teachers Community in Korea: Teachers for Exciting Science
Jeongwoo Son, Gyeongsang National University, Jinju-si, South Korea
Bongwoo Lee, Dankook University, Yongin-si, South Korea
Hwa Young Jyun, Chungdam High School, Seoul, South Korea
Seyeon Lee, Myungduk High School, Seoul, South Korea
Je Jeong Ryu, Korea National University of Education, Chongwon-gun, South Korea

Making Various Fountains by Using Creative Thinking Tools
Hyeyeon Han, Korea National University of Education, Chungbuk, South Korea

Using Pictorial Reading Representations to Analyze Students' Problem-solving Strategies in Senior High Physics
Ming-Jun Su, Shu-Te University, Kaohsiung County, Taiwan
Jang Jenq Chen, Kaohsiung Municipal Tso-Ying Senior High School, Kaohsiung, Taiwan
Sung Tao Lee, Naval Academy No. 669, Zuoying District, Kaohsiung, Taiwan

Cultural Influences on Science Education: The Dilemma of Nigerian Society
Ngozi P. Okafor, Federal College of Education-Technical, Yaba, Lagos, Nigeria

Developing a Green Building Literacy Curriculum
Ko-Yu Siao, Ching Yun University, Tauyuang, Taiwan
Quo-Cheng Sung, Yi-Lin Jan, Chia-Chen Wei, and **Li-Ting Huang,** Ching Yun University, Tauyuang, Taiwan
Ming-Liang Lin, National Kaohsiung Normal University, Kaohsiung County, Taiwan

Conducting an Astronomy Camp Program to Improve Girls' Science Self-efficacy
Ming-Jun Su, Shu-Te University, Kaohsiung County, Taiwan
Jeng-Fung Hung and **Ming-Liang Lin,** National Kaohsiung Normal University, Kaohsiung County, Taiwan

Probing Aboriginal Students' Concepts of Satellites
Ming-Jun Su, Shu-Te University, Kaohsiung County, Taiwan
Ming-Liang Lin, National Saohsiung Normal University, Kaohsiung County, Taiwan

Linguistic Analysis on Japanese Elementary Science Textbooks
Manabu Sumida, Ehime University, Matsuyama, Japan
Hayashi Nakayama, Miyazaki University, Miyazaki, Japan
Yuji Saruta, National Institute for Educational Policy Research, Tokyo, Japan

Programs of Tutoring and Student Support in the Chemistry School at the National Autonomous University of Mexico
Ramiro E. Domínguez-Danache and **Carlos M. Castro-Acuña,** National Autonomous University of Mexico, Mexico City

How to Determine the Speed of Sound
Ingrid Ann-Kristin Jacobsson and **Per Kristian Beckman,** National Centre for Education in Physics, Lund, Sweden

Astronomy for All! A Reality or a Dream in Schools
Grace Djan, High School for Girls, Potchefstroom, South Africa

Use of Crayfish in Elementary and Secondary Classes in Japan with Special Reference to Breeding and Environment
Taichiro Goto, Mie University, Tsu City, Mie Prefecture, Japan
Tadashi Kawai, Wakkanai Fisheries Research Institute, Hokkaido, Japan

Science Across the Americas
John Penick, 2003–2004 NSTA President, and Sangari Global Education, Miami, Fla.

Primary Science Quality Mark
Annette Smith, Association for Science Education, Hatfield, U.K.

Smarter Science in Canada
Michael J. Newnham, Youth Science Canada, Toronto, Ont.

The Use of Worldwide Recyclables to Construct Gadgets Used to Teach Science Concepts and Promote Creativity
Joseph Laszlo, University of Hawaii, Honolulu
Eduardo D.C. Valadares, Federal University of Minas Gerais, Belo Horizonte, Brazil

11:00 AM–12 Noon Presentations

SESSION 1

PDI **BSCS Pathway Session: How "Educative" Curriculum Materials Help Teach for Understanding (Bio)**
(Middle Level–High School/Supv) Yerba Buena Salon 2, Marriott
April L. Gardner, BSCS, Colorado Springs, Colo.
Several of the biology teachers who implemented educative materials in Project PRIME describe practices that had the greatest impact on their teaching and student learning.

SESSION 2

NMEA Session: Ocean Acidification: How Our Oceans Are Responding to Carbon Dioxide Increases (Bio)
(Middle Level–High School) Yerba Buena Salon 9, Marriott
Steven J. Engstrom *(s.engstrom@seacentr.org),* Seacoast Science Center, Rye, N.H.
Learn how increased CO_2 emissions are compromising the oceans' unique functions and see how simple demonstrations can illustrate this complex multidisciplinary topic.

11:00 AM–12:30 PM General Session

Science—It's Not a Book of Knowledge…It's a Journey

(General) *Gateway Ballroom, Moscone Center*

Jeff Goldstein *(jeffgoldstein@ncesse.org),* Director, National Center for Earth and Space Science Education, Capitol Heights, Md.

Presider and Introduction of Speaker: Alan McCormack, NSTA President, and San Diego State University, San Diego, Calif.

Platform Guests: Jeff Goldstein; Alan McCormack; Pat Shane, NSTA Retiring President, and The University of North Carolina at Chapel Hill; Patricia Simmons, NSTA President-Elect, and North Carolina State University, Raleigh; Karen Ostlund, NSTA President-Elect-Elect, and Retired Educator, Austin, Tex.; Tim Williamson, CSTA President, and Los Angeles County Office of Education, Downey, Calif.; Charles Abel, SDSEA President, El Cajon, Calif.; Denise Antrim, NSTA Director, District XVI, and Orange County Dept. of Education, Costa Mesa, Calif.; LeRoy Lee, NSTA Treasurer, 1986–1987 NSTA President, and Wisconsin Science Network, DeForest; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Jerry Valadez, Chairperson, NSTA San Francisco National Conference, and Central Valley Science Project, Fresno, Calif.; Natalie Yakushiji, Program Coordinator, NSTA San Francisco National Conference, and Lawrence Hall of Science, University of California, Berkeley; Lisa Ernst, Local Arrangements Coordinator, NSTA San Francisco National Conference, and Alice Fong Yu Alternative School, San Francisco, Calif.

All parents remember that magical time when their children first began to speak, that moment marking the beginning of an unending flow of questions. In our children we see our humanity—our innate curiosity—and recognize the obvious… that we are born to explore! Science, in all its seeming complexity, is nothing but a means to organize curiosity. Science education is no different. It is the means by which we immerse our students in the journey by letting them do science. As teachers, we are charged with nothing less than patiently and gently launching the explorations of an entire generation.

Dr. Jeff Goldstein is director of the National Center for Earth and Space Science Education (NCESSE), where he is responsible for overseeing the creation and delivery of national science education initiatives with a focus on Earth and space. These include programs for schools, families, and the public; professional development for grades K–12 educators; and exhibitions for museums and science centers. Dr. Goldstein oversees the Voyage *National Program, which installs replicas of the* Voyage *Model Solar System in communities around the world.*

11:00 AM–12:30 PM Exhibitor Workshop

Shoreline Science: Seeds of Science/Roots of Reading® (Earth)

(Grades 2–5) *125, Moscone Center*

Sponsor: Delta Education/School Specialty Science–Seeds

Traci Wierman, Jacqueline Barber *(jbarber@berkeley.edu),* **Jen Tilson, Megan Goss,** and **Suzy Loper,** Lawrence Hall of Science, University of California, Berkeley

Immerse yourself in the Shoreline Science unit by investigating Earth and life science concepts related to shoreline ecosystems. Experience an integrated approach to inquiry, using content-rich science books, scientific discourse, and writing activities that provide rich opportunities to learn essential science concepts and vocabulary. Take home samples.

11:00 AM–2:00 PM Exhibitor Workshop

Lunch and Learn: Discover a New Inquiry Program for Secondary Schools (Gen)

(Grades 6–10) *122, Moscone Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Be the first to see what's new. Explore the new STC PROGRAM for Secondary Schools from the National Science Resources Center and the Smithsonian Institution. Participants will lunch with the program developers and explore the new materials through hands-on activities for dessert. Tickets available at the Carolina Biological booth.

11:15 AM–12:15 PM Global Conversations in Science Education Conference Concurrent Sessions

Tickets required; by preregistration only

These sessions will feature papers from national and international science educators on issues relating to cultural influences on science teaching and learning spanning grades K–16.

SOLD OUT

Concurrent Session #1 *Nob Hill A, Marriott*

Presider: Allison Antink, Illinois Institute of Technology, Chicago

Multicultural e-Learning Science Courses
Rachel Abadi, Levinsky College of Education and Kibbutzim College, Tel-Aviv, Israel
Taha Massalha, The Academic Arab College of Education, Haifa, Israel

Tom Tit's Experiment: The Swedish Pioneer Science Centre Located in a Multicultural City
Katarina Deneberg, Eva Blomqvist, Marie P.C. Wallum, and **Sofia Holm,** Tom Tit's Experiment, Sodertalje, Sweden

Back to the Land: Ninth-Grade Native Students Learn Science Through Camping Near Hudson Bay
Eli K. Pivnick, Keewaytinook Internet High School, Balmertown, Ont., Canada
Anthony W. Bartley, Lakehead University, Thunder Bay, Ont., Canada

Concurrent Session #2 *Nob Hill B, Marriott*

Presider: Gary Holliday, Illinois Institute of Technology, Chicago

Creating Meaningful Science Education Programs for Indigenous Students: "Waving Hands and Dyeing in Indigenous Culture"
Su-fang Chen, Lin-Yi Syu, and **Tung-Hsing Hsiung,** National Taitung University, Taitung, Taiwan
Guo C-J Guo, National Changhua University No. 1, Changhu, Taiwan

Western Science/Indigenous Knowledge: Bridging Cultural Worldviews
Frank B. Elliott, University of Alberta, Edmonton, Canada

Using Cultural Influence to Inculcate Scientific Value on Students
Prince J.O. Okorie, Ministry of Education, Umuahia, Nigeria

Concurrent Session #3 *Nob Hill C, Marriott*

Presider: Selina Bartels, Illinois Institute of Technology, Chicago

An Investigation of Environmental Education Knowledge for Sustainable Development in High School Sectors
Mayowa A. Abolaji, University of Ibadan, Nigeria
Adekunle O. Oke, Osun-State College of Education, Ilesa, Nigeria
Adekunle Adebanjo, Ogun-State University, Ago-Iwoye, Nigeria

Development of a Science and Mathematics Teacher Network Model in Thailand
Pramuan Siripunkaew, Waraporn Thirasiri, and **Wanna Thammapalert,** The Institute for the Promotion of Teaching Science and Technology (IPST), Bangkok, Thailand

Reasons Behind Girls Outscoring Boys in Science in Oman
Fatema Hamdan Amer Al-Hajri, Salma Eid Al Saifi, and **Ebtsam Abdullah Al Hajri,** Ministry of Education, Oman-Bidiyah, Oman

11:20 AM–12:10 PM Exhibitor Workshop

Rocketry **(Phys)**
(Grades K–12) *309, Moscone Center*

Sponsor: NASA Education
Becky Kamas *(annamarie.r.kamas@nasa.gov),* NASA Johnson Space Center, Houston, Tex.
We'll introduce you to a wide variety of NASA rocketry education resources that you can use in your classroom. Participants will be introduced to multiple rocketry activities and opportunities, and receive a virtual tour of the NASA rocketry website.

11:30 AM–1:00 PM Exhibitor Workshops

Mendelian Genetics with Wisconsin Fast Plants® (Bio)

(Grades K–12) *120, Moscone Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Your students can learn genetics as Mendel did—by growing plants and hand–pollinating them. Planted Wisconsin Fast Plant seeds germinate in two days. Plants flower about 17 days after planting, and students can cross–pollinate them to produce viable seed. If that isn't fast enough, your students can do a genetics study in as little as 72 hours using seedlings.

Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (Bio)

(Grades 6–12) *121, Moscone Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Experience a far superior and safer alternative to formaldehyde with Carolina's Perfect Solution specimens. Participants dissect a sheep brain, cow eye, pig heart, and pig kidney and observe major internal and external structures to gain a better understanding of these mammalian organs. An excellent comparative dissection with Carolina's best specimens!

Exploring the OHAUS Scout Pro Through Educational Software (Gen)

(Grades 6–12) *134, Moscone Center*

Sponsor: Frey Scientific and Ohaus Corp.

Ken Rainis *(ken.rainis@schoolspecialty.com),* Frey Scientific/School Specialty Science, Nashua, N.H.

OHAUS Scout Pro virtual labs combine the power of hands-on exploration with interactive lab simulations to enhance student learning! Participants will explore the unique instructional qualities of the adjunct CD-ROM/balance package, including learning about balance theory and balance setup and use, as well as participate in several virtual and benchtop balance activities.

Key Issues: Bringing Environmental Issues to the Classroom (Env)
(Grades 5–12) *202/204, Moscone Center*
Sponsor: The Keystone Center
Anne Love *(alove@keystone.org),* The Keystone Center, Keystone, Colo.
This national teacher training program is designed to provide new ways of thinking about environmental issues and potential solutions. Explore different teaching techniques that guide students through non-biased environmental issues investigations. Learn how to become a 2011 Key Issues participant and attend through sponsorships.

What's the Connection—Louisiana, Florida, Oregon, and Indiana? (Gen)
(Grades K–12) *206, Moscone Center*
Sponsor: Discovery Education
Presenter to be announced
All four of these states approved Discovery Education Science Techbook for adoption as a primary instructional resource. See why these states chose to provide their educators with the option of going digital.

Practical Strategies for Engaging Today's Biology Student (Bio)
(Grades 9–College) *236/238, Moscone Center*
Sponsor: Houghton Mifflin Harcourt
Stephen Nowicki, Duke University, Durham, N.C.
Beth Swayze, Houghton Mifflin Harcourt, Austin, Tex.
Join us as *Holt McDougal Biology* author Stephen Nowicki discusses factors that may contribute to poor performance by bright students in college biology classes and outlines strategies for both students and their teachers to maximize success.

New Ways to Prepare Your Students Using 21st-Century STEM Initiatives: GO DIGITAL! (Bio)
(Grades 7–College) *256, Moscone Center*
Sponsor: Swift Optical Instruments, Inc.
David Doty *(david@swiftoptical.com)* and **Cynthia Syverson-Mercer** *(cynthia@swiftoptical.com),* Swift Optical Instruments, Inc., San Antonio, Tex.
The future of science classrooms and workplaces is digital technology. Prepare your students for this future by incorporating Motic software, Swift digital cameras, and microscopes into your STEM curriculum. Get students involved digitally! Learn how to integrate digital technology and assessment into your current teaching.

All the Small Things: Teaching STEM with Digital Microscopes (Bio)
(Grades 6–12) *270/272, Moscone Center*
Sponsor: Science Kit
Ashley Goff, Science Kit, Tonawanda, N.Y.
Teaching STEM topics in life science just got a lot easier with the digital microscope. Learn the benefits of using a digital microscope to capture images, take videos, and measure objects. Put this knowledge to work as you perform six high school–level activities using a digital microscope. This is a *See One, Do One, Teach One* workshop that can easily be implemented in your classroom.

Watching the Detectives: Blood Spatter (Bio)
(Grades 6–12) *274/276, Moscone Center*
Sponsor: WARD'S Natural Science
Kathy Mirakovits, Portage Northern High School, Portage, Mich.
Kelly P. Cannon, Washoe County School District, Reno, Nev.
Help your students find out whodunit! An ideal activity for beginning forensics students or as a unit in other science classes, blood spatter lets students put on their detective hats. Using simulated blood, participants will learn the basic skills needed to interpret and understand blood spatter.

Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (Chem)
(Grades 8–College) *300, Moscone Center*
Sponsor: Wavefunction, Inc.
Paul Price *(sales@wavefun.com),* Wavefunction, Inc., Irvine, Calif.
Widely recognized as a powerful teaching tool, molecular modeling is now a common component of introductory chemistry classes at the college level. Bring your laptop to this hands-on workshop and learn how to integrate state-of-the-art modeling into your teaching of AP chemistry.

Teaching Inquiry with Toys and Treats (Gen)
(Grades K–8) *303, Moscone Center*
Sponsor: McGraw-Hill School Education Group
Michael Comer, McGraw-Hill School Education Group, Columbus, Ohio
Learn fun, practical, and engaging hands-on teaching ideas using simple toys and treats. Take home a wealth of ideas for teaching difficult concepts in novel ways.

Make Safety a Habit! Flinn Scientific Workshop **(Chem)**

(Grades 6–12) *304, Moscone Center*

Sponsor: Flinn Scientific, Inc.

Irene Cesa, Flinn Scientific, Inc., Batavia, Ill.

Find out about simple, practical, and effective solutions to increase safety awareness and improve safety in your science classroom. Topics include right-to-know laws and teacher liability; lab ventilation; purchase, storage, and disposal of chemicals; chemical inventory; spill control; and more.

Inquiry and Evidence: Keys to Getting Students to Inquire **(Gen)**

(Grades K–12) *305, Moscone Center*

Sponsor: Pearson

Michael Padilla, 2005–2006 NSTA President, and Clemson University, Clemson, S.C.

Inquiry continues to be a major thrust in science education as entities like the Partnership for 21st Century Skills call for improved student thinking across all disciplines. Develop an understanding of inquiry and evidence and outline teaching strategies that you can use in your classroom.

Increasing Physics Enrollments **(Phys)**

(Grades 9–12) *307, Moscone Center*

Sponsor: Pearson

Paul Hewitt, Retired Educator, St. Petersburg, Fla.

Turn around the perceived drudgery of physics by introducing students to concepts in an insightful and delightful manner. Present conceptual physics in a mathematical—but not necessarily computational—way. There's a difference!

12 Noon–1:15 PM Exhibitor Workshops

Educational Science Lab Design and Implementation for the 21st Century Made Easy (Gen)
(Grades K–12) *124, Moscone Center*
Sponsor: Frey Scientific/School Specialty Science
John Flockenzier and **Gordon Strohminger,** Frey Scientific/School Specialty Science, Mansfield, Ohio
Explore the process of designing and implementing educational science labs. See how technology and room design can push conventional boundaries to help students better understand science concepts. Open discussions will include the lab design process, furniture and equipment basics, safety and accessibility, integration of technology, and 21st-century trends.

Beyond the Classroom Walls with FOSS (Gen)
(Grades 5–8) *130, Moscone Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Kate Jordan, Karen Mendelow Nelson, and **Nicole Medina,** Lawrence Hall of Science, University of California, Berkeley
Enhance your science teaching with outdoor learning experiences, digital photography, and other connections to resources in your local environment available through FOSSweb. Participants will be introduced to outdoor learning resources and explore digital photo sharing on PlanetFOSS. These activities seek to personalize and engage student learning beyond the classroom walls.

12 Noon–1:30 PM Exhibitor Workshops

Real-Time Displacement, Velocity, and Acceleration Measurements with CPO's Velocity Sensor (Phys)
(Grades 5–12) *131, Moscone Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.
CPO's Velocity Sensor uses sound waves to measure and display position, velocity, and acceleration data of moving objects. Investigate how the Energy Car moves on our new SmartTrack to explore Newton's laws, kinematics, friction, and the law of conservation of energy in this inquiry-based learning activity.

AP Environmental Science: Modeling an Ecosystem (Env)
(Grades 9–12) *132, Moscone Center*
Sponsor: PASCO Scientific
Presenter to be announced
In this hands-on workshop, participants will design an experiment that explores the interrelationships of abiotic and biotic factors in a terrestrial ecosystem. Working from PASCO's new *Advanced Environmental Science* lab manual, see how this standards-based SPARK Science activity can enhance your teaching practice and improve student understanding while exploring one of the toughest AP environmental science investigations.

Middle School Life Science: Learn Key Concepts Through Hands-On, Probeware-based Activities (Bio)
(Grades 6–8) *133, Moscone Center*
Sponsor: PASCO Scientific
Presenter to be announced
Get hands-on experience with a state-of-the-art way to meet the life science standards when you conduct an activity from the Sally Ride Science™ SPARKlabs series. The integrated, probeware-based guided inquiry lessons from Sally Ride Science and PASCO cover content such as plant adaptations and biodiversity in soil.

K–8 Science with Vernier **(Gen)**

(Grades K–8) *301, Moscone Center*

Sponsor: Vernier Software & Technology

David Carter *(info@vernier.com)* and **Rick Sorensen** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Learn how easy it is to measure temperature, gas pressure, magnetic field, and more. Try experiments from our popular *Elementary Science with Vernier* and *Middle School Science with Vernier* lab books using sensors on our LabQuest or on a computer using our low-cost line of Go! products or LabQuest Mini.

Environmental Science with Vernier **(Env)**

(Grades 7–College) *302, Moscone Center*

Sponsor: Vernier Software & Technology

Robyn Johnson *(info@vernier.com)* and **Mike Collins** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Learn how to use Vernier LabQuest and sensors to study environmental science in the field or in your classroom. Water quality and other environmental topics will be explored. See the new Vernier GPS sensor and learn how to map your sampling sites and data with Google Maps and ArcGIS software.

12:15–1:15 PM Global Conversations in Science Education Conference Luncheon Plenary Session

Exploring and Explaining Experiences: The Place of Doing Science in a Culturally Diverse Classroom

(Gen)

(General) SOLD OUT *Yerba Buena Salon 8, Marriott*

Tickets required; by preregistration only

Ian Milne *(lesley.milne@xtra.co.nz),* Educational Consultant, Primary Science Education Consulting Group, Auckland, New Zealand

When starting school, all young children can usually be expected to approach their aesthetic experiences of natural phenomena in an open and curious manner. This talk explores some of the elements necessary for teachers to consider when introducing children to science that will enhance rather than hinder further engagement. Aspects that will be introduced in the context of cultural diversity in the science classroom will include personalizing science, children's science, communicating in science, and aesthetic experiences. Creative exploration and inquiry approach to teaching science will be shared.

In July 2010, Ian Milne retired from his position as senior lecturer in Primary Science Education at The University of Auckland. Recently, Milne served as president of the New Zealand Association of Science Educators and national director for its primary science conferences. Currently, he is on the editorial board of the Association for Science Education's journal Primary Science *and chairperson of the International Council of Associations for Science Education committee for pre-secondary and informal science education.*

In 1969, he received a diploma of teaching from the North Shore Teachers College. He taught for 19 years at several schools before becoming lecturer in science education at the Auckland College of Education in 1988. He later earned an advance diploma of teaching, a diploma of mathematics education, and a master of education (mathematics) from The University of Auckland.

He is developing "Creative Exploration," an inquiry approach to science teaching using awe and wonder.

12:30–1:30 PM Mary C. McCurdy Lecture

The Total STEM Learning Ecology: How to Use All a Child's Waking Hours to Activate the Science Learner in Every Student Before Adolescence

(Gen)

(General) *135, Moscone Center*

Dennis Bartels, Executive Director, Exploratorium, San Francisco, Calif.

Presider: Dana Wright *(dwright@nusd.k12.ca.us),* Newark (Calif.) Unified School District

I will make the case that rebuilding elementary science is the cornerstone to developing the next generation of scientists and engineers. Recent syntheses studies from the National Academies of Science on both formal and informal science learning and research from scholars such as Robert Tai show the importance of "turning on" interest in science in every student before the end of the elementary grades. I advocate for a national strategy for increasing participation rates of underrepresented groups in advanced STEM studies.

In addition to directing the Exploratorium, Dennis M. Bartels is a nationally known science education and policy expert. His leadership in science education extends to numerous positions, including fellow for the American Association for the Advancement of Science, appointee to the President's Council of Advisors on Science and Technology and the NSF Education and Human Resources Directorate Advisory Committee, as well as former TERC president (2001–2006). In June 2010, he was one of two educators named to the Oceans Research and Resources Advisory Panel (ORRAP), which provides independent advice and guidance to the more than 20 federal agencies of the National Oceanographic Partnership Program.

12:30–1:30 PM Presentations

SESSION 1

Mentoring for Success: Supporting the First-Year Science Teacher (Gen)

(Supervision/Administration) *Continental 3, Hilton*

Patreka Wood-Blain *(patreka.wood@gmail.com),* Boston (Mass.) Public Schools

Learn strategies that mentors and administrators can use to support new science teachers during their most challenging year.

SESSION 2

Engaging K–8 Science Students with Hands-On Investigations and Inquiry Supported by Science Literacy Skills and Quality Resources (Gen)

(General) *Continental 5, Hilton*

Donna L. Knoell *(dknoell@sbcglobal.net),* Educational Consultant, Shawnee Mission, Kans.

Learn some strategies that enable students to learn science skills, concepts, and processes; develop their literacy skills; and develop and apply their higher-level thinking skills.

SESSION 3

Not Senescent Yet! Forty Years of Environmental Education (Env)

(Elementary–Middle Level) *Golden Gate 5, Hilton*

Burt D. Freedman *(burtfreedman@yahoo.com),* **Edward Haley** *(haleyej@comcast.net),* **Catherine Orellana,** and **Maureen Keating-Lessard,** ECOS (Environmental Center for Our Schools), Springfield, Mass.

Presider: Ron St. Armand *(starmandr@sps.springfield.ma.us),* Springfield (Mass.) Public Schools

ECOS has successfully taught environmental science to 100,000 urban elementary and middle school students for 40 years! Learn how to adapt ECOS in your district.

SESSION 4

Evolution Readiness: The Modeling Approach (Bio)

(Elementary) *Golden Gate 6, Hilton*

Carolyn J. Staudt *(carolyn@concord.org)* and **Chad W. Dorsey** *(cdorsey@concord.org),* The Concord Consortium, Concord, Mass.

Evolution Readiness uses open-source computer-based models of interacting organisms and their environments to help fourth-grade students learn Darwin's model of natural selection.

SESSION 5

NSTA Press Session: Outdoor Science (Gen)

(Elementary–Middle Level) *Golden Gate 8, Hilton*

Steve A. Rich *(bflywriter@comcast.net),* West Georgia Youth Science Center, Carrollton

Find the perfect prescription for nature deficit disorder with new school yard units and practical suggestions for outdoor learning spaces. Free seeds and door prizes.

SESSION 6

NARST Session: Professional Development Ideas to Support Science Specialists and Elementary Generalists (Gen)

(Elementary/Supervision) *Union Square 14, Hilton*

Wendy M. Frazier *(wfrazier@gmu.edu)* and **Donna R. Sterling** *(dsterlin@gmu.edu),* George Mason University, Fairfax, Va.

Join us as we share an organizational tool that emerged from our professional development work enabling science specialists to be used more effectively in schools.

SESSION 7 (two presentations)

(High School–College/Supervision) *Union Square 17/18, Hilton*

SCST Session: Aligning Assessment to Instruction: Group Testing in a Large Lecture Science Classroom (Gen)

Stephen B. Witzig *(sbwitzig@mizzou.edu),* University of Missouri, Columbia

Course assessments should align with instructional approaches. In this study, findings from a reform-based large-lecture course that incorporated group-testing strategies will be discussed.

SCST Session: Peer-based Science Study Groups: Benefits for Student Peer Leaders (Gen)

Claire Sandler *(csandler@umich.edu),* University of Michigan, Ann Arbor

Not only do student members of peer-led science study groups benefit from participation, but the student leaders benefit a great deal as well.

SESSION 8

NSELA Session: Examining Student Perceptions Toward Professional Development (Gen)

(General) *Union Square 21, Hilton*

Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.

Based on study results, discover ways to expand science-related professional development. Students' perceptions will be examined.

SESSION 9

Science Night for Dummies (Gen)

(Elementary–Middle Level) *Union Square 22, Hilton*

Molina Walters *(drmo@asu.edu),* Mary Lou Fulton Teacher College, Arizona State University, Mesa

Hands-on Family Science Night tubs engage the entire community in the processes and discovery of science.

SESSION 10

Celebrating Science (Gen)

(Elementary–High School) *Union Square 25, Hilton*

Rosanna Lupien *(rlupien@ramonausd.net)* and **Elizabeth Miller** *(bmiller@ramonausd.net),* Ramona (Calif.) Unified School District

The Celebrating Science program hosts hands-on, interactive science learning activities for elementary students that are presented by high school students.

SESSION 11

MERLOT Noyce Scholars: How to Develop, Implement, and Sustain a Quality Digital Community (Gen)

(Middle Level–College/Supervision) *Yosemite A, Hilton*

Ronald P. Hughes *(rhughes@csub.edu),* California State University, Bakersfield

David M. Andrews *(davidan@csufresno.edu)* and **Jaime Arvizu** *(jaimea@csufresno.edu),* California State University, Fresno

Learn how California Noyce Math and Science Scholars participate in a digital community and how Noyce PIs facilitate collaboration using Webinars and *MERLOT.org.*

SESSION 12

Using FREE Online Games to Teach Science Content and Inspire STEM Careers (Gen)

(Middle Level) *Yosemite B, Hilton*

Yvonne Klisch *(yvonne.klisch@rice.edu)* and **Leslie M. Miller** *(lmm@rice.edu),* Rice University, Houston, Tex.

Lynn Lauterbach *(lynnlauterbach@gmail.com),* Loveland, Colo.

Discover free innovative technology you can implement next week to engage students in learning a variety of science content using science knowledge and skills in real-life scenarios.

SESSION 13

Integrating Literacy in a Team-taught STEM Course (Gen)

(College) *Yosemite C, Hilton*

Susan J. Goetz *(sjgoetz@stkate.edu)* and **Gina Mancini Samuelson** *(gjsamuelson@stkate.edu),* St. Catherine University, St. Paul, Minn.

Two university faculty who team-teach a STEM course integrated literacy into the content. Come learn more.

SESSION 14

ZAP! It's Electrifying! (Phys)

(Middle Level–High School) *Golden Gate Salon A, Marriott*

Al Guenther, Retired Educator, Palos Verdes Estates, Calif.

Experience an hour of amazing, attention-grabbing electrical demonstrations designed to construct concepts and stimulate inquiry. Detailed handouts provided.

SESSION 15

"Simple"y the Best Demos (Chem)

(High School) *Golden Gate Salon B, Marriott*

Bette A. Bridges *(babridges@laboratorysafetyinstitute.org)* and **Harvey Gendreau** *(hgendreau@rcn.com),* Laboratory Safety Institute, Natick, Mass.

Presider: Kenneth W. Brody *(kwbrody@mit.edu),* Retired Educator, Sharon, Mass.

Excite your students and enhance your classes using demos that involve common substances, are quick to set up, and cost very little!

SESSION 16

Become a Researcher on the International Space Station (ISS) (Earth)

(General) *Golden Gate Salon C1, Marriott*

Matthew Keil *(matthew.j.keil@nasa.gov),* NASA Johnson Space Center, Houston, Tex.

Learn about opportunities the ISS National Laboratory Education Project offers to educators and students. Become researchers on the ISS. Materials provided.

SESSION 17 (two presentations)
(Middle Level–High School) *Golden Gate Salon C3, Marriott*
Presider: Pini Kalnite, Insurance Institute for Highway Safety, Arlington, Va.

CRASH Science! Saving Lives with STEM Lessons (Gen)
Griff Jones *(gjones@coe.ufl.edu),* University of Florida, Gainesville
Use dramatic crash-testing footage, sensor-based data collection, and egg-carrying paper car crashes to teach students how science, technology, and engineering can save their lives.

Crime Scene Investigation: Learning Integrated Science Using Authentic Problems (Gen)
Shaun Gerard De Souza *(shaun.desouza@rgs.edu.sg),* Raffles Girls' School, Singapore
Learn practical strategies that ride on the popularity of the *CSI* television franchise while empowering students to integrate the sciences.

SESSION 18 (two presentations)
(Middle Level–College) *Pacific B, Marriott*

Earth System Science Education and NASA's Global Climate Change Education Program (Earth)
Michael R. Witiw *(witiw170@erau.edu),* Embry-Riddle Aeronautical University, Sammamish, Wash.
Explore new educational modules on sunspots and urban heat islands developed for NASA's Global Climate Change Education program.

Challenging Students' Misconceptions of the Seasons Using Free, Authentic Online Data (Earth)
Jeff D. Thomas *(thomasjed@ccsu.edu),* Central Connecticut State University, New Britain
Use the inquiry method and online meteorological and astronomical data to elicit the inconsistencies of students' naive ideas about the "real" reasons for the seasons.

SESSION 19 (two presentations)
(General) *Pacific C, Marriott*

Project-based Water Education in the Classroom (Earth)
Jamie L. Oltman *(joltman@groundwater.org),* The Groundwater Foundation, Lincoln, Neb.
Learn by doing! Build a mini-model aquifer and learn about a new project-based learning curriculum that engages students, encourages leadership, and emphasizes environmental stewardship. FREE curriculum!

Teaching Energy Sources and Environment Together (Earth)
Don A. Duggan-Haas *(dugganhaas@gmail.com)* and **Robert M. Ross** *(rmr16@cornell.edu),* Museum of the Earth, The Paleontological Research Institution, Ithaca, N.Y.
Explore the process of teaching the most important topics of our century—sources of energy and the environmental impacts of getting and using energy.

SESSION 20 (two presentations)
(Middle Level–High School) *Sierra A, Marriott*

Finding the CURE: Engaging High School Students in Science Through Cancer Research Experiences (Bio)
Michelle R. McCombs *(mccombs75@osu.edu),* University of California–Davis, Sacramento
I'll share the outcomes from a high school program that engages students in scientific research as a method of facilitating interest in pursuing a STEM college major.

Epidemiology 101: Using the Framingham Heart Study to Teach Kids About the Human Body (Bio)
Kathryn Buckley, Robert Adams Middle School, Holliston, Mass.
Help students understand the interactions between the digestive, respiratory, and circulatory systems through scientific investigations inspired by the Framingham Heart Study.

SESSION 21 (two presentations)
(General) *Sierra B, Marriott*

Using Inquiry to Study Global Sustainability Issues (Env)
Elizabeth Druger, Bridget Lesinski *(blesinski@fwparker.org),* and **Xiao Zhang** *(xzhang@fwparker.org),* Francis W. Parker School, Chicago, Ill.
We will share how a plant research model was used to answer questions regarding environmental issues such as pollution, fertilizer use, and food production.

Innovative Professional Development for Teachers of K–12 Environmental and Geosciences Education (Env)
Robert J. Myers *(bob_myers@strategies.org),* **Theresa Schwerin** *(theresa_schwerin@strategies.org),* **Lynn Blaney,** and **James A. Botti,** Institute for Global Environmental Strategies, Arlington, Va.
Funded by NSF, NASA, and NOAA, this program provides professional development to K–12 teachers of geosciences and environmental science.

SESSION 22

Teaching High School Chemistry with a Materials Science and Engineering Focus (Chem)

(High School) *Sierra H, Marriott*

Bruce Wellman *(bwellmanonw@olatheschools.com),* Olathe Northwest High School, Olathe, Kans.

Explore the major components of a POGIL-configured (Process Oriented Guided Inquiry Learning) high school chemistry course that incorporates materials science and engineering principles.

SESSION 23

Take Your Class to the Poles (Gen)

(Middle Level–High School) *Sierra I, Marriott*

Marti Canipe *(marticanipe@gmail.com),* Wildcat School, Tucscon, Ariz.

Teach essential science topics by taking your students on a learning adventure using free resources from polar expeditions. Get ready-to-use materials and learn to create your own.

SESSION 24

Family Science Nights on Fire (Gen)

(General) *Sierra J, Marriott*

Bruce L. Wear *(wear@palmbeach.k12.fl.us),* The School District of Palm Beach County, West Palm Beach, Fla.

Wondering about doing your own Family Science Night? Come get a basic how-to and several tried-and-true activities on CD.

SESSION 25

PDI **LHS Pathway Session: The Promise of Formative Assessment (Gen)**

(Elementary–Middle Level) *Yerba Buena Salon 6, Marriott*

Rebecca Deutscher *(mdeutscher@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley

Cathleen Kennedy *(cathy@kacgroup.com),* Educational Consultant, San Carlos, Calif.

Ellen Osmundsen *(eosmundson21@comcast.net),* National Center for Research on Evaluation, Standards, and Student Testing, Orinda, Calif.

A panel of assessment and evaluation experts will share current research and why formative assessment holds such promise for improving student achievement. They will highlight projects in which they have personally participated, and provide a summary of research that will help you convince others that formative assessment is worth the effort.

SESSION 26

Using the Superpower of Rap Music to Help Students Understand Science (Gen)

(General) *Yerba Buena Salon 7, Marriott*

Tyraine D. Ragsdale *(grandhank@grandhank.com),* Grand Hank Productions, Inc., Philadelphia, Pa.

This high-energy program is designed to help students get a handle on the fundamentals of science through the use of hip-hop music. This multimedia approach incorporates multiple intelligences and inquiry-based teaching and learning strategies.

SESSION 27

PDI **ELL Pathway Session: Scaffolding English Language Learners' Experiences with Science Texts (Gen)**

(Elementary) *Yerba Buena Salon 10, Marriott*

Marco A. Bravo *(mbravo@scu.edu),* Santa Clara University, Santa Clara, Calif.

Jorge Solis *(solis@ucsc.edu)* and **Eduardo Mosqueda** *(mosqueda@ucsc.edu),* University of California, Santa Cruz

Learn a range of strategies for making science informational text accessible to English language learners. These strategies include identifying cognates, multiple meaning words, setting a reading focus, use of native language, vocabulary scaffolds, strategies for lowering affective barriers, opportunity for text retell, multi-modal instruction, and more.

SESSION 28

STEM: Specific Learning and Studying Strategies (Gen)

(General) *113, Moscone Center*

Dawn A. Tamarkin *(tamarkin@stcc.edu),* Springfield Technical Community College, Springfield, Mass.

Our NSF-funded guidebook can help your students approach STEM courses and succeed.

SESSION 29

Incredible, Edible Science (Gen)

(General) *200, Moscone Center*

Ashley S. Bloch, Islip Middle School, Islip, N.Y.

Using everyday materials, engage students with a series of activities that not only help them understand core concepts but are pretty tasty, too!

SESSION 30

Practical Strategies to Help English Learners Comprehend Science Texts (Bio)

(Elementary–High School) *224/226, Moscone Center*

Diego X. Roman *(dxroman@stanford.edu),* Stanford University, Stanford, Calif.

These practical strategies combine a free web-based vocabulary development tool and a grammar approach to help students comprehend science texts.

SESSION 31

How We Know What We Know: The Most Important Tools for Teaching Earth Science (Earth)

(Informal Education) *228/230, Moscone Center*

Sharon K. Cooper *(scooper@oceanleadership.org),* **Leslie Peart** *(lpeart@oceanleadership.org),* and **Jennifer A. Collins** *(jcollins@oceanleadership.org),* Consortium for Ocean Leadership, Washington, D.C.

Presider: Sharon K. Cooper

Learn the most exciting ways that Earth scientists, geologists, paleontologists, and others obtain the data we use to learn about our planet.

SESSION 32

ISTE: More Than Just Probes (Gen)

(Supervision/Administration) *232/234, Moscone Center*

Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* ISTE/Red Lion (Pa.) Area School District

Probes are a great way for students to collect data. What happens next? Use a variety of digital tools to enhance lab reports and student projects. Come see how to change the face of the traditional lab report.

SESSION 33

Increase Student Achievement with Virtual Science Notebooks (Gen)

RESCHEDULED (see Volume 2)

(General) *250, Moscone Center*

Teresa A. Le Sage *(lesage@uhv.edu),* University of Houston, Victoria, Tex.

Learn how to combine technology and inquiry with the Virtual Science Notebook. A Virtual Science Notebook will be demonstrated online.

SESSION 34

Service Learning and Science (Gen)

(General) *252/254, Moscone Center*

James T. McDonald *(jim.mcdonald@cmich.edu),* Central Michigan University, Mount Pleasant

Find out how to include service learning in your science courses to teach civic engagement, science content, and reflection on learning. DVD and handouts provided.

SESSION 35 (two presentations)

(General) *262, Moscone Center*

Using Electronic Book Writing and Publishing to Integrate Math, Science, and Language Arts Instruction (Gen)

Diana Laboy-Rush *(dlaboyrush@learning.com),* Learning.com, Portland, Ore.

Incorporate a book-writing project into your elementary or middle school math or science unit to demonstrate both science understanding and language arts skills.

Make It "Smathy": Supporting Math Skills Through Your Science Instruction (Gen)

Arden Ashley-Wurtmann, Laura Jeffrey Academy, St. Paul, Minn.

Leave this session with a step-by-step guide to help you collaborate and plan for effective math skill development in your science classroom.

12:30–1:30 PM Workshops

Unleashing the Potential of Clickers: Strategies for Fostering Productive Classroom Science Discussions (Earth)
(Middle Level) *Continental 1, Hilton*
Yves Beauvineau *(yves_beauvineau@dpsk12.org),* Farrell B. Howell School, Denver, Colo.
William R. Penuel *(william.penuel@sri.com),* **Christopher J. Harris** *(christopher.harris@sri.com),* and **Angela H. DeBarger** *(angela.haydel@sri.com),* SRI International, Menlo Park, Calif.
Learn effective strategies for using classroom network technology (clickers) to engage students in rich thinking and discussion in the science classroom.

Your World: What It's Made Of and How It Works (Chem)
(Middle Level) *Continental 2, Hilton*
Deborah K. Leach-Scampavia *(leach@scripps.edu)* and **Jeremy Pyle** *(jpyle@scripps.edu),* Scripps Florida, Jupiter
This chemistry-based lesson and hands-on exercise is designed to teach middle school classes the fundamental ties among the four basic sciences (math, biology, physics, and chemistry).

How to Ignite Student Interest in STEM Careers (Gen)
(Middle Level) *Continental 7, Hilton*
Leesa J. Hubbard *(leesa@sallyridescience.com),* Wilson County Schools/Sally Ride Science, Lebanon, Tenn.
Karen Flammer *(flammer@ece.ucsd.edu),* University of California–San Diego, La Jolla
Learn about engaging STEM careers and try some fun hands-on activities that help illustrate the necessary skills.

So You Think You Teach Inquiry in Middle School? Moving Teachers from Traditional to Inquiry Investigations (Gen)
CANCELED
(Middle Level/Supervision) *Continental 8, Hilton*
Madge F. Nanney *(nanneym@duvalschools.org)* and **Margaret M. Hayden,** Duval County Public Schools, Jacksonville, Fla.
Moving teachers toward inquiry requires more than professional development. We'll share templates and resource samples.

NSTA Press Session: A Head Start on Science (Gen)
(Preschool–Elementary) *Continental 9, Hilton*
William C. Ritz *(wcritz@csulb.edu),* California State University, Long Beach
A national demonstration project has developed activities to help Head Start teachers bring "sense of wonder" science to four-year-olds. We will share activities that engage preK children in the exciting science of their everyday world.

Effortless Phonics for the Young Scientist (Gen)
(Preschool–Elementary) *Golden Gate 4, Hilton*
Deb A. Novak *(dnovak@manzanodayschool.org),* Manzano Day School, Albuquerque, N.Mex.
These hands-on activities introduce the alphabet, all while engaging the minds of aspiring young scientists through science notebooks.

Assessing Students' Understanding of Scientific Inquiry and Nature of Science (Gen)
(Elementary) *Golden Gate 7, Hilton*
Norman Lederman and **Judith S. Lederman** *(ledermanj@iit.edu),* Illinois Institute of Technology, Chicago
Learn some classroom-tested approaches to assessing students' understanding of scientific inquiry and nature of science.

CSSS Session: Geo Focus: Bays (Earth)
(General) *Union Square 5/6, Hilton*
Betsy A. Stefany *(bastefany@gmail.com),* SABENS, Lebanon, N.H.
Shelby Mahan, Cayucos, Calif.
In this workshop we will develop questions and projects that can be used to explore STEM in four specific bays of North America: San Francisco Bay, Tampa Bay, Narragansett Bay, and the Great Bay in New Hampshire.

Elastic Power: Wind Up Your Engines and Explore (Phys)
(Elementary–Middle Level) *Union Square 15/16, Hilton*
Norm Barstow *(barstow@hartford.edu),* Hartford, Conn.
Use an elastic-powered wooden car to explore energy transfer, force and motion, mass, friction, inertia, and momentum.

ELF: Environmental Literacy Framework with a Focus on Climate Change (Gen)
(Elementary–High School) Union Square 19/20, Hilton
Louise T. Huffman *(lhuffman@andrill.org),* University of Nebraska–Lincoln
Jean Pennycook *(jean.pennycook@fresnounified.org),* Penguin Science, Fresno, Calif.
Betsy Youngman, Sun Valley, Idaho
Recognize the urgency to teach climate change science, but not sure where it fits in the curriculum? Need resources? ELF provides the tools and framework for teaching climate change.

NMLSTA Session: Making Sense of Drops on Cents: Understanding the Influence of Variables on Outcomes (Gen)
(Middle Level) Union Square 23/24, Hilton
Mary Lou Lipscomb *(lipscomb@imsa.edu)* and **Liz Martinez** *(emartinez@imsa.edu),* Illinois Mathematics and Science Academy, Aurora
How many drops of water will fit on the surface of a penny? This engaging activity uses process skills to solve a problem, then considers variables that affect its validity.

Standards-based Active Learning: Protein Structure and Function (Bio)
(Middle Level–College) Pacific H, Marriott
Tim Herman *(herman@msoe.edu)* and **Shannon Colton** *(colton@msoe.edu),* Milwaukee School of Engineering, Milwaukee, Wis.
Engage your students in active learning using physical models of amino acids and proteins enhanced by free online molecular visualization tools.

DNA, Mitosis, and Me (Bio)
(General) Pacific I, Marriott
Susan A. Kautzer *(funscience@hotmail.com),* Dupo Junior High School, Dupo, Ill.
These hands-on activities can be used to teach DNA, mitosis, and protein synthesis. Lesson plans, handouts, and keys as well as everything necessary to present the activities in the classroom for the first 75 participants.

A Coherent Approach to Energy in High School Chemistry (Chem)
(High School) Pacific J, Marriott
Larry Dukerich *(ldukerich@mac.com),* Arizona State University, Tempe
Learn to apply the tools developed in Modeling Instruction in High School Physics to represent energy storage and transfer in high school chemistry.

PDI **BSCS Pathway Session: Evolution and Medicine (Bio)**
(High School–College) Yerba Buena Salon 2, Marriott
Mark Bloom *(info@bscs.org),* BSCS, Colorado Springs, Colo.
Participate in an inquiry-based activity that helps illuminate the role of evolution in medicine.

PDI **SEPUP Pathway Session: Life Science Issues: Integrating Biodiversity into the Teaching of Ecology and Evolution (Bio)**
(High School) Yerba Buena Salon 4, Marriott
Maia Willcox *(mwillcox@berkeley.edu)* and **Laura Lenz,** Lawrence Hall of Science, University of California, Berkeley
Participate in activities that integrate issues related to biodiversity into standards-based biology units at the high school level.

NMEA Session: You Scream, I Scream, We All Scream for...Algae? (Env)
(Elementary–High School) Yerba Buena Salon 9, Marriott
Lauren M. Rader *(lrader@oceanology.org),* Project Oceanology, Groton, Conn.
Pam Stryker, Barton Creek Elementary School, Austin, Tex.
Although we can't see, taste, or smell its presence, we consume algae on a daily basis. Get lessons on the many uses of red, brown, and green algae in various food and pharmaceutical industries. By making your own ice cream and examining the topping ingredients, you will engage in a hands-on activity that can be used with students.

Playing with Ecosystem Science: Informal Modeling Games to Explore the Delicate Balance (Env)
(Middle Level–High School/Informal) Yerba Buena Salon 11, Marriott
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
Learn games that model the living components, nutrient cycles, and human impacts on ecosystems. Expand student content knowledge through inquiry. Handouts provided.

Science Doesn't Suck, It Blows! (Phys)
(Informal Education) Yerba Buena Salon 14, Marriott
Keith Etheridge *(keith.etheridge@comcast.net),* KidWind Project, East Lansing, Mich.
Explore the science and engineering behind wind energy. I'll share ideas and lesson plans for K–12 classrooms.

Collaborating to Successfully Integrate Science and Literacy for Students with Disabilities (Gen)
(Middle Level–High School) Yerba Buena Salon 15, Marriott
Melanie D. Haimes-Bartolf *(melanie_bartolf@ccpsnet.net)* and **Karen Akom** *(karen_akom@ccpsnet.net),* Chesterfield County Public Schools, Richmond, Va.
Learn to collaborate and differentiate instruction so that inquiry-based science and literacy are integrated and accessible for all learners using *Picture-Perfect Science Lessons* and activities.

GUESS What? This Experiment Is "Sick"! (Gen)
(General) 111, Moscone Center
Carrie J. Leopold *(carrie.leopold@ndscs.edu)* and **Kristi Jean** *(kristi.jean@ndscs.edu),* North Dakota State College of Science, Fargo
Explore cutting-edge hands-on experiments such as memory metal and electron microscopy. Discover why girls are calling it "sick" and why that's a good thing!

Diagnosing What Students Know Before Science Instruction (Gen)
(General) 112, Moscone Center
Marlene A. Hilkowitz *(mhilkowitz@mac.com),* Science Education Consultant, Glenside, Pa.
Michele H. Lee *(mlee@post.harvard.edu),* University of Missouri, Columbia
Formative assessments can aid student science learning as well as inform your daily instructional practice. Handouts provided.

Cultivating Young Scientists: An Elementary Science Kids' Inquiry Conference (KIC) (Gen)
(General) 220/222, Moscone Center
Patricia L. Bricker *(bricker@email.wcu.edu),* Western Carolina University, Cullowhee, N.C.
Donalyn Small *(donalyn.small@asheville.k12.nc.us),* Asheville (N.C.) City Schools
Kimberly A. Eggert *(kimberly.eggert@asheville.k12.nc.us),* Claxton Elementary School, Asheville, N.C.
Presider: Donalyn Small
Participate in a live KIC simulation with elementary students. Learn about goals, processes, logistics, and potential outcomes. Envision the possibilities and leave with strategies.

12:30–1:45 PM Exhibitor Workshop

What's Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Teachers (Gen)
(Grades K–8) 123, Moscone Center
Sponsor: Delta Education/School Specialty Science
John Cafarella, Consultant, Canadensis, Pa.
Learn how to observe an inquiry science lesson as we support and evaluate it. We'll define inquiry and look at the use of inquiry skills in questioning, notebooking, and assessment while engaging in interactive inquiry-based activities. We will highlight standards-based science materials and implementation.

12:30–2:30 PM Workshops

PDI **TERC Pathway Session: Providing Access to Science for Students with Learning Disabilities (Gen)**
(Elementary–High School) *Yerba Buena Salon 1, Marriott*
Gillian Puttick *(gilly_puttick@terc.edu)* and **Karen Mutch-Jones** *(karen_mutch-jones@terc.edu),* TERC, Cambridge, Mass.
Content enhancements that focus on linking big ideas in science can help students with learning disabilities. Learn how to design your own.

PDI **EDC Pathway Session: The Role of Explicit Teaching (Gen)**
(Elementary) *Yerba Buena Salon 3, Marriott*
Martha Heller-Winokur *(mwinokur@rcn.com),* Teaching and Learning Alliance, Medford, Mass.
Jeff Winokur *(jwinokur@wheelock.edu)* and **Karen Worth** *(kworth@wheelock.edu),* Education Development Center, Inc., Newton, Mass.
Explore the use of mini-lessons as tools to support student recording in science notebooks and student engagement in whole-group science discussions.

12:30–3:30 PM Workshop

PDI **WestEd Pathway Session: Understanding the Conceptual Flow in Instructional Materials (Gen)**
(General) *Yerba Buena Salon 5, Marriott*
Susan Gomez-Zwiep *(sgomezwp@csulb.edu),* California State University, Long Beach
David Harris *(dharris@eusd4kids.org),* Escondido Union School District, Escondido, Calif.
Learn a collaborative process for identifying the flow of conceptual understanding in instructional materials and how to augment flows that are less than robust for student understanding.

1:00–1:30 PM Presentation

SESSION 1
(High School–College) *Golden Gate 1, Hilton*
Enhancing Scientific Literacy in a Senior-Level Ecology Classroom (Bio)
Lynn M. Diener *(dienerl@mtmary.edu),* Mount Mary College, Milwaukee, Wis.
Here is a journal club method used in a senior-level ecology class to enhance scientific literacy.

1:00–2:30 PM Exhibitor Workshop

Bio-Rad Enzymes and Biofuels—Go from Grass to Gas! (Bio)
(Grades 9–College) *308, Moscone Center*
Sponsor: Bio-Rad Laboratories
Leigh Brown *(biotechnology_explorer@bio-rad.com)* and **Sherri Andrews** *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Reveal the power of enzyme kinetics through a real-world application to biofuels. Through guided inquiry activities, determine how temperature, pH, and the concentration of substrate and enzyme will affect an enzymatic reaction. We will determine the rate of reaction for the enzyme cellobiase (a key enzyme in the production of cellulosic ethanol, a biofuel). Can biofuels solve global warming? Let your students decide.

1:00–3:30 PM Exhibitor Workshop

Bio-Rad GMO Investigator Kit (Bio)
(Grades 9–College) *306, Moscone Center*
Sponsor: Bio-Rad Laboratories
Kirk Brown *(biotechnology_explorer@bio-rad.com),* Tracy High School, Tracy, Calif.
Stan Hitomi *(biotechnology_explorer@bio-rad.com),* San Ramon Valley Unified School District, Danville, Calif.
Have your favorite foods been genetically modified (GM)? Discover the basics of DNA extraction, PCR, and gel electrophoresis and how these techniques are used to test common grocery store food products for the presence of GM foods. Are GM crops a good thing? Regardless of where you stand in the GM debate, wouldn't it be interesting to know which foods are GM foods?

1:00–5:00 PM Short Course

Engaging Students in Model-based Reasoning (SC-6)
SOLD OUT
(Secondary Level) *San Miguel, Grand Hyatt*
Tickets Required: $34
Cynthia Passmore *(cpassmore@ucdavis.edu)* and **Wendell Potter** *(whpotter@ucdavis.edu),* University of California, Davis
For description, see page 66.

1:00–5:00 PM Meeting

NESTA Board of Directors Meeting
Walnut, Marriott

1:05–1:55 PM Exhibitor Workshop

Daytime Astronomy **(Earth)**
(Grades K–12) *309, Moscone Center*
Sponsor: NASA Education
Michael A. McGlone *(michael.a.mcglone@nasa.gov),* NASA Johnson Space Center, Houston, Tex.
Join us as we share information about the Sun. Plus, we'll build and use a simple solar camera to measure the diameter of the Sun. In addition to this hands-on activity, there will be demonstrations of other simple astronomy experiments that can be done during the day.

1:05–2:25 PM Exhibitor Workshop

Forces of Flight **(Phys)**
(Grades 4–9) *310, Moscone Center*
Sponsor: NASA Education
Jenay Sharpe Leach *(jenay.s.leach@nasa.gov),* NASA Headquarters, Washington, D.C.
Let's investigate the forces of flight and their real-life applications using NASA curriculum resources that are free and available online. Learn how to use simple household materials to construct inquiry-based learning opportunities for students.

1:15–1:35 PM Global Conversations in Science Education Conference Panel Discussion

SOLD OUT

Yerba Buena Salon 8, Marriott
Tickets required; by preregistration only

Presider: Norman Lederman, Illinois Institute of Technology, Chicago
Glen S. Aikenhead, Professor Emeritus, Aboriginal Education Research Centre, University of Saskatchewan, Saskatoon, Canada
Ian Milne, Educational Consultant, Primary Science Education Consulting Group, Auckland, New Zealand
This concluding session will engage the plenary speakers and other scholars regarding common issues that cut across cultures and various grade levels. Both benefits and obstacles will surely be addressed. This discussion will provide maximum interaction between the panel and audience.

1:30–3:00 PM Exhibitor Workshops

Massive Reactions **(Gen)**
(Grades 7–College) *110, Moscone Center*
Sponsor: Adam Equipment Inc.
Penney Sconzo *(penneys@westminster.net),* The Westminster Schools, Atlanta, Ga.
Come see how chemical reactions affect mass by conducting a variety of hands-on experiments. Activities are included for all grade levels along with training on the proper use of balances and chemicals. Get practical ideas, safe techniques, and connections to science standards with experiments that both teachers and students can enjoy.

Hands-On Science with Classroom Critters **(Bio)**
(Grades K–12) *120, Moscone Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Here's a surefire boost to your class—live organisms. Whether you use hands-on curricula (e.g., STC®, FOSS®) or develop your own lessons, animals broaden students' inquiry-based explorations and increase their interest in science. Take part in fun, simple hands-on activities. Free product samples and literature.

Sharing 35 Years of Teaching High School Chemistry: Demos, Tips, and Best Practices **(Chem)**
(Grades 9–12) *121, Moscone Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Carolina Biological Supply is proud to sponsor Sharon Solsky, a 35-year veteran high school chemistry teacher from Duchesne Academy, Nebraska. She will share her teaching experience, providing take-home examples of inquiry labs, demos, and strategies for teaching difficult chemistry topics. Free giveaways.

Exploring the OHAUS Triple Beam Balance Through Educational Software **(Gen)**
(Grades 5–12) *134, Moscone Center*
Sponsor: Frey Scientific and Ohaus Corp.
Ken Rainis *(ken.rainis@schoolspecialty.com),* Frey Scientific/School Specialty Science, Nashua, N.H.
Doug Boyd *(doug.boyd@ohaus.com),* Ohaus Corp., Parsippany, N.J.
OHAUS Triple Beam virtual labs combine the power of hands-on exploration with interactive lab simulations to enhance student learning! Participants will explore the unique instructional qualities of the adjunct CD-ROM/balance package, including learning about balance theory

and balance setup and use, as well as participate in several virtual and benchtop balance activities.

Youth Policy Summit: Challenge Your Students to Take Action and Have Their Voices Heard! (Gen)
(Grades 9–College) *202/204, Moscone Center*
Sponsor: The Keystone Center
Jeremy Kranowitz *(jkranowitz@keystone.org),* **Elizabeth Roush** *(eroush@keystone.org),* and **Jessye Crowe-Rothstein** *(jcrothstein@keystone.org),* The Keystone Center, Keystone, Colo.
Students apply scientific learning with public policy analysis in an interdisciplinary approach to understanding society's energy, health, and environmental issues. Students learn mediation skills, represent stakeholder interests, and participate in mock policy dialogue. In and out of the classroom, these tools inspire community engagement and sound decision-making in tomorrow's leaders.

Raising Test Scores with Discovery Education Science (Gen)
(Grades K–12) *206, Moscone Center*
Sponsor: Discovery Education
Presenter to be announced
Current educators will share their experiences incorporating Discovery Education content into the classroom. Their investigations led to interesting and unexpected outcomes.

Living By Chemistry: Create a Table (Chem)
(Grades 9–12) *236/238, Moscone Center*
Sponsor: Key Curriculum Press
Jeffrey Dowling *(jdowling@keypress.com),* Key Curriculum Press, Emeryville, Calif.
Angy Stacy and **Jan Coonrod,** University of California, Berkeley
Teach rigorous chemistry with guided inquiry. Explore activities that introduce the periodic table and other core chemistry concepts. Sample lessons from the Living By Chemistry curriculum will be provided.

By invitation only, join your fellow NSTA Life Members for a breakfast filled with memories as well as meaning. Catch up with old friends, make new ones, trade war stories, and discuss ways to share your talents and vitality with the science education community.

NSTA Life Members' Buffet Breakfast
Sunday, March 13
7:00–9:00 AM
Hilton San Francisco Union Square, Powell
Tickets are required (M-13; $55)

Participation is limited to NSTA life members only.

Forensics Made Easy—See What's New! (Bio)
(Grades 7–College) *256, Moscone Center*
Sponsor: Swift Optical Instruments, Inc.
David Doty *(david@swiftoptical.com)* and **Cynthia Syverson-Mercer** *(cynthia@swiftoptical.com),* Swift Optical Instruments, Inc., San Antonio, Tex.
From the latest in equipment to the ease of software applications, Swift makes teaching forensics fun for your students and easy on your budget. Swift's new comparison microscope features side-by-side examination of evidence or other comparison studies. Motic Trace software goes even further and let's you compare, annotate, and make definitive conclusions. Join us for a lively investigative demonstration!

Paint It RED! Using Technology to Teach Middle School Science (Gen)
(Grades 5–8) *270/272, Moscone Center*
Sponsor: Science Kit
Chris Nutting, Science Kit, Tonawanda, N.Y.
Are you looking for ways to integrate more technology into your middle school science classes? Come learn about ways to engage the iPod generation by using technology that looks like what they're familiar with, allowing you to spend more time on the actual science.

There's a Whole Lot of Shakin' Goin' On! (Env)
(Grades 7–12) *274/276, Moscone Center*
Sponsor: WARD'S Natural Science
Steve Bryson *(sbryson@wardsci.com),* WARD'S Natural Science, Tonawanda, N.Y.
Each year, major earthquakes affect the lives of people living in active regions of the world, including our West Coast. Why do these earthquakes occur? What are the principles behind detecting, measuring, and monitoring seismic events? In this hands-on workshop, you'll learn how to operate a classroom seismograph, record and analyze seismic events as they occur, and perform activities that focus on earthquake behavior, prediction, and location.

Using Modern Molecular Modeling Techniques in Middle and High School Science Classes (Chem)
(Grades 8–College) *300, Moscone Center*
Sponsor: Wavefunction, Inc.
Paul Price *(sales@wavefun.com),* Wavefunction, Inc., Irvine, Calif.
Do you see your students struggle with the key concepts of molecular science? Would you like to teach more effectively with the help of simulations that are scientifically sound? Bring your laptop to this hands-on workshop and learn how to truly engage your students.

Teaching Inquiry with Toys and Treats (Gen)
(Grades K–8) *303, Moscone Center*
Sponsor: McGraw-Hill School Education Group
Michael Comer, McGraw-Hill School Education Group, Columbus, Ohio
Learn fun, practical, and engaging hands-on teaching ideas using simple toys and treats. Take home a wealth of ideas for teaching difficult concepts in novel ways.

Hands-On Integrated Science Activities for Middle School (Gen)
(Grades 6–8) *304, Moscone Center*
Sponsor: Flinn Scientific, Inc.
Janet Hoekenga, Flinn Scientific, Inc., Batavia, Ill.
Hands-on science leads to minds-on learning! Flinn Scientific presents relevant and age-appropriate activities for middle school—integrating life, Earth, and physical science topics. Participants perform and observe experiments designed to capture the curiosity and engage the energy of adolescent students. Handouts.

Web 2.0 and Science… (Gen)
(Grades K–8) *305, Moscone Center*
Sponsor: Pearson
Don Buckley, The School at Columbia University, New York, N.Y.
Is Web 2.0 related to science teaching? Can Web 2.0 be used to teach science? Why should scientists use Web 2.0 tools? In this presentation, Web 2.0 will be defined and examples given of how to apply this 21st-century pedagogy to your science teaching.

Real Issues, Real Data, Real Choices: Teaching Environmental Science in Today's High School Classroom (Env)
(Grades 9–12) *307, Moscone Center*
Sponsor: Pearson
Karlie Termotto, Pearson, Manalapan, N.J.
Explore the dynamic digital components of the Miller and Levine *Biology* collection—*Biology.com*. This robust digital support includes a wealth of assets, such as complete online student and teacher's editions with audio, editable worksheets, interactive multimedia, games, and online assessments with remediation. The result is a sophisticated classroom management system that offers a seamless transition from the textbook.

1:30–4:00 PM Meetings

College Science Teaching Committee Meeting
Marina, Hilton

Middle Level Science Teaching Committee Meeting
Presidio, Hilton

High School Science Teaching Committee Meeting
Seacliff, Hilton

Preschool–Elementary Science Teaching Committee Meeting
Sunset, Hilton

Research in Science Teaching Committee Meeting
Union Square 7, Hilton

Nominations Committee Meeting
Union Square 9, Hilton

Coordination and Supervision of Science Teaching Committee Meeting
Union Square 10, Hilton

Multicultural/Equity in Science Education Committee Meeting
Union Square 12, Hilton

Retired Members Advisory Board Meeting
Union Square 13, Hilton

1:30–6:00 PM NSTA Symposium

NOAA/USFS/EPA Symposium: Climate Change Here and Now: Communicating and Teaching About Climate Change (SYM-2)
(General) *Golden Gate C2, Marriott*
Tickets Required: $54
Vicki Arthur *(varthur@fs.fed.us)* and **Safiya Samman** *(ssamman@fs.fed.us),* USDA Forest Service, Washington, D.C.
Karen Scott *(scott.karen@epa.gov),* U.S. Environmental Protection Agency, Washington, D.C.
Bruce Moravchik *(bruce.moravchik@noaa.gov)* and **Peg Steffen** *(peg.steffen@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.
For description, see page 63.

1:35–1:50 PM Global Conversations in Science Education Conference Update

Updates from Around the World
SOLD OUT
Yerba Buena Salon 8, Marriott
Tickets required; by preregistration only

During this session, participants will be given the opportunity to briefly share (approximately five minutes) current events and concerns related to the teaching and learning of science in their home countries. This is an excellent opportunity to quickly find out what your colleagues have been doing and experiencing throughout the global science education community.

2:00–3:00 PM Featured Panel

Next Generation of Science Education Standards **(Gen)**
(General) *135, Moscone Center*

Francis Q. Eberle

Stephen L. Pruitt

Helen R. Quinn

Panelists:
Francis Q. Eberle *(feberle@nsta.org),* NSTA Executive Director, Arlington, Va.

Stephen L. Pruitt *(spruitt@achieve.org),* Vice President for Content, Research, and Development, Achieve, Inc., Washington, D.C.

Helen R. Quinn *(quinn@slac.stanford.edu),* Chair, Board on Science Education, The National Academies, Menlo Park, Calif.

This session will provide an overview and update on the efforts to create a framework for new K–12 science education standards, including a timeline for the remaining work, and how science teachers are involved in the process.

Late last summer, the National Research Council's Board on Science Education (BOSE) released for public input a draft conceptual framework that will lay the foundation for the next generation of science education standards. More than 2,000 people submitted feedback by responding to an online survey, and hundreds more participated in feedback groups, including those held by NSTA. The BOSE committee is working to develop the final report to be released in early 2011. Following the release, Achieve, Inc., will oversee the development of K–12 science education standards based on the framework, with the dissemination of new standards expected in December 2011. The framework and new science education standards that will follow have huge implications for science educators.

Francis Q. Eberle is the executive director of the National Science Teachers Association (NSTA), the world's largest professional organization representing science educators of all grade levels. Before joining the association's staff in September 2008, Dr. Eberle served as executive director of the Maine Mathematics and Science Alliance (MMSA), a 501(c)(3) nonprofit organization dedicated to improving mathematics and science education in that state. During his time there, he worked to develop state curriculum frameworks and provide professional development and resources to schools and teachers throughout Maine.

Stephen Pruitt was named Vice President for Content, Research, and Development for Achieve, Inc., in November 2010. He joined Achieve as director of science in July 2010. In addition to his new role, he continues to lead the development of the Next-Generation Science Education Standards. Stephen was director of academic standards at the Georgia Department of Education, where he oversaw the continued implementation of the Georgia Performance Standards in all content areas. In 2008 he became the Associate Superintendent of Assessment and Accountability, responsible for directing all state assessments and overseeing the No Child Left Behind accountability process.

Helen Quinn is Emerita Professor of Physics at Stanford Linear Accelerator Center where she chaired the department of Particle Physics and Astrophysics. Dr. Quinn is an internationally recognized theoretical physicist who holds both the Dirac Medal (from Italy) and the Klein Medal (from Sweden) for her contributions to the field.

In addition to her scholarship in physics, Dr. Quinn has long been involved in science education and in the continuing education of science teachers. She is currently leading a committee working to develop a new "Framework for Science Education Standards," which is expected to have national impact on a next generation of science standards and curricula.

2:00–3:00 PM Presentations

SESSION 1

Parents as Partners in a Dual-Language After-School Program (Gen)

(Preschool–Elementary) *Continental 3, Hilton*

Jenny Lopez *(jennylopezs@gmail.com),* Cesar Chavez School, Coachella, Calif.

Karen Cerwin *(kcerwin@wested.org),* WestEd, Santa Ana, Calif.

This primary grade program provides an avenue for young learners to experience science and parents to learn how to support their students. Student work in journals provides evidence of success.

SESSION 2

Tips for New Science Teachers (Gen)

(Middle Level–High School) *Continental 5, Hilton*

Patti Duncan *(duncanpatti@netzero.net),* Wallenpaupack Area High School, Hawley, Pa.

The first few years of teaching science are called the "survival years." I'll share tips and hints to help you survive those years. Experienced teachers are welcome, too!

SESSION 3

Everything You Wanted to Know About Science Fairs But Were Afraid to Ask (Gen)

(General) *Continental 6, Hilton*

Elizabeth Allan *(eallan@uco.edu),* University of Central Oklahoma, Edmond

James E. Marshall *(jamesm@csufresno.edu),* California State University, Fresno

Best-kept secret to successful science fairs—resources for science fair directors and the communities that support them.

SESSION 4

The Biology and Physiology of Methamphetamine (Bio)

(High School–College) *Golden Gate 1, Hilton*

Thomas W. Crawford *(tcrawford@tjca.org),* Thomas Jefferson Classical Academy, Mooresboro, N.C.

Let's examine the normal functioning of the nervous system, the short- and long-term effects of "meth" on the individual neurons that make up the nervous system, and the effect of meth on communities.

SESSION 5

Where Have All the Salmon Gone? (Earth)

(Middle Level–High School) *Golden Gate 2, Hilton*

Carolyn Jacobs *(carolyn_jacobs@wgbh.org),* WGBH Teachers' Domain, Boston, Mass.

Native Americans witness climate change firsthand. NASA, public television, and tribal communities help students make real-world connections to environmental shifts through digital storytelling.

SESSION 6

Examining Environmental Issues with Elementary and Middle School Students (Env)

(Elementary–Middle Level) *Golden Gate 5, Hilton*

Cynthia Deaton, Clemson University, Clemson, S.C.

Using case studies in the classroom is a unique way to support students' development of environmental science content knowledge and science process skills.

SESSION 7

Everyone Loves A.L.C.A.T.R.A.Z. (All Learners Crave Activities That Really Are exZilarating)! (Gen)

(Elementary) *Golden Gate 6, Hilton*

Sharon Reneé Anibal *(sharon.anibal@mobot.org)* and **Martha Galganski** *(marty.galganski@mobot.org),* Missouri Botanical Garden, St. Louis

Betsy King *(bking@slsc.org),* Saint Louis Science Center, St. Louis, Mo.

Sharon F. Kassing *(kassing@stlzoo.org),* St. Louis Zoo, St. Louis, Mo.

Are you imprisoned by boring lessons that make your students want to escape your classes? Break free with these proven K–5 Science Alliance activities.

SESSION 7

NSTA Press Session: Brain-powered Science: Teaching and Learning with Discrepant Events (Gen)

(Middle Level–College/Supervision) *Golden Gate 8, Hilton*

Thomas P. O'Brien *(tobrien@binghamton.edu),* Binghamton University, Binghamton, N.Y.

Engaging student inquiry activities serves a dual purpose as visual participatory analogies help teachers explore and apply cognitive learning theory and the nature of science.

SESSION 8

NARST Session: Policy That Makes a Difference in How to Effectively Support New Secondary Science Teachers (Gen)

(Middle Level–College/Supervision) *Union Square 14, Hilton*

Donna R. Sterling *(dsterlin@gmu.edu)* and **Wendy M. Frazier** *(wfrazier@gmu.edu),* George Mason University, Fairfax, Va.

Teacher support equals better student science test scores. Come learn about a six-year study that examined the effect of support factors on the success of provisionally licensed, inservice middle and high school science teachers.

SESSION 9

Close Enough: Playing with Light for Hands-On Thinking (Phys)

(Elementary–Middle Level) *Union Square 15/16, Hilton*

Martin G. Horejsi, The University of Montana, Missoula

Have you ever pointed your digital camera at your TV remote? Here are a dozen question-inducing light demonstrations designed for elementary teachers.

SESSION 10 (three presentations)

(College) *Union Square 17/18, Hilton*

SCST Session: Enhancing Science Education Through Video Conferencing (Env)

Anuradha Dujari, Delaware State University, Dover

Video conferencing for educational purposes has never been used in Maldives before. Global Seminar was introduced to the College of Maldives to discuss global environmental issues.

SCST Session: A Model of Visual Literacy Skills in Undergraduate Biology Education (Bio)

Brian Rybarczyk *(brybar@unc.edu),* The University of North Carolina at Chapel Hill

Complex scientific data requires advanced skills in visual literacy. Find out the results of a model testing undergraduates' analysis skills pre- and post-course.

SCST Session: Interdisciplinary Student Projects with Interdisciplinary Groups (Gen)

Shari Laprise *(slaprise@babson.edu)* and **Chuck Winrich,** Babson College, Babson Park, Mass.

Join us as we share our involvement in teaching applied science courses to business students. In small groups, students created a fictional company for a new product based on existing or currently emerging technology.

SESSION 11

NSELA Session: Improve Student Science Achievement with Standards-based Test Data (Gen)

(General) *Union Square 21, Hilton*

Kathleen Comfort *(kcomfort@wested.org),* WestEd, San Francisco, Calif.

This session will demonstrate that results from a standards-based science assessment can be used to inform instruction and improve student learning and achievement in science.

SESSION 12 (two presentations)

(General) *Union Square 22, Hilton*

Family Science Night—Involve the Entire Community! (Gen)

Jay Holmes, American Museum of Natural History, New York, N.Y.

Kathleen McGuire *(kathleen.mcguire@salkschool.org),* The Salk School of Science, New York, N.Y.

Family Science Night allows teachers, students, families, and the whole community to learn science together.

Leverage Your Science Community Through Science Festivals (Gen)

Kishore M. Hari *(kishore.hari@ucsf.edu),* University of California, San Francisco

Learn how to work with science festivals to increase participation from the local science community in your classroom.

SESSION 13

Teaching for Understanding: Lesson Study and Teaching Science (Gen)

(Elementary–Middle Level) *Yosemite A, Hilton*

Joyce Hill *(science@lifelab.org),* University of California, Santa Cruz

Hear how lesson study groups in California are transforming the way they teach science.

SESSION 14

The 50 Best Physics Demos to Do Before You Die (Phys)

(Middle Level–College) *Golden Gate Salon A, Marriott*

Peter Hopkinson *(phopkinson@shaw.ca),* Vancouver Community College, Vancouver, B.C., Canada

Well okay, maybe not quite 50, but we'll get through as many as we can. Some old and some new, but all definitely the best.

SESSION 15

The Periodic Table of Students (Chem)

(Middle Level–High School) Golden Gate Salon B, Marriott

John E. Clark *(jeclark@volusia.k12.fl.us),* Deltona High School, Deltona, Fla.

This inquiry-driven activity gets students excited about the elements, their role in supporting life, and the scientific challenges inherent to creating the periodic table itself.

SESSION 16

NASA INSPIRE Project (Earth)

(Middle Level–High School) Golden Gate Salon C1, Marriott

Beth Ann White *(beth.a.white@okstate.edu),* NASA INSPIRE Project, Palmdale, Calif.

Presider: Jim Gerard, NASA INSPIRE Project, Palmdale, Calif.

This program inspires the next generation of explorers, grades 9–12, to pursue an education and career in STEM fields.

SESSION 17

Maintaining and Sustaining Ecosystems, One Enzyme at a Time (Bio)

(Middle Level–College) Golden Gate Salon C3, Marriott

Tamica A. Stubbs *(tamica.stubbs@cms.k12.nc.us),* E.E. Waddell High School, Charlotte, N.C.

Create unique instructional experiences for ecologic principles and sustainable practices (alternative fuel production) via the eyes of biological catalysts: enzymes!

SESSION 18

Promoting Authentic Learning Using a Problem-based Format (Earth)

(General) Pacific B, Marriott

Barney Peterson *(bpeterson@everettsd.org),* James Monroe Elementary School, Everett, Wash.

Gary Popiolkowski *(gpop@pulsenet.com),* Chartiers-Houston Junior/Senior High School, Houston, Pa.

Learn to plan and develop problem-based units, including use of Earth System Science Education Alliance resources that explore real-world problems.

SESSION 19

So Many Possibilities…How to Incorporate Google Earth in Your Classroom (Earth)

(Middle Level–High School) Pacific C, Marriott

Ian C. Binns *(ianbinns@lsu.edu),* Louisiana State University, Baton Rouge

Tina S. Ornduff, Google, Mountain View, Calif.

Use information from national science organizations in Google Earth to enhance science teaching and learning in grades 6–12.

SESSION 20 (two presentations)

(High School) Sierra A, Marriott

Science Notebooks: Reflections on the First Year (Bio)

Kristy Conkel *(kconkel@tvsd.us)* and **Sheila R. Clements** *(sclements@tvsd.us),* Teays Valley High School, Ashville, Ohio

We will examine the use of science notebooks in the high school biology classroom and look at possible improvements.

Collaborative Student Activities in Biology (Bio)

James D. Reid *(jim_reid@woodberry.org),* Woodberry Forest School, Woodberry Forest, Va.

Actively engage students in mastering some of the fundamental topics of biology. Take home effective biology activities developed by a 34-year teaching veteran.

SESSION 21 (two presentations)

(General) Sierra B, Marriott

Climate Change in East Africa for Educators (Env)

Dwight D. Sieggreen, Detroit Zoological Society, Royal Oak, Mich.

I'll explain changes in climate in East Africa and provide teaching resources.

Bioblitz: A Biodiversity Blast! (Env)

Arthur Metzger *(greenbullet@hotmail.com),* Austin (Pa.) Area School District

Conduct a bioblitz, a fun, engaging, and meaningful tool for linking students with scientists on a quest to discover biodiversity in their own communities.

SESSION 22

BioPlastic: Going from Synthetic to Natural Polymers (Chem)

(Middle Level–High School) *Sierra H, Marriott*

Sherri Conn Rukes *(scrukes@comcast.net),* Libertyville High School, Libertyville, Ill.

Many of the items that we use today are becoming more Earth friendly. Learn how a bioplastic is made and what plant materials are used. CD with information and activities will be provided.

SESSION 23

SLA's PLC: How Interdepartmental Observation and Self-Reflection Impact Student Achievement (Gen)

(High School) *Sierra I, Marriott*

Stephanie L. Dunda *(sdunda@scienceleadership.org),* **Gamal D. Sherif** *(gsherif@progressed.org),* **Rosalind E. Echols** *(rechols@scienceleadership.org),* and **Tim Best** *(tbest@scienceleadership.org),* Science Leadership Academy, Philadelphia, Pa.

An urban Philadelphia magnet school will chronicle its journey from simply talking science at department meetings to peer-observations with follow-up dialogue.

SESSION 24

Using Silent Movies in the Science Inquiry Classroom (Gen)

(Middle Level–High School) *Sierra J, Marriott*

Young Hak Kim *(yhkim22@gmail.com),* Illinois State University, Normal

Here is a very simple but meaningful science inquiry activity that uses silent movies. Students can practice science inquiry thinking skills through observation of a filmed experiment.

SESSION 25

PDI **LHS Pathway Session: Protocols for Observing Formative Assessment in the Classroom (Gen)**

(Elementary–Middle Level) *Yerba Buena Salon 6, Marriott*

Cathleen Kennedy *(cathy@kacgroup.com),* Educational Consultant, San Carlos, Calif.

Gloria Ferguson *(gloria.ferguson@esd112.org),* Educational Service District 112, Vancouver, Wash.

What should you be looking for when you observe teachers who are successfully implementing formative assessment? Find out about a sample of observation protocols currently being tested that show promising results.

SESSION 26

The Exploratorium Beginning Science Teacher Program (Gen)

(General) *Yerba Buena Salon 7, Marriott*

Linda S. Shore, Exploratorium, San Francisco, Calif.

The Exploratorium Teacher Institute supports science teachers from induction through retirement. Whether you're new to teaching or mentoring, you'll leave this session with great ideas.

SESSION 27

NMEA Session: Hands-On Habitat Restoration (Env)

(General) *Yerba Buena Salon 9, Marriott*

W. Donald Hudson Jr. *(wdonhudson@gmail.com),* President Emeritus, Chewonki Foundation, Arrowsic, Maine

Students participate in long-term monitoring of a fish breeding habitat following dam removal on a coastal stream in Maine.

SESSION 28

NSTA **NSTA Avenue Session: An Update on the Elementary and Secondary Act (No Child Left Behind) (Gen)**

(General) *113, Moscone Center*

Jodi Peterson *(jpeterson@nsta.org),* Assistant Executive Director, Legislative and Public Affairs, NSTA, Arlington, Va.

We will examine the reauthorization of the Elementary and Secondary Education Act (also known as No Child Left Behind) and the implications for science educators.

SESSION 29

SeaPerch and MITS: Formal and Informal Educators Inspire Students with Marine Engineering (Gen)

(General) *200, Moscone Center*

Sandra Ryack-Bell *(sryackbell@mits.org),* Museum Institute for Teaching Science (MITS), Quincy, Mass.

Susan Giver Nelson *(snelson@sname.org),* The Society of Naval Architects & Marine Engineers (SNAME), Jersey City, N.J.

Kelly Cooper, Office of Naval Research (ONR), Arlington, Va.

Presider: Sandra Ryack-Bell

Building the SeaPerch underwater ROV with students develops engineering, science, and math skills. SNAME, MITS, and ONR presenters share how to bring this program into your classroom.

SESSION 30

✔ **How to Host an Inquiry Symposium at Your School (Gen)**

(Elementary) *228/230, Moscone Center*

Steven D. Wade, NBCT *(swade@penncharter.com),* William Penn Charter School, Philadelphia, Pa.

Help your students understand the way in which real scientists interpret experimental results and present their data to the scientific community.

SESSION 31

ISTE: Podcasting for Students and Teachers in Science (Gen)

(General) *232/234, Moscone Center*

Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* ISTE/Red Lion (Pa.) Area School District

Come create your own podcasts and learn the details of publishing and subscribing to podcasts. Gain new ideas for how to use podcasting in your classroom. Bring a laptop and make your first podcast in seconds!

SESSION 32

Sharing Digital Data in the Science Classroom (Gen)

(General) *250, Moscone Center*

Greg Benedis-Grab *(gbenedisgrab@theschool.columbia.edu),* The School at Columbia University, New York, N.Y.

Learn how your students can use Web 2.0 tools to collect, share, and analyze data they collect in the science lab and engage an inquiry approach to science teaching.

SESSION 33

How to Start an Awesome Engineering Program at Your School! (Gen)

(General) *252/254, Moscone Center*

Rebekah Hammack *(bhammack@stillwaterschools.com)* and **Carmen Gulczynski,** Stillwater Middle School, Stillwater, Okla.

Kerry Goode, Jenks Middle School, Jenks, Okla.

Engineering summer camps…after-school mentoring program…school-wide interdisciplinary unit…all in one engineering program!

2:00–3:00 PM Workshops

The MESSENGER Space Mission: Bridging to the Future in the 21st Century (Earth)

(Elementary–Middle Level) *Continental 1, Hilton*

Sally J. Jensen *(sajean@roadrunner.com),* Waterville Valley Academy, Waterville Valley, N.H.

Experience sample lessons from the inquiry-based MESSENGER Educational Science Modules that focus on comparative planetary science.

Do-Talk-Do: An Alternative Approach to Inquiry (Chem)

(Elementary–Middle Level) *Continental 2, Hilton*

Desiree G. Heyns, Houston (Tex.) Independent School District

Entertain your students with "Dancing Raisins," "Bursting Bubbles," and hands-on inquiry. Students take control of their own learning while cultivating a deeper understanding of science.

Drawings for Science Teaching and Learning (Gen)

(Preschool–Middle Level) *Continental 8, Hilton*

Phyllis Katz *(pkatz15@gmail.com),* Retired Educator, Silver Spring, Md.

J. Randy McGinnis *(jmcginni@umd.edu)* and **Kelly Riedinger** *(kellyriedinger@gmail.com),* University of Maryland, College Park

Even stick figures will do! Let's draw and consider effective teaching and learning with a unique coding system.

NSTA Press Session: Planning and Designing Safe, Sustainable, and Flexible Facilities for Inquiry/Project-based Science (Science Facilities 101) (Gen)
(General) *Continental 9, Hilton*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Oakland County Schools, Waterford, Mich.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos
Presider: LaMoine L. Motz
So you want new science facilities. Does your curriculum define your science teaching facility? Join the authors of *NSTA Guide to Planning School Science Facilities* (2nd Edition) and learn the "basics" of science facility planning, design, and budgeting for functional, safe, and sustainable facilities.

Ten Science Investigations for Under $10 (Gen)
(Preschool–Elementary) *Golden Gate 3, Hilton*
Karen Miel and **Carl Oosterman,** CuriOdyssey, San Mateo, Calif.
Use inexpensive everyday materials to investigate and understand profound science. Try several activities and take home handouts of these and additional hands-on activities.

Newton's Laws for Preschoolers...Who Knew?! (Phys)
(Preschool) *Golden Gate 4, Hilton*
Heather Bakal and **Jenny Nelson,** The Palo Alto Junior Museum and Zoo, Palo Alto, Calif.
Wary of teaching preschoolers complex science topics? Participate in object-based, experiential-learning activities that channel "exploration" into guided lessons on forces, motion, and friction.

CSSS Session: Using Cross-curricular Instruction to Engage Students and Improve Performance (Gen)
(General) *Union Square 5/6, Hilton*
Marsha S. Winegarner *(mwinegarner@embarqmail.com),* President, Florida Association of Science Teachers, DeFuniak Springs
Explore ways to guide instruction across the curriculum. Engage in activities and examine content and teaching standards.

From Wagons to Electric Cars—Design Technology Across the Curriculum (Gen)
(Elementary–Middle Level) *Union Square 19/20, Hilton*
Therese Casoria *(casoriat1966@optonline.net)* and **Suzanne M. Caravousanos** *(suesee222@yahoo.com),* Leo F. Giblyn Elementary School, Freeport, N.Y.
Design and construct an electric car that meets established criteria and learn how MST lessons can enhance every curriculum.

NMLSTA Session: Rolling Racers: Having Fun Integrating Math and Science (Gen)
(Elementary–Middle Level) *Union Square 23/24, Hilton*
Renee Anderson *(randerson@imsa.edu),* **Liz Martinez** *(emartinez@imsa.edu),* and **Mary Lou Lipscomb** *(lipscomb@imsa.edu),* Illinois Mathematics and Science Academy, Aurora
Integrated activities in our after-school program keep kids coming back for more. Build a rolling racer, collect and analyze data, and discuss variables.

World Perspectives: Using Technology to Provide a Glimpse of Our Dynamic Planet (Gen)
(Elementary–Middle Level) *Yosemite B, Hilton*
Kim Lajevardi, Niver Creek Middle School, Thornton, Colo.
Karen E. Johnson *(karen.johnson@adams12.org),* STEM Magnet Lab School, Northglenn, Colo.
Chris Thornburg, Ranum Middle School, Denver, Colo.
Use Web 2.0 technologies to explore middle school science content. We'll share ideas for incorporating Google Earth, wikispaces, and digital cameras.

Notebooking in High School and College Science (Gen)
(High School–College) *Yosemite C, Hilton*
Laura Lukes, Einstein Fellow, National Science Foundation, Arlington, Va.
It can be done! Learn how to use notebooking effectively at the high school and college levels.

Do You See What I See? Using an NIH SEPA-funded Biology Curriculum to Experience Hands-On Learning (Bio)
(High School) *Pacific H, Marriott*
Maggie Blattner *(mblattn2@life.illinois.edu),* **Barbara Hug** *(bhug@illinois.edu),* and **Katherine Mitterling** *(mitterl1@illinois.edu),* University of Illinois, Champaign
These hands-on biology activities link core NSES concepts (natural and sexual selection, behavior, sensory system) with current research and scientists from the University of Illinois.

A Coherent Approach to Energy in High School Physics (Chem)
(High School) *Pacific J, Marriott*
Larry Dukerich *(ldukerich@mac.com),* Arizona State University, Tempe
See how Modeling Instruction has developed a coherent way to represent energy storage and transfer in high school physics.

Help Your Students Discover Earth's Layered Interior with Seismic Data (Earth)
(Middle Level–High School) *Willow, Marriott*
Michael Hubenthal *(hubenth@iris.edu)* and **John Taber** *(taber@iris.edu),* IRIS, Washington, D.C.
Explore new discoveries about Earth's dynamic interior. This activity allows students to discover or dispel the presence of Earth's layers using seismic data.

PDI **SEPUP Pathway Session: Green Chemistry: Using Chemistry Knowledge to Inform Societal Decisions (Chem)**
(Middle Level–High School) *Yerba Buena Salon 4, Marriott*
Barbara Nagle *(bnagle@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Participate in classroom activities that engage students in using key concepts of green chemistry and the product life cycle to make evidence-based societal decisions.

Comparative Risk Assessment for Wildfires, Earthquakes, Tornadoes, and Hurricanes (Env)
(Middle Level–High School) *Yerba Buena Salon 11, Marriott*
David R. Stronck *(david.stronck@csueastbay.edu),* California State University–East Bay, Hayward
Jackie Stallard *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Presider: Kay Antunez, California Dept. of Forestry and Fire Protection, Sacramento
Perform hands-on activities and receive lesson plans for using basic statistics and doing comparative risk assessments about wildfires, earthquakes, tornadoes, and hurricanes.

AMSE Session: Hands-On Optics and Photonics Activities (Phys)
(Middle Level–High School) *Yerba Buena Salon 12/13, Marriott*
Pamela O. Gilchrist *(pamela_gilchrist@ncsu.edu),* North Carolina State University, Raleigh
Come learn how to integrate optics and photonics into your middle and high school classes to develop students' understanding of physics and its applications.

Professional Development, Inquiry, and Student Learning (Phys)
(General) *Yerba Buena Salon 14, Marriott*
Robert H. Poel *(bob.poel@wmich.edu),* Professor Emeritus, Western Michigan University, Kalamazoo
These inquiry activities address student learning of science concepts and the process of scientific inquiry appropriate for professional development activities.

Nanotechnology Lessons That Connect to What You Teach (Gen)
(Middle Level–High School) *Yerba Buena Salon 15, Marriott*
Joyce Palmer Allen *(joyce.palmer@mirc.gatech.edu)* and **Nancy Healy** *(nancy.healy@mirc.gatech.edu),* Georgia Institute of Technology, Atlanta
See how standards-based nanotechnology lessons can fit into currently taught topics in middle and high school classrooms.

Tablet PCs for Interactive STEM Teaching (Gen)
(General) *111, Moscone Center*
Carla Romney *(romney@bu.edu),* Boston University, Boston, Mass.
Tablet PCs are an easy way to promote interactive problem-solving and class discussion in STEM classes.

Pairing Science Inquiry Lessons with "Active Reading" Activities (Gen)
(General) *112, Moscone Center*
Cody Sandifer *(csandifer@towson.edu),* Towson University, Towson, Md.
Learn "active reading" methods that help students practice reading comprehension strategies and monitor and improve their understanding of science content contained within textbooks.

Rethinking and "Greening" Classic Science Projects (Gen)
(General) *212, Moscone Center*
Michael T. Harms *(michaelteaches@gmail.com),* Gideon Hausner Jewish Day School, Palo Alto, Calif.
Liat Baranoff, Science is Elementary, Los Altos, Calif.
Tired of putting Styrofoam™/plastic projects into the landfill? Explore how to teach students to make "green" choices, while increasing critical thinking and creativity.

The Geometry of Earth Science (Earth)
(Middle Level) *220/222, Moscone Center*
Lynn Kirby *(lkirby@mail.utexas.edu)* and **Jason Ermer** *(jermer@austin.utexas.edu),* The University of Texas at Austin
These activities link geometry concepts to Earth science lessons in mineralogy, plate tectonics, and erosion.

2:00–3:15 PM Exhibitor Workshops

Science Gnus: Science Inquiry Skills in the Stories of Famous and Not-So-Famous Scientists (Gen)
(Grades K–8) *123, Moscone Center*
Sponsor: Delta Education/School Specialty Science
John Cafarella, Consultant, Canadensis, Pa.
Learn fascinating stories of scientists, their discoveries, and their inquiry skills. We'll discuss the sometimes fine line between being famous (Alexander Graham Bell) or being forgotten by history (Antonio Meucci) and we'll replicate some famous experiments, too. The stories in science contain something of interest for everyone. Liberal doses of Science Gnus humor.

Bring Your Science Lab into the 21st Century Using iNeo/SCI™ Virtual Science Solutions (Gen)
(Grades 7–12) *124, Moscone Center*
Sponsor: Frey Scientific/School Specialty Science
Lou Loftin, Consultant, Reno, Nev.
Extend e-Learning with virtual laboratory experiences for your students anywhere! iNeo/SCI provides web-based tools to facilitate teaching and learning with our new e-Learning series content, including virtual laboratory experiences, tutorials, assessments, and active monitoring of students' progress! Participants receive free 21-day trial access to iNeo/SCI.

2:00–3:30 PM Exhibitor Workshops

Harmonic Motion and Hooke's Law with CPO's Springs and Swings (Phys)
(Grades 5–12) *131, Moscone Center*
Sponsor: CPO Science/School Specialty Science
Patsy Eldridge, CPO Science/School Specialty Science, Nashua, N.H.
Explore the concepts of harmonic motion, oscillation, natural frequency, resonance, and Hooke's law with CPO Science's Springs and Swings. This equipment uses a swinging pendulum, two different extension springs, and one compression spring to make observations, measurements, and predictions in a hands-on investigation activity.

IB Biology with PASCO Datalogging Technology (Bio)
(Grades 9–12) *132, Moscone Center*
Sponsor: PASCO Scientific
Randy McGonegal, Palm Harbor University High School, Palm Harbor, Fla.
Provide your IB students with a richer learning environment as they investigate biology through modern science methods—all while fulfilling aim #7 of the IB diploma program (developing and applying Information Communication Technology skills in the study of science). Take part in hands-on activities using PASCO datalogging technology that can be incorporated into your students' internal assessment labs and group 4 projects.

IB Chemistry with PASCO Datalogging Technology (Chem)
(Grades 9–12) *133, Moscone Center*
Sponsor: PASCO Scientific
Presenter to be announced
Provide your IB students with a richer learning environment as they investigate chemistry through modern science methods—all while fulfilling aim #7 of the IB diploma program (developing and applying Information Communication Technology skills in the study of science). Take part in hands-on activities using PASCO datalogging technology that can be incorporated into your students' internal assessment labs and group 4 projects.

Biology with Vernier **(Bio)**
(Grades 9–College) *301, Moscone Center*
Sponsor: Vernier Software & Technology
Mike Collins *(info@vernier.com)* and **John Melville** *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Experiments such as transpiration, cell respiration, and EKG from our popular *Biology with Vernier* and *Advanced Biology with Vernier* lab books will be performed in this hands-on workshop. You will be able to try these experiments using LabQuest and our LabQuest Mini. See our SpectroVis Plus spectrophotometer and White Light Transilluminator in action!

Engineering with Vernier (Gen)
(Grades 7–College) *302, Moscone Center*
Sponsor: Vernier Software & Technology
David L. Vernier *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Join us for this two-part workshop. Oriented toward middle school, we'll first demonstrate the use of Vernier sensors with LEGO®'s MINDSTORM® NXT robotics kit. Next, we'll demonstrate projects using LabVIEW™, for use with first-year college or high school students.

2:00–4:00 PM Workshop

PDI **BSCS Pathway Session: Amplifying Your Curriculum Through Argumentation (Gen)**
(Middle Level–High School) *Yerba Buena Salon 2, Marriott*
Elizabeth Edmondson, BSCS, Colorado Springs, Colo.
Learn how to amplify your curriculum and identify key target points for inserting argument as a means to develop explanations and to advance the learning of key concepts.

2:00–4:30 PM Exhibitor Workshop

Chemical Interactions for Middle School (Gen)
(Grades 5–8) *130, Moscone Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Larry Malone, Terry Shaw, and **Jessica Penchos,** Lawrence Hall of Science, University of California, Berkeley
Join FOSS developers for an introduction to the particulate nature of matter. We'll investigate substances to learn about properties of matter, changes in matter, and energy interaction and transfer. Take home student books and course CD-ROMs.

2:00–5:00 PM Short Course

✔ **Inspire Middle and High School Girls Toward Careers in Science (SC-7)**
(Middle Level–High School) *Conference Theatre, Grand Hyatt*
Tickets Required: $23
Shyno Chacko Pandeya, WGBH, Boston, Mass.
For description, see page 66.

2:05–3:55 PM Exhibitor Workshop

Balloon Satellite Challenge (Phys)
(Grades 4–10) *309, Moscone Center*
Sponsor: NASA Education
Rebecca Jaramillo *(rebecca.jaramillo@nianet.org),* NASA Langley Research Center, Hampton, Va.
Help your students think like engineers as they complete a team challenge to make a helium balloon neutrally buoyant and then maneuver their "satellite" through an obstacle course.

2:30–4:00 PM Exhibitor Workshops

Dive into Ocean Literacy with the NEW GEMS® Ocean Sciences Sequence for Grades 3–5! (Earth)

(Grades 3–5) *122, Moscone Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Are you ocean literate? Developed with NOAA, the GEMS Ocean Sciences Sequence for Grades 3–5 standards-based lessons address basic science standards, Earth systems, and ocean literacy principles. Explore inquiry-based activities, student discourse, supportive readings, and an assessment system covering topics within the ocean sciences. Handouts.

Chemical Changes: Seeds of Science/Roots of Reading® (Chem)

(Grades 2–5) *125, Moscone Center*

Sponsor: Delta Education/School Specialty Science–Seeds

Jacqueline Barber, Jen Tilson, Megan Goss, Suzy Loper, and **Traci Wierman,** Lawrence Hall of Science, University of California, Berkeley

Explore the new Seeds of Science/Roots of Reading Chemical Changes unit by investigating chemical reactions. Experience an integrated approach to firsthand inquiry using content-rich science books, scientific discourse, and writing activities that provide rich and varied opportunities to learn essential science concepts and vocabulary. Take home samples.

2:35–4:00 PM Exhibitor Workshop

NASA Smart Skies: Investigating Motion with an Air Traffic Control Simulator (Gen)

(Grades 5–9) *310, Moscone Center*

Sponsor: NASA Education

Greg Condon *(gregory.condon@nasa.gov),* NASA Ames Research Center, Moffett Field, Calif.

Let your students use 21st-century technology to explore distance-rate-time relationships. Using a web-based simulator, you and your students can learn to predict the movement of aircraft and resolve air traffic control conflicts. All materials are free online, including the simulator, videos, paper-and-pencil workbooks, and teacher's guides.

3:00–4:00 PM Meeting

Investment Advisory Board Meeting

Executive Boardroom, Hilton

3:00–4:00 PM Exhibitor Workshop

Bio-Rad Cloning and Sequencing Explorer Series (Bio)

(Grades 9–College) *308, Moscone Center*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.

Get your students published in GenBank! Be guided through an innovative research work flow identical to those performed in genomics labs worldwide. Learn about this multiple-week lab course, in which students combine traditional and cutting-edge molecular biology techniques and bioinformatics to clone, sequence, and analyze a housekeeping gene from a plant of your choice, ensuring each class produces novel data.

3:00–4:30 PM Meeting

GLBT Educators Group Meeting

Pacific E, Marriott

Gay and lesbian science educators are invited to join colleagues for dialogue in a safe, respectful environment. For more information, e-mail *bflywriter@comcast.net*.

3:00–9:00 PM Meeting

CESI Board Meeting

(By Invitation Only) *Union Square 3/4, Hilton*

3:30–4:30 PM Featured Presentation

Practical Tools to Support English Language Learners Reading Science Texts (Gen)

(General) *135, Moscone Center*

Kenji Hakuta *(hakuta@stanford.edu)*, Lee L. Jacks Professor of Education, Stanford University, Stanford, Calif.

Presider: Lisa Ernst *(lae121@aol.com),* Local Arrangements Coordinator, NSTA San Francisco National Conference, and Alice Fong Yu Alternative School, San Francisco, Calif.

Join me as I highlight tools that aid the teaching of science to English language learners. Specifically, I'll describe and demonstrate WordSift, a free web-based tool developed by middle level science teachers from the San Francisco Unified School District. WordSift uses visualization and vocabulary exploration to support teachers and students in the reading of complex text.

At Stanford, Kenji Hakuta teaches courses for graduate students and teacher credential candidates, concentrating on the education of English language learners. Active in education policy, he has testified to Congress and other public bodies on language policy, the education of ELL students, and affirmative action in higher education. Hakuta received his doctorate in experimental psychology from Harvard University.

3:30–4:30 PM Presentations

SESSION 1

ACS Guidelines and Recommendations for Teaching High School Chemistry: A Resource for High School Chemistry Teaching (Chem)

(High School/Supervision) *Continental 3, Hilton*

Susan J. Cooper *(sjcooper@fgcu.edu),* Florida Gulf Coast University, Fort Myers, Fla.

Nicole M. Ford *(fordnicolem@mcsk12.net),* Wooddale High School, Memphis, Tenn.

Join an interactive discussion on the revised ACS guidelines and recommendations on teaching high school chemistry and how the guidelines can be used to enhance your program activities and leverage for resources.

SESSION 2

Conference Tips for First-Timers (Gen)

(General) *Continental 5, Hilton*

NSTA Board and Council

Feeling overwhelmed by all there is to see and do at an NSTA Conference on Science Education? Join us for an interactive and participatory (fun!) walk through the conference program book. By the end of the session we guarantee you'll know just how to get the most from your conference experience.

SESSION 3

The NSTA Learning Center: A Tool to Develop Preservice Teachers (Gen)

(College/Supervision) *Continental 6, Hilton*

Michael R.L. Odell *(modell@uttyler.edu)* and **Bambi L. Bailey,** The University of Texas at Tyler

Greg Sherman *(gsherman2@radford.edu),* Radford University, Radford, Va.

Discover powerful tools to support preservice science teacher education. Refreshments provided.

SESSION 4

Best Practices in Molecular Biology: Better Transformations, Faster Gels, Stronger Science (Bio)

(High School–College) *Golden Gate 1, Hilton*

Simon Holdaway *(holdaway.simon@gmail.com),* The Loomis Chaffee School, Windsor, Conn.

Discover a method for linking three molecular biology labs (transformations, restriction digests, and gel electrophoresis) into a single cohesive unit using new, faster, and more versatile reagents and techniques. Perfect for AP Biology or Biotechnology educators.

SESSION 5 (two presentations)
(Middle Level–High School) *Golden Gate 2, Hilton*
Presider: Nadine R. Horner *(horner7@llnl.gov),* Lawrence Livermore National Laboratory, Livermore, Calif.

Improving Technical Writing Skills in Science Class (Gen)
Nadine R. Horner *(horner7@llnl.gov),* Lawrence Livermore National Laboratory, Livermore, Calif.
T.R. Girill *(trgirill@acm.org),* Society for Technical Communication, Livermore, Calif.
See how technique-revealing guidelines and scaffolded real-world technical texts can help your students write more effectively about science.

Signed with a Kiss: Guiding Students Through the Lab Report Writing Process (Gen)
Cristine Hellerstein *(cristine.hellerstein@gmail.com)* and **Sean DeWeese,** Decatur High School, Decatur, Ga.
Using the Problem Based Learning strategy, teachers can engage students in an activity that will encourage mastery of lab report writing skills.

SESSION 6 (two presentations)
(Elementary–Middle Level) *Golden Gate 5, Hilton*
Presider: Theresa Schrum *(theresa.schrum@projectwet.org),* Project WET Foundation, Bozeman, Mont.

Solar Energy: Sneaking Project-Based Learning into a Scripted Curriculum (Env)
Lauren Beal *(lgbeal@philasd.org),* AMY Northwest Middle School, Philadelphia, Pa.
Learn about an urban school's team approach to science inquiry with a solar energy unit. Leave with lesson plans and resources.

Key Resources for Educating Tomorrow's Leaders on Key Water Issues (Env)
Heather McBean *(heather.mcbean@waters.nestle.com),* Poland Spring, Nestle Waters North America, Poland Spring, Maine
Laurina I. Lyle *(laurina.lyle@projectwet.org),* Project WET Foundation, Bozeman, Mont.
Get an overview of water education resources, including Project WET, a global nonprofit organization committed to water education for children, parents, teachers, and communities.

SESSION 7

Small Group Success: Using Centers to Cover Content (Gen)
(Preschool–Elementary) *Golden Gate 6, Hilton*
Lara Arch *(larch1@rice.edu)* and **Lisa Webber** *(lwebber@rice.edu),* Rice University, Houston, Tex.
Learn how to set up centers and work with a small group while keeping other students on task. We'll look at differentiation ideas, classroom management, and tips and tricks.

SESSION 8

CESI Session: Buzzing About Science: Behind the Scene with Scientific Trade Books That Invite Inquiry (Gen)
(General) *Golden Gate 8, Hilton*
Jeanelle Day *(dayj@easternct.edu)* and **Susannah Richards** *(richardss@easternct.edu),* Eastern Connecticut State University, Willimantic
Loree Griffin Burns *(lgb@loreeburns.com),* Author, West Boylston, Mass.
Alexandra Siy *(alex@alexandrasiy.com),* Author, Boulder, Colo.
Outstanding Science Trade Books authors Loree Griffin Burns and Alexandra Siy, a science educator and a children's literature reviewer, explore concepts sure to ignite and delight potential scientists.

SESSION 9

CSSS Session: Blended Learning Open Source Science or Math Studies (Gen)
(High School) *Union Square 5/6, Hilton*
Richard C. Larson *(rclarson@mit.edu),* Massachusetts Institute of Technology, Cambridge
Peter J. McLaren *(peter.mclaren@ride.ri.gov),* CSSS President, and Rhode Island Dept. of Elementary and Secondary Education, Providence
BLOSSOMS (Blended Learning Open Source Science Or Math Studies) is MIT's freely available web-based repository of interactive educational videos for high school science and math classes.

SESSION 10

NARST Session: Investigating Climate Change and Evolution Across Deep Time Through Argument-driven Inquiry (Earth)
(Middle Level–College) *Union Square 14, Hilton*
Beth A. Kostka *(bkostka@bio.fsu.edu),* Florida State University, Tallahassee
Participants will be introduced to the argument-driven in-

quiry instructional model through small-group exploration and discussion. Take home a CD.

SESSION 11 (three presentations)
(College) *Union Square 17/18, Hilton*
SCST Session: Assessing the Benefits and Failures of Student, Peer, and Self-Evaluations (Gen)
Thomas R. Lord *(trlord@iup.edu),* Indiana University of Pennsylvania, Indiana, Pa.
Periodic assessment of teacher effectiveness is important. How the assessment can be achieved accurately and fairly is subject to debate. This presentation reviews the pros and cons of three types of teacher evaluations.

SCST Session: Predictors of Success in a Human Anatomy Course for Nonmajors (Bio)
Russell Wilke *(russell.wilke@angelo.edu),* Angelo State University, San Angelo, Tex.
Anatomy courses typically have high attrition rates. Discuss research findings that looked into risk factors that impede student success in order to develop strategies for retention and promoting achievement.

SCST Session: Improving Student Success in Introductory College Biology Courses (Bio)
Linda Crow *(lcrow@lonestar.edu)* and **Joe Trackey** *(joseph.l.trackey@lonestar.edu),* Lone Star College–Montgomery, Conroe, Tex.
Survey results will be presented that examined success rates and students' characteristics in an introductory biology course over several semesters. The survey's impact and resulting changes will be discussed.

SESSION 12
NSELA Session: Leaders in Middle School Science Professional Development: One District's Journey (Gen)
(Middle Level/Supervision) *Union Square 21, Hilton*
Barbara J. Reinert *(breinert@susd.org),* Copper Ridge School, Scottsdale, Ariz.
See what one district is doing to retain teachers in middle school science by providing materials, training, and support through mentoring and coaching with a limited budget.

SESSION 13
UFOs, Crime Scenes, Mysteries, and More…It's Family Science Night! (Gen)
(General) *Union Square 22, Hilton*
Caleb Cheung, Oakland (Calif.) Unified School District
Learn to design your own Family Science Nights from start to finish. Involve hundreds of students, family members, and teachers.

SESSION 14
Sustainable Context for Science Content (Gen)
(General) *Yosemite A, Hilton*
Jessica C. Levine *(ms.green.levine@gmail.com),* Eckstein Middle School, Seattle, Wash.
Sustainability is a framework for effective teaching and learning. Inspire students with rigorous and relevant experiences.

SESSION 15
An Online Assessment Tool for Preservice Early Childhood and Elementary Students (Gen)
(College) *Yosemite C, Hilton*
Ellen E. Faszewski, Jeff Winokur *(jwinokur@wheelock.edu),* **Karen Worth** *(kworth@wheelock.edu),* **Peter Holden** *(pholden@wheelock.edu),* and **Charles Fidler** *(cfidler@wheelock.edu),* Wheelock College, Boston, Mass.
We developed an online system to assess attitudes and content knowledge of preservice early childhood and elementary teachers.

SESSION 16
Sixty Labs You Can Do with Little or No Money (Phys)
(High School) *Golden Gate Salon A, Marriott*
Ted Koehn *(tkoehn@lps.org),* Lincoln East High School, Lincoln, Neb.
Presider: Stephanie Townsend, Wooddale High School, Memphis, Tenn.
I will present more than 30 chemistry labs and 30 physics labs that can be done with a small budget.

SESSION 17 (two presentations)
(Middle Level–College/Informal) *Golden Gate Salon C1, Marriott*
Developing Skills for Science Teaching, Doing, and Thinking: A New Professional Development with Telescopes (Earth)
Sharon Price Schleigh *(schleighs@ecu.edu)* and **Tammy Lee** *(leeta@ecu.edu),* East Carolina University, Greenville, N.C.
Find out how a PD model for Project Based Science involving astronomy, science fair projects, and virtual mentoring helped teachers and impacted students' learning.

Creating Virtual Fieldwork Experiences as Professional Development (Earth)

Don A. Duggan-Haas *(dugganhaas@gmail.com),* The Paleontological Research Institution, Ithaca, N.Y.

Fieldwork helps makes Earth science understandable. *Virtualfieldwork.org* helps bring the field into classrooms when you can't get outside and enriches the learning when you can!

SESSION 18

Wildland Fire: History, Theory, and Practice (Env)

(Middle Level–High School) *Pacific B, Marriott*

Andrew M. Milbauer *(andrew.milbauer@conserveschool.org),* Conserve School, Land O' Lakes, Wis.

Kelly R. Close *(kclose@poudre-fire.org),* Poudre Fire Authority, Fort Collins, Colo.

Presider: Andrew M. Milbauer

Learn from a science teacher and a wildland fire behaviorist ways to incorporate the history of wildland fire and the changing theories, and explore hands-on management techniques.

SESSION 19

Telling the Stories of the Elements in Your Community (Chem)

(General) *Pacific C, Marriott*

David V. Black *(elementsunearthed@gmail.com),* Walden School of of Liberal Arts, Orem, Utah

Let students tell the stories of mining, refining, and chemical manufacturing in your community through student-created video podcasts.

SESSION 20

How Darwin Changed Our View of the Nature and History of the Natural World (Bio)

(General) *Sierra A, Marriott*

Gerald D. Skoog *(gerald.skoog@ttu.edu),* 1985–1986 NSTA President, and Texas Tech University, Lubbock

Darwin's conclusions concerning the perpetual evolution of life and common descent of humans changed how we see ourselves within the spectrum of our natural lives.

SESSION 21

The Chemistry of Sherlock Holmes (Chem)

(General) *Sierra H, Marriott*

Ken R. Shaw *(olyincomefree@hotmail.com),* The Waterford School, Sandy, Utah

See how the chemistry of Victorian and Edwardian England is employed in the stories of Sherlock Holmes.

SESSION 22

Incorporation of Ecological Engineering into Secondary Science Classrooms (Gen)

(Middle Level–High School) *Sierra I, Marriott*

Nicole Weber and **Constance Harris,** Purdue University, West Lafayette, Ind.

Incorporate environmental engineering into science classrooms with this project-based activity.

SESSION 23

Let Your Kids Pause and Rewind You! (Gen)

(High School) *Sierra J, Marriott*

Suzanne Keel *(suzanne.keel@cobbk12.org),* McEachern High School, Powder Springs, Ga.

Use podcasts/vodcasts to post your lectures for students to listen to as many times as necessary, at their speed, while freeing class time for labs and content application.

SESSION 24

Ecological Investigation of Mount Kilimanjaro (Gen)

(Informal Education) *113, Moscone Center*

Michael G. O'Toole *(motoole@globe.gov),* The GLOBE Program, Boulder, Colo.

Beyond Kilimanjaro's melting glaciers, are there other significant changes taking place due to global climate change? We'll look at the effects of climate change on Kilimanjaro's distinct biomes.

SESSION 25

ART/Science (Gen)

(High School–College/Informal) *220/222, Moscone Center*

Kathryn Schaffer *(kschafz@artic.edu),* School of the Art Institute of Chicago, Ill.

From zines to art installations, this collaboration between the School of the Art Institute and the University of Chicago offers unique STEM learning opportunities.

SESSION 26

Digital Storytelling: Designing Digital Stories to Teach Science as Part of a Science Methods Course (Gen)

(General) *250, Moscone Center*

Vito M. Dipinto *(vdipinto@nl.edu),* National-Louis University, Wheeling, Ill.

We will share the process of designing digital stories for a science methods course and look at implications for future science teaching and learning.

SESSION 27 (two presentations)
(General) *252/254, Moscone Center*

Learning and Teaching Through Collaborative Video-Conferencing (Gen)
Maryann C. Scholl and **Celia Cackowski** *(ccackowski@gso.uri.edu),* University of Rhode Island, Narragansett
Video-conferencing technology allows participation in oceanographic expeditions in remote locations. Learn how to connect with scientists and integrate technology into your curriculum.

Overcoming Content Knowledge Barriers to Teaching K–8 Science Through Informal Learning Using New Media Technologies (Gen)
Grinell Smith *(grinell.smith@sjsu.edu),* San Jose State University, San Jose, Calif.
These online tools help K–8 teachers improve science understanding through informal learning that couples two tasks—learning science content and planning lessons.

3:30–4:30 PM Workshops

Nevada Earth Space Science Initiative: Improving Student Learning Through Engaging Inquiry (Earth)
(Elementary–Middle Level) *Continental 1, Hilton*
David T. Crowther *(crowther@unr.edu)* and **John R. Cannon** *(jcannon@unr.edu),* University of Nevada, Reno
Lou Loftin *(lloftin@washoe.k12.nv.us),* Consultant, Reno, Nev.
Kelly P. Cannon, Washoe County School District, Reno, Nev.
Try two engaging and edible Earth science activities (rocks and plate tectonics) from the Nevada Earth Space Science Initiative (K–9).

Differentiating Science Projects Through Cross-curricular Instruction (Gen)
(Middle Level) *Continental 7, Hilton*
Dat Le *(dle@arlington.k12.va.us),* Arlington (Va.) Public Schools
Katherine Zimmerman *(katherine_zimmerman@apsva.us),* Williamsburg Middle School, Arlington, Va.
An effective interdisciplinary approach to scientific inquiry consists of projects that differentiate instruction for all students regardless of levels in reading, math, or technological skills.

Best Practices for Inclusive Science Instruction (Gen)
(Elementary–Middle Level) *Continental 8, Hilton*
Jenny Sue Flannagan *(jennfla@regent.edu),* Regent University, Virginia Beach, Va.
Lucinda Spaulding *(lsspaulding@liberty.com),* Liberty University, Lynchburg, Va.
Grab your goggles and get ready to participate in experiments/activities while learning strategies you can use to help your special education students succeed in science.

Connecting Science and Math (Gen)
(Elementary) *Golden Gate 3, Hilton*
Donna Gunderson *(donnag@clemson.edu)* and **Pamela King,** Clemson University, Greenville, S.C.
These inquiry-based investigations demonstrate how science and mathematical ideas can be interconnected and build on one another. Come explore model lessons with explicit science and mathematical connections.

Creating Eager Scientists Through School Science Clubs (Gen)
(Elementary) *Golden Gate 4, Hilton*
Brett Scanlon *(brett.scanlon@ocps.net),* Eagle's Nest Elementary School, Orlando, Fla.
We created a successful and continuously growing science club in our school of low-income urban students.

Which Soils Do Plants Like Best? Bring the Scientific Method to Your Classroom! (Bio)
(Elementary) *Golden Gate 7, Hilton*
Katherine Sorber and **Will Ludington** *(will.ludington@gmail.com),* University of California, San Francisco
Karla Perez, Fairmount Elementary School, South San Francisco, Calif.
Presider: Katherine Sorber
Introduce the scientific method to your K–5 students using a hands-on experiment that is easily integrated into soil science or plant life-cycle units.

Science Simulations in Multilevel Assessment Systems (Gen)
(Middle Level) *Union Square 15/16, Hilton*
Matt D. Silberglitt *(msilber@wested.org),* WestEd, Oakland, Calif.
Edys Quellmalz *(equellm@wested.org),* WestEd, Redwood City, Calif.
Bring your own laptop and explore simulation-based science assessments currently used in research. See how to use a laptop for curriculum and formative and summative assessments.

Swoosh, Bang, Screech: Propeller-driven Cars and Other Engineering Wonders (Gen)
(Elementary–Middle Level) *Union Square 19/20, Hilton*
Bob Thomas *(bobthomas49@sbcglobal.net),* Retired Educator, San Pedro, Calif.
Presider: Carol Takemoto, Los Angeles Unified School District Local District 8, Gardena, Calif.
Design, make, and race propeller-driven vehicles that integrate science with engineering protocols. I'll also share ideas for solar energy cars and LED projects.

NMLSTA Session: The Basics of Grant Writing (Gen)
(General) *Union Square 23/24, Hilton*
Patty McGinnis *(pmcginnis@methacton.org),* Arcola Intermediate School, Eagleville, Pa.
Kitchka P. Petrova *(kpetrova7@dadeschools.net),* Ponce De Leon Middle School, Coral Gables, Fla.
Do you have an idea for a grant? Are you ready to start writing? Then this session is for you! Begin the grant-writing process with assistance from the presenters and peers.

When Will I Ever Use This in Real Life? Incorporating Authentic Application into the Chemistry Classroom (Chem)
(Middle Level–College) *Golden Gate Salon B, Marriott*
Cheryl L. Heitzman *(cheitzman@perspectives.org)* and **Joe Michaelis,** Perspectives/IIT Math & Science Academy, Chicago, Ill.
Many chemistry students complain that chemistry isn't "real life." These lesson plans and labs show students the truth about chemistry through authentic application.

Eat, Sing, and, Dig Your Way Through Geology! (Earth)
(General) *Golden Gate Salon C3, Marriott*
Breigh Rainey *(breigh.rainey@zacharyschools.org),* **Bianca Deliberto** *(bianca.deliberto@zacharyschools.org),* **Maegan LaBorde** *(maegan.laborde@zacharyschools.org),* **Danyé Pelichet** *(danye.pelichet@zacharyschools.org),* and **Demetria Scott,** Zachary Elementary School, Zachary, La.
Tammy Wood *(tammy.wood@zacharyschools.org),* Zachary (La.) Community Schools
Experience a hands-on, inquiry-based extravaganza of dynamic, classroom-ready geosciences activities sure to create junior geologists and paleontologists. Excavate authentic fossils, create edible trilobites, and "rock out" along this interactive journey through the geological ages.

Science-specific Mentoring: Why It's Needed and How to Effectively Cultivate Reflective Practices Among Science Teachers (Bio)
(General) *Pacific H, Marriott*
KimMarie Hansen *(kimmarie@geneconnection.org),* Cañada College, Redwood City, Calif.
Presider: Gary Nakagiri *(gnakagiri@gmail.com),* Educational Consultant, El Cerrito, Calif.
Engage in active analysis of science-specific, self-evaluative mentoring strategies developed by Gene Connection to support novice and veteran teachers in San Mateo County, California.

Unlock Scientific Thinking with Dichotomous Keys (Bio)
(Informal Education) *Pacific I, Marriott*
Jennifer M. Hope *(jmghope@gmail.com)* and **Glenda M. McCarty** *(glendamccarty@gmail.com),* University of Missouri, St. Louis
Put your observational powers to work using a simple dichotomous key. Sort and describe natural objects to create your own key.

Strategies to Enhance Students' Attainment of Important Concepts in Chemistry (Chem)
(High School) *Pacific J, Marriott*
Sean Lee *(sean.lee@ttu.edu)* and **Eric Schwartz** *(eric.schwartz@ttu.edu),* Texas Tech University, Lubbock
Presider: Susan Talkmitt, Texas Tech University, Lubbock
Help students learn basic chemistry concepts related to elements, compounds, and mixtures through varied and engaging cognitive strategies that promote student inquiry and involvement.

Climate Change Education (Gen)
(Middle Level–High School) Willow, Marriott
Rob Snyder *(snyder@umassk12.net)* and **Morton Sternheim** *(mort@umassk12.net),* University of Massachusetts, Amherst
Learn how to address student difficulties in learning about climate because of a need to comprehend large time and distance scales and the complex nonlinear nature of Earth's climate system, as well as the need for hands-on "field" experiences.

PDI **SEPUP Pathway Session: Integrating Sustainability-related Issues into the Science Classroom (Gen)**
(Middle Level–High School) Yerba Buena Salon 4, Marriott
John Howarth *(john_howarth@berkeley.edu)* and **Laura Lenz,** Lawrence Hall of Science, University of California, Berkeley
Issues related to sustainability affect everyone and influence every discipline. Experience how these issues make science come alive in the classroom.

NMEA Session: The Power of pH: Changing Ocean Chemistry (Chem)
(High School) Yerba Buena Salon 9, Marriott
Lacey Moore *(lmoore@mbayaq.org),* Monterey Bay Aquarium, Monterey, Calif.
What is ocean acidification? Participate in a lab investigating the changing ocean pH. Explore the effects of a lower pH ocean on marine organisms. Door prizes!

Your Ecological Footprint: Taking Steps to Link Earth Systems Concepts (Env)
(Middle Level–College) Yerba Buena Salon 11, Marriott
Laurel Kohl *(kohll@easternct.edu),* Eastern Connecticut State University, Willimantic
How much of our world resources do you (and your students) use? This lesson from *www.ctenergyeducation.com* links topics in Earth system science, grades 4–16, and it's fun, too!

AMSE Session: Communicating Like Scientists: Reading Comprehension for English Language Learner Students (Gen)
(Elementary–High School) Yerba Buena Salon 12/13, Marriott
Fred Dobb *(biobecashile@gmail.com),* University of California, Davis
Suzanne Nakashima, Lincrest Elementary School, Yuba City, Calif.
Discover strategies and resources for instructing K–12 English Language Learner students. Discussion topics include review of textbook structures, development of scientific vocabulary, use of sentence patterns, and note taking.

Making Global Connections: Linking Science and Social Studies in Middle and High School Classrooms (Gen)
(Middle Level–High School) Yerba Buena Salon 15, Marriott
Linda L. Jones *(lcjones@coe.ufl.edu),* University of Florida, Gainesville
These low-cost hands-on simulations, role-plays, games, and cooperative jigsaw activities teach about 21st-century global issues from a combined science and social studies perspective.

Modeling and Systems Thinking Through Bioenergy Life Cycle Assessments (Gen)
(Middle Level–College) 111, Moscone Center
Sara Krauskopf *(skrauskopf@glbrc.wisc.edu)* and **John M. Greenler** *(jgreenler@glbrc.wisc.edu),* Great Lakes Bioenergy Research Center, University of Wisconsin, Madison
Use a spreadsheet to calculate and compare the net energy requirements to create biofuels from plow to pump under different conditions. Bring a laptop if possible.

Digging into Books: Botany and Children's Literature (Gen)
(General) 112, Moscone Center
Valerie Bang-Jensen *(vbang-jensen@smcvt.edu),* **Mark Lubkowitz** *(mlubkowitz@smcvt.edu),* **Sara C. Williams** *(swilliams3@smcvt.edu),* and **Courtney Smith** *(csmith6@smcvt.edu),* Saint Michael's College, Colchester, Vt.
A garden provides fertile ground for collaboration between botany and children's literature. Our college campus Books in Bloom garden features flowers from children's literature and provides learning experiences for children, families, and the broader community.

Developing Critical Inquiry Thinking Through Effective Facilitation of Learning (Gen)
(General) 212, Moscone Center
Rosemary A. Millham *(millhamr@newpaltz.edu),* SUNY New Paltz, N.Y.
Engaging students in inquiry-based, hands-on/minds-on, relevant, meaningful, and standards-based learning through effective facilitation enhances content understandings and develops critical-thinking and process skills.

What Can We Learn from Skulls? Teaching Science to English Language Learners (ELLs) (Bio)
(Elementary–Middle Level) *224/226, Moscone Center*
Meredith E. Houle *(mhoule@mail.sdsu.edu),* San Diego State University, San Diego, Calif.
Isabel N. Quita *(quitai@yahoo.com),* San Francisco State University, San Francisco, Calif.
Alie Victorine *(aliea58@yahoo.com),* Windmill Springs K–8 School, San Jose, Calif.
Solve a biological mystery that exemplifies a research–based model that promotes English and academic language development through science inquiry.

Independent Investigations for Young Scientists (Gen)
(Elementary) *228/230, Moscone Center*
Jennifer D. Howard, Miraloma Elementary School, San Francisco, Calif.
Jennifer Chu *(jennifer.chu@ucsf.edu),* University of California, San Francisco
Learn to translate your students' wonder into investigable questions, experience active classroom investigations, and learn tips for successfully implementing inquiry-based lessons in your classroom.

3:30–5:00 PM Presentation

SESSION 1

ISTE: Google Me This—How to Make Collaboration Work in a Wiki World (Gen)
(Supervision/Administration) *232/234, Moscone Center*
Ben Smith *(ben@edtechinnovators.com)* and **Jared Mader** *(jared@edtechinnovators.com),* ISTE/Red Lion (Pa.) Area School District
Google is more than just search. Get a tour of the tools available. Wikis are the warehouse for all of your digital work. This session merges these technologies creating collaborative work space. Bring your laptop and participate in a collaborative data collection and watch the live updating possibilities.

3:30–5:00 PM Workshop

NSTA Press Session: The Architects Have Started Without Me: What Do I Do Now? (Science Facilities 102) (Gen)
(General) *Continental 9, Hilton*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Oakland County Schools, Waterford, Mich.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos
Presider: LaMoine L. Motz
Is your district designing new science facilities but you're not involved? You need to get involved before it is TOO LATE! In this advanced course on science facility planning and design (an extension of the Science Facilities 101 session, page 160), the NSTA author team for *NSTA Guide to Planning School Science Facilities* (2nd ed.) will present more detailed information and examples of functional and flexible science facilities for inquiry/project-based science. We'll look at budgeting, working with the architect, space requirements, technology, flexibility, safety, new types of spaces, and special adjacencies.

3:30–5:00 PM Exhibitor Workshops

Exploring Potential and Kinetic Energy Through Guided Inquiry (Phys)
(Grades 3–8) *110, Moscone Center*
Sponsor: Millmark Education
Carla C. Johnson *(drcarlaj@gmail.com),* University of Cincinnati, Ohio
Learn ways to scaffold students' science learning as they explore potential and kinetic energy. Groups will collaborate to design and build a roller coaster while discussing effective strategies to help students ask scientific questions, plan investigations, gather and interpret data, and communicate their findings.

Amplify Your Genetics Teaching Skills with Carolina's New Inquiries in Science® Biology Units (Bio)
(Grades 9–12) *120, Moscone Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Want to crack the mystery of genetics for your students? Increase student achievement on difficult concepts such as nucleic acids, genetic inheritance, and biotechnology by using a guided-inquiry approach. Carolina's Inquiries in Science Biology units provide hands-on activities to make teaching challenging topics effortless. Free materials and door prizes!

Take the Leap: Carolina's Perfect Solution® Frog Dissection (Bio)
(Grades 6–12) *121, Moscone Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Frogs are ideal specimens for introducing basic human anatomy and body systems. Experience Carolina's Perfect Solution frogs, the most lifelike and safest preserved frog specimens available. Practice basic classroom dissection techniques and explore the anatomy and physiology of the frog. Free dissection supplies and door prizes.

Exploring the OHAUS Triple Beam Balance Through Educational Software (Gen)
(Grades 5–12) *134, Moscone Center*
Sponsor: Frey Scientific and Ohaus Corp.
Ken Rainis *(ken.rainis@schoolspecialty.com),* Frey Scientific/School Specialty Science, Nashua, N.H.
Doug Boyd *(doug.boyd@ohaus.com),* Ohaus Corp., Parsippany, N.J.
OHAUS Triple Beam virtual labs combine the power of hands-on exploration with interactive lab simulations to enhance student learning! Participants will explore the unique instructional qualities of the adjunct CD-ROM/balance package, including learning about balance theory and balance setup and use, as well as participate in several virtual and benchtop balance activities.

Applications in Biotechnology (Bio)
(Grades 9–College) *202/204, Moscone Center*
Sponsor: Energy Concepts, Inc
Jeanne Moldenhauer *(jmoldenhauer@ecimail.com),* Excellent Pharma Consulting, Mundelein, Ill.
Join us for an overview of a biotechnology laboratory program. We'll discuss funding opportunities, course curricula, job opportunities, and areas of specializations in the biotechnology field, and participants will have an opportunity to conduct experiments from the program.

What's the Connection—Louisiana, Florida, Oregon, and Indiana? (Gen)
(Grades K–12) *206, Moscone Center*
Sponsor: Discovery Education
Presenter to be announced
All four of these states approved Discovery Education Science Techbook for adoption as a primary instructional resource. See why these states chose to provide their educators with the option of going digital.

Teaching Inquiry and the Nature of Science in Elementary Classrooms (Gen)
(Grades K–5) *236/238, Moscone Center*
Sponsor: National Geographic School Publishing
Randy L. Bell, University of Virginia, Charlottesville
Engage in inquiry activities from the new K–5 National Geographic curriculum, which is designed to teach about the nature of science through hands-on, student-centered lessons. This session clarifies what is meant by "nature of science" and relates it to the more familiar topics of science content and process skills.

Paint It RED! Using Technology to Teach Elementary Science (Gen)
(Grades K–6) *270/272, Moscone Center*
Sponsor: Science Kit & Boreal Laboratories
Patty Muscatello, Science Kit & Boreal Laboratories, Tonawanda, N.Y.
Are you looking for new and innovative ways to introduce technology to help teach elementary school science? Learn how to better engage the iPod generation by integrating technology that looks and feels familiar to your students so that you can spend more time on real science concepts.

Who Are You? Blood Typing (Bio)
(Grades 6–12) *274/276, Moscone Center*
Sponsor: WARD'S Natural Science
Kathy Mirakovits, WARD'S Natural Science, Tonawanda, N.Y.
Use simulated blood to conduct basic blood typing tests such as blood smearing, ABO and Rh blood typing, and testing familial relationships. This hands-on workshop offers participants real-world experience using a safe and easy-to-use nonbiological blood substitute.

How to Start a Forensic Science Program (Bio)
(Grades 9–12) *300, Moscone Center*
Sponsor: Cengage Learning
Rhonda Brown *(brownr@lake.k12.fl.us),* East Ridge High School, Clermont, Fla.
Jackie Davenport *(davenportj@lake.k12.fl.us),* Tavares High School, Tavares, Fla.
Learn how to get a forensic science program started in your school or district on a shoestring budget! We'll include strategies for incorporating literacy, cross-curricular lesson plans, and community service into your curriculum.

I See What You Mean! Developing Visual Literacy (Gen)
(Grades K–8) *303, Moscone Center*
Sponsor: McGraw-Hill School Education Group
Jo Anne Vasquez, 1996–1997 NSTA President, and Helios Education Foundation, Phoenix, Ariz.
Michael Comer, McGraw-Hill School Education Group, Columbus, Ohio
Interpreting and understanding the visuals and illustrations students encounter in their science texts is more than just luck. See what the current research says and experience some new strategies for improving student understanding.

Flinn Scientific Presents Best Practices for Teaching Chemistry™ Experiments and Demos (Chem)
(Grades 7–12) *304, Moscone Center*
Sponsor: Flinn Scientific, Inc.
Irene Cesa, Flinn Scientific, Inc., Batavia, Ill.
Join us as we present exciting and interactive demonstrations on the features and benefits of our new comprehensive Teaching Chemistry professional development program. You now have the opportunity to learn best practices from 20 award-winning master teachers as they carry out their favorite experiments, demonstrations, and chemistry lab activities. Discover how each 40-minute video can help you build content knowledge and improve your pedagogical skills and confidence. Handouts.

The Next Generation of Life Science Virtual Labs—No Cleanup Required (Bio)
(Grades 9–12) *305, Moscone Center*
Sponsor: Pearson
Brian Woodfield, Brigham Young University, Provo, Utah
See a demo of science virtual labs by the program's creator, Brian Woodfield. Virtual labs meet your students where they are in the digital world and give them the opportunity to experiment numerous times with various materials and, of course, no cleanup is required. Take home handouts and a sample CD.

Supporting Grades 5–8 Students in Constructing Explanations in Science: The Claim, Evidence, and Reasoning Framework for Talk and Writing (Gen)
(Grades 5–8) *307, Moscone Center*
Sponsor: Pearson
Katherine L. McNeill, Boston College, Chestnut Hill, Mass.
Joseph Krajcik, University of Michigan, Ann Arbor
Learn strategies and resources using the claim, evidence, and reasoning framework to support students in constructing scientific explanations. See video clips from teachers' classrooms and get examples of curricular scaffolds. Analyze examples of students' explanations.

3:30–5:30 PM NSTA ESP Symposium I

NSTA Exemplary Science Programs (ESP)…Meeting the Reform Features from the National Science Education Standards (Gen)

(General) *Continental Salon 2, Hilton*

ESP: Major Changes in "Reform" Classrooms Advocated in the NSES

Organized by Robert E. Yager, 1982–1983 NSTA President and Editor of the NSTA ESP Program

Coordinators: Robert E. Yager (robert-yager@uiowa.edu), *University of Iowa, Iowa City,* and *Herbert Brunkhorst* (hkbrunkh@csusb.edu), *California State University, San Bernardino*

This session will include brief descriptions of programs that exemplify how the four NSES goals have been met. Discussion will center on how NSES "More Emphasis" suggestions have guided instruction. Participants in this symposium will include the following authors from specific monographs in the series.

A Challenge for Changing the Teaching of Science (from ESP #6)

Holly Harrick *(harrick@ctsciencecenter.org),* Connecticut Science Center, Hartford

"Who Ate Our Corn?" (from ESP #7)

Craig Wilson *(cwilson@science.tamu.edu),* Texas A&M University, College Station

Sowing the Seeds of Future Success (from ESP #6)

Craig Wilson *(cwilson@science.tamu.edu),* Texas A&M University, College Station

From Wyoming to Florida, They Ask, "Why Wasn't I Taught This Way?" (from ESP #6)

Diane L. Schmidt *(dschmidt@fgcu.edu),* Florida Gulf Cost University, Fort Myers

Joseph I. Stepans *((jstepans@uwyo.edu),* University of Wyoming, Laramie

Developing Inquiry Skills (from ESP #6)

Shari L. Britner *(sbritner@bumail.bradley.edu),* Bradley University, Peoria, Ill.

Inquiry at the Ocean Research College Academy (from ESP #6)

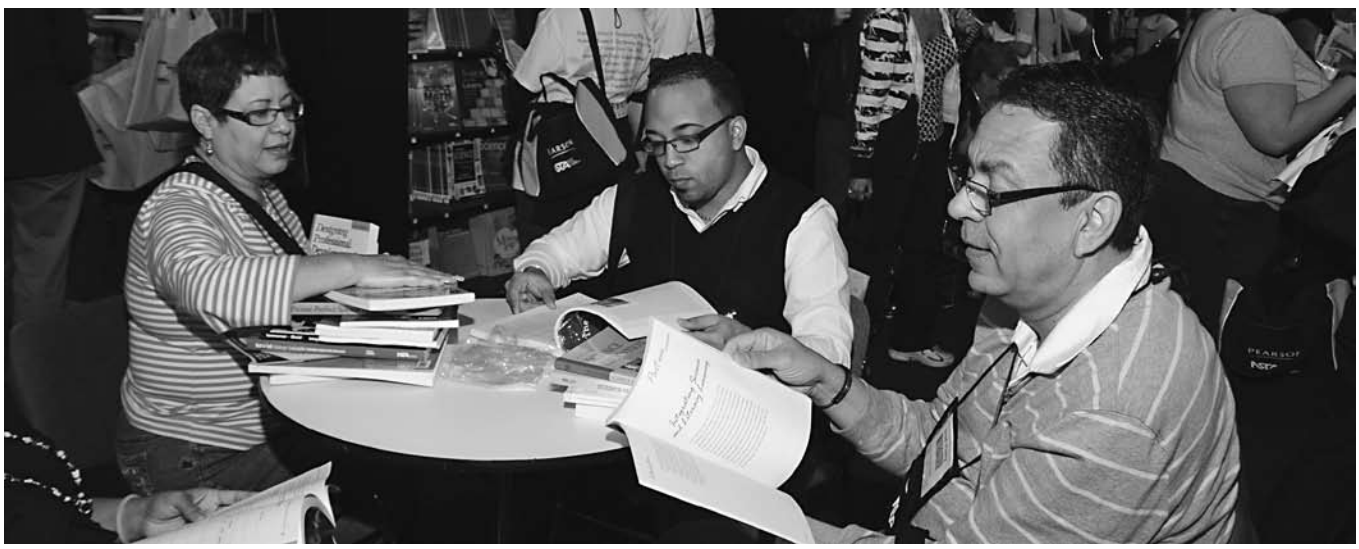
Ardi Kveven *(orca@everettcc.edu),* Ocean Research College Academy, Everett Community College, Everett, Wash.

Community of Excellence (from ESP #4)

Susan B. Koba *(skoba@cox.net),* (Retired Educator, Omaha, Neb.

Science as Inquiry (from ESP #6)

Anthony W. Bartley *((abartley@lakeheadu.ca),* Lakehead University, Thunder Bay, Ont., Canada



3:30–5:30 PM The Planetary Society Lecture

Helping Students Know Their Place in Space (Earth)
(General) *Gateway Ballroom, Moscone Center*

Bill Nye, Executive Director, The Planetary Society, and Scientist, Author, and Host, The Science Channel's *100 Greatest Discoveries*

Bill Nye, now executive director of The Planetary Society, wants students everywhere to share in the excitement and wonder of space exploration. Join Bill for a far-ranging discussion of understanding the cosmos, protecting our planet, and bringing the wonder of other worlds to Earth. The Planetary Society is starting something new for young people, and Bill wants you and your students to be a part of it.

As a student at Cornell University, Bill Nye the Science Guy® 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 Nye it was like coming full circle to become the organization's executive director. Scientist, comedian, teacher, and author, Nye became a household name with his innovative, fast-paced television series Bill Nye the Science Guy. *His latest TV program,* 100 Greatest Discoveries, *airs on the Science Channel. Nye earned a degree in mechanical engineering at Cornell University and spent several years working as an engineer until he combined his dual love of science and comedy to create the Science Guy.*

3:30–5:30 PM Presentation

SESSION 1

PDI **LHS Pathway Session: Supporting Teachers Implementing Formative Assessment Practices (Gen)**
(Elementary–Middle Level) *Yerba Buena Salon 6, Marriott*
Brian Campbell, Lawrence Hall of Science, University of California, Berkeley
Gloria Ferguson *(gloria.ferguson@esd112.org),* Educational Service District 112, Vancouver, Wash.
Ron DeFronzo *(rdefronz@ride.ri.net),* East Bay Educational Collaborative, Warren, R.I.
Arthur H. Camins *(arthurcamins@gmail.com),* Jefferson County Public Schools, Louisville, Ky.
Jeanne Bancroft, Grant Wood Area Education Agency, Cedar Rapids, Iowa
Ellen Mintz *(ellen_mintz@charleston.k12.sc.us),* Charleston (S.C.) County Schools
Discuss with a panel of experienced professional developers and district coaches exactly what it takes to help teachers begin to implement formative assessment practices. After a brief description of the work they are doing in their district or service area to implement formative assessment, the forum will be open for discussion.

3:30–5:30 PM Workshops

PDI **TERC Pathway Session: Didn't We Do Graphs Like That in Math? (Gen)**
(Elementary) *Yerba Buena Salon 1, Marriott*
Karen Economopoulos *(karen_economopoulos@terc.edu),* TERC, Cambridge, Mass.
Discover strategies for synchronizing data literacy teaching in math and science and helping connect and synthesize learning about data in these content areas.

PDI **EDC Pathway Session: Expository Writing and Science Notebooks (Gen)**
(Elementary) *Yerba Buena Salon 3, Marriott*
Betsy Rupp Fulwiler, Ana Crossman *(accrossman@seattleschools.org),* and **Kirsten Nesholm** *(kanesholm@seattleschools.org),* Seattle (Wash.) Public Schools
Through mini-lessons and discussion, learn research-based strategies for using word banks, graphic organizers, and writing frames to increase student achievement in science and expository writing.

4:00–4:30 PM Presentation

SESSION 1

(Middle Level–College/Supervision) *Sierra B, Marriott*

Baltimore Partnership for Environmental Science Literacy: Improving Urban Science Teaching and Learning (Env)

Sarah Haines *(shaines@towson.edu),* Towson University, Towson, Md.

Bess Caplan, Baltimore Ecosystem Study, Baltimore, Md.

This successful five-year research project was aimed at improving Baltimore area teacher and student knowledge in the environmental sciences. See how you can model this project in your own region.

4:00–5:15 PM Exhibitor Workshop

Inquiry Investigations™ Biotechnology Activities with E-Gels® (Gen)

(Grades 7–12) *124, Moscone Center*

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Consultant, Reno, Nev.

With our new Inquiry Investigations biotechnology series, students learn foundational analysis skills used in biotechnology. See how program software allows the preparation of web-based content, along with individualized assessment. Participants will compare both virtual and actual E-Gel electrophoretic separations.

4:00–5:30 PM Exhibitor Workshops

Charles' and Boyle's Laws Uncovered with CPO's Gas Laws Kit (Phys)

(Grades 5–12) *131, Moscone Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton, CPO Science/School Specialty Science, Nashua, N.H.

Are pressure, volume, and temperature related? Use CPO Science's DataCollector, temperature probes, pressure sensors, and reliable lab equipment from our Gas Laws Kit to take real-time measurements and digitally log data while viewing on-screen graphs to uncover how Charles' and Boyle's laws explain gas laws through hands-on discovery activities.

Renewable Energy Exploration: Solar and Wind Power (Gen)

(Grades 9–12) *132, Moscone Center*

Sponsor: PASCO Scientific

Presenter to be announced

Investigate energy output from a solar cell and wind turbine under varying environmental conditions in this hands-on workshop featuring the Horizon Renewable Energy SPARKlab collection. This collection of 10 guided inquiry labs, developed jointly by PASCO and Horizon Fuel Cell Technologies, provides a standards-based, state-of-the-art science teaching solution to support your high school earth or environmental science program. Additional labs from the collection will be demonstrated.

Tough Topics in Physics and Physical Science: Circuits (Phys)

(Grades 9–12) *133, Moscone Center*

Sponsor: PASCO Scientific

Presenter to be announced

Investigate the relationship between current, voltage, and resistance, and get experience running a PASCO SPARKlab in this hands-on workshop. We'll use one of PASCO's standards-based SPARKlabs to improve student understanding of circuits, one of the more abstract and challenging topics in the study of physics and physical science. Additional activities will be demonstrated.

A World In Motion®: JetToy Challenge (Phys)

(Grades K–5) *256, Moscone Center*

Sponsor: SAE International

Julie MacIntyre *(macintyre@sae.org),* SAE International, Warrendale, Pa.

Learn to build balloon-powered toy cars using different chassis designs and nozzle sizes that meet specific performance criteria. This session is presented by SAE International's A World In Motion (AWIM) program staff. Not only will you build a JetToy, you will also get a sneak peek into the other elementary activities that AWIM offers!

4:05–4:55 PM Exhibitor Workshop

Feel the Heat **(Gen)**
(Grades 5–12) *309, Moscone Center*
Sponsor: NASA Education
Brandon M. Hargis *(brandon.hargis@nasa.gov),* NASA Langley Research Center, Hampton, Va.
Participants are challenged to design and build a solar water heater to increase the temperature of water by the largest amount using common materials.

4:10–5:00 PM Exhibitor Workshop

Introduction to the Periodic Table of Elements and the Solar System **(Chem)**
(Grades 3–5) *310, Moscone Center*
Sponsor: NASA Education
Sandra Kaszynski *(sandra.d.kaszynski@jpl.nasa.gov),* NASA Jet Propulsion Laboratory, Pomona, Calif.
This standards-based workshop will teach you basic principles of what the table represents by using our solar system as an exciting basis for understanding. You can use these activities to help your students review for the fifth-grade state science test. These activities are easily understood by most third-graders as well!

4:30–5:30 PM Exhibitor Workshop

Flexible Instruction for the 21st-Century Student: The Inquiry Approach to Differentiation **(Gen)**
(Grades K–8) *122, Moscone Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Learn strategies to meet the diverse needs of students using materials from the STC Program™ from the National Science Resources Center and the Smithsonian Institution. Differentiated instruction is pivotal to success in science. Learn how to assess mid-lesson and direct students to strategies for success. Handouts.

4:30–6:00 PM Meeting

NSTA/CBC Outstanding Science Trade Books Committee Meeting
(By Invitation Only) *Green, Hilton*

5:00–5:30 PM Presentations

SESSION 1
ASTE Session: Teachers as Watershed Researchers: A Professional Development Model **(Earth)**
(High School) *Union Square 25, Hilton*
Patricia D. Morrell *(morrell@up.edu),* University of Portland, Ore.
Susan Sahnow, Oregon State University, Corvallis
Explore a professional development model that engages teachers in authentic research with scientists and enables them to transfer similar activities to their classrooms.

SESSION 2
Building Nervous Systems for Robots: An Interactive and Collaborative Neuroscience Curriculum **(Bio)**
(Middle Level–High School) *Sierra A, Marriott*
Daniel H. Blustein *(blustein.d@husky.neu.edu),* Northeastern University, Nahant, Mass.
Kelley Schultheis *(kelley_schultheis@bbns.org),* Buckingham Browne & Nichols, Cambridge, Mass.
NEUROBOT is a biology curriculum that allows students to engage and interact with principles of neuroscience by building nervous systems for LEGO® Mindstorms robots.

5:00–6:00 PM Presentations

SESSION 1
Vertical Collaboration Through Using Elementary and Middle School Student Models to Assess Understanding of Energy Systems **(Env)**
(Elementary–High School) *Continental 7, Hilton*
Erin A. Hashimoto-Martell *(ehashimoto@boston.k12.ma.us),* Nathan Hale Elementary School, Boston, Mass.
Fiona M. Bennie *(fbennie@boston.k12.ma.us),* Horace Mann School for the Deaf and Hard of Hearing, Boston, Mass.
Michael Clinchot *(mclinchot@boston.k12.ma.us),* Clarence R. Edwards Middle School, Boston, Mass.
Haven Ripley Daniels *(hripley@boston.k12.ma.us),* Michael J. Perkins Elementary School, Boston, Mass.
An inquiry group's examination of students' visual models suggests the importance of models as open-ended assessments and the value of collaborative discourse in analyzing student work.

SESSION 2 (three presentations)
(General) *Union Square 17/18, Hilton*

SCST Session: Assessing Learning Outcomes of Technology in Large Lecture Introductory Science Courses: Will We Ever Find Something That Works? (Gen)

Linda L. Tichenor *(ltichenо@uafortsmith.edu),* University of Arkansas at Fort Smith

Examine technology options designed for large lecture classrooms. Data will be presented about the effectiveness in improving student learning of several specialized software.

SCST Session: Goldilocks Figured It Out: Finding the Amount of Classroom Inquiry That Is "Just Right" (Gen)

Kerry L. Cheesman *(kcheesma@capital.edu),* Capital University, Columbus, Ohio

If we want our students to be successful at scientific inquiry, we need to find "just the right level" of comfort for them.

SCST Session: Impact of Pedagogy Training Intervention on Student Achievement and the Student Perception of Learning (Bio)

Tiffany A. Roby *(tiffany.roby@drake.edu),* Drake University, Des Moines, Iowa

This presentation will describe a pedagogy training intervention and discuss its impact on student achievement and student perception of learning.

SESSION 3

Making Science Music Videos (Gen)

(Elementary–High School) *Union Square 22, Hilton*

Monika Thomas *(mthomas@episd.org),* Rivera Elementary School, El Paso, Tex.

Want your students to really understand science concepts? Have them make a science video. Learn how to create your own science video using iMovie and Windows Movie Maker.

SESSION 4

The California Science Project Teacher Retention Initiative: Scientists and Teachers Together (Gen)

(General) *Yosemite C, Hilton*

Julia Rankin Morandi *(juliarankin@verizon.net),* The California Science Project, Pacific Palisades

Bev Marcum *(bmarcum@csuchico.edu),* California State University, Chico

Sue Teele *(steele@ucx.ucr.edu),* California State University, Fresno

Irene Swanson *(swanson@gseis.ucla.edu),* University of California, Los Angeles

Jerry Valadez *(jdvscience@yahoo.com),* Chairperson, NSTA San Francisco National Conference, and Central Valley Science Project, Fresno, Calif.

We will review key factors for successful teacher retention programs for secondary science teachers at nine California institutes of higher learning.

SESSION 5

Big Macs and Healthy Teens? A New Approach to Nutrition Education (Bio)

(Middle Level–High School) *Pacific I, Marriott*

Michael T. Harms *(michaelteaches@gmail.com),* Gideon Hausner Jewish Day School, Palo Alto, Calif.

From analyzing nightmare meals to filming healthy eating music videos, persuasive curriculum empowers critical thinking.

SESSION 6 (two presentations)
(General) *Sierra B, Marriott*

Using the Apple iPod touch Device for Learning in Undergraduate Organic Chemistry (Chem)

Mai Yin Tsoi *(mtsoi@ggc.edu),* Georgia Gwinnett College, Lawrenceville, Ga.

Examine the learning gains of undergraduate organic chemistry students outfitted with Apple iPod touch devices that deliver custom tutorials, course content, and multimedia tools.

Using the Apple iPod touch in a Symbiotic, Interdisciplinary Collaboration Between Science and Software Development Courses (Chem)

Mai Yin Tsoi *(mtsoi@ggc.edu),* Georgia Gwinnett College, Lawrenceville

Let's look at the development and implementation of an interdisciplinary project where the Apple iPod touch helps connect the learning outcomes of organic chemistry and software development students.

SESSION 7

AMSE Session: Closing the Achievement Gap—African-American Males: A Success Story (Gen)

(General) *Yerba Buena Salon 12/13, Marriott*

Rajeev Swami *(chem276@yahoo.com),* NMLSTA President, and Central State University, Wilberforce, Ohio

The State of Ohio implemented Closing the Achievement Gap (CTAG) to help African-American males achieve proficiency in science and other core subjects. Presented by the Association for Multicultural Science Education, this session will analyze data from the two-year program and describe the collaboration of state representatives, on-site coordinators, and core content teachers at schools and universities involved in this effective initiative

5:00–6:00 PM Workshops

Weather Watchers: Using Instruments to Observe and Predict the Weather (Earth)
(Preschool–Elementary) *Golden Gate 7, Hilton*
Sami Kahn *(skahn@collegiateschool.org),* Collegiate School, New York, N.Y.
Discover the meteorologist in every child! Create several weather instruments to help young students make meaningful observations of weather phenomena.

NARST Session: Learning Progressions as a Foundation for the Development of Formative Assessment That Informs Instruction (Chem)
(Middle Level–College) *Union Square 15/16, Hilton*
Marilyne Stains, University of Massachusetts, Boston
Hannah Sevian *(hsevian@nsf.gov),* National Science Foundation, Arlington, Va.
This presentation will provide an example of how an assessment tool based on the learning progression for the particulate nature of matter can enhance instruction.

It's Elementary! Using the Four-Question Strategy to Design Experiments (Gen)
(Elementary–Middle Level) *Union Square 19/20, Hilton*
Julie A. Alexander *(jualexan@columbia.k12.mo.us),* Columbia (Mo.) Public Schools
Learn how to use Julia Cothran's Four-Question Strategy to design and conduct an experiment.

Experience It to Believe It! Fun with the Periodic Table (Chem)
(Middle Level–High School) *Pacific J, Marriott*
Madhu Dwivedi, Worthing High School, Houston, Tex.
Experience an extravaganza of interactive hands-on activities to master the periodic table, all packed on a CD.

PDI **BSCS Pathway Session: Investigating Models for Earth's Climate (Gen)**
(High School–College) *Yerba Buena Salon 2, Marriott*
Steve Getty, BSCS, Colorado Springs, Colo.
Take part in inquiry-based activities to explore how computer models are used to project Earth's climate over the next several decades.

NMEA Session: Sea Turtle Survivor (Bio)
(Elementary–Middle Level/Inf) *Yerba Buena Salon 9, Marriott*
Joan R. Turner *(jturner@disl.org),* Dauphin Island Sea Lab, Dauphin Island, Ala.
In this interactive sea turtle survival game, participants are turtle hatchlings emerging from the nest and encountering obstacles on the way to the water and beyond.

5:30–7:00 PM Reception

Glenn Center Donor Reception
By Invitation Only *Andrew Smith Hallidie Suite, Marriott*

7:00–9:00 PM Exhibitor Workshop

ReallyEasyData Launch Party (Gen)
(Grades 4–10) *Yerba Buena Salon 8, Marriott*
Sponsor: Science Kit & Boreal Laboratories
The SK Team
Join us for a star-studded event as we roll out the RED carpet to introduce ReallyEasyData Collectors! This hands-on evening event lets you get up close and personal with a product line designed to teach science using technology that appeals to the iPhone generation. Be ready to mix, mingle, do science, and party down at this fun and engaging evening event. Preregistration for this event is required. Visit *www.vwreducation.com/nsta* for more information.

A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating, Engaging Courses: Part 1

6:00 PM–12 Midnight • Yosemite A, Hilton

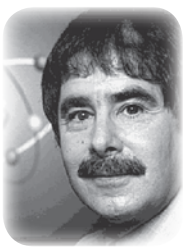
Mitchell E. Batoff, 2004–2005 President, New Jersey Science Teachers Association, Nutley
Gordon D. Clark, Retired Science Department Chair, Manalapan, N.J.
Nina Visconti-Phillips *(viscont2@tcnj.edu),* The College of New Jersey, Cranbury

This is a new three-part program, a variation of which was first presented last year in Philadelphia. The screenings will be interspersed with commentary, discussion, and some live demonstrations. There will be humor, wonder, and perplexity mixed in with a lot of information on a wide range of topics. Pick up ideas and content that will broaden your knowledge and that you can use in your own teaching.

The audience will help select from this extensive menu of course excerpts:

The legendary **Richard Feynman** of California Institute of Technology, *A Visit to His Dentist*; **Judith Grabiner**, Pitzer College of Claremont, *You Bet Your Life—Statistics and Medicine*; **Michael Wysession** of Washington University in St. Louis, *How the Earth Works*; **Robert Greenler** of the University of Wisconsin, Milwaukee, *The Clarinet, the Washtub, the Musical Nails*: *How Musical Instruments Work*; **Carl Sagan** of Cornell University, *One Voice in the Cosmic Fugue*; **S. James Gates, Jr.,** of the University of Maryland, *Who Is Afraid of Music?*—An excerpt from his 24-lecture course, Superstring Theory: The DNA of Reality; **Verne Rockcastle** of Cornell University, *Quantitative Meaningful Science for Intermediate Grades*; **Neil deGrasse Tyson** of Princeton University and the Hayden Planetarium, *My Favorite Universe*; **Tik Liem**, *Fascinating Bubbles*; **Michael Starbird** of The University of Texas at Austin, *Random Thoughts on Random Walks*; **Harry K. Wong**, *A Mind-boggling Demonstration*; **Paul Hewitt,** demonstrations from his physics course at San Francisco State University; **Alex Filippenko** of University of California, Berkeley, *Black Holes Explained*; **Bob Becker**, favorites from his chemistry course at Kirkwood (Mo.) High School; **Jeanette Norden** of Vanderbilt University School of Medicine, *Understanding the Brain*; **Jearl Walker** of Cleveland State University in conversation with Johnny Carson; **Scott Page** of the University of Michigan, *Understanding Complexity*; **Robert Hazen** of George Mason University and Carnegie Institution of Washington, choice excerpts from his 60-lecture course on *The Joy of Science*; **Jane Goodall**, *My Life with the Chimpanzees*; and **Richard A. Muller**, University of California, Berkeley, *Physics for Future Presidents: The Science Behind the Headlines*.

Dozens of door prizes directly related to this session will be raffled off throughout the evening right up to midnight. Receive a useful handout. Come and go, stay as long as you wish. Bring your dinner!



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Adam Equipment Inc. (Booth #1008)

Thursday, March 10	1:30–3:00 PM	110, Moscone Center	Massive Reactions (p. 150)

Bio-Rad Laboratories (Booth #1319)

Thursday, March 10	8:00–9:00 AM	308, Moscone Center	How to Start a Biotech Program (p. 107)
Thursday, March 10	9:00–11:30 AM	306, Moscone Center	Bio-Rad Determine Your Genotype with PCR (p. 115)
Thursday, March 10	10:00–11:15 AM	308, Moscone Center	Bio-Rad ELISA and Swine Flu (p. 128)
Thursday, March 10	1:00–2:30 PM	308, Moscone Center	Bio-Rad Enzymes and Biofuels—Go from Grass to Gas! (p. 149)
Thursday, March 10	1:00–3:30 PM	306, Moscone Center	Bio-Rad GMO Investigator Kit (p. 149)
Thursday, March 10	3:00–4:00 PM	308, Moscone Center	Bio-Rad Cloning and Sequencing Explorer Series (p. 164)

Carolina Biological Supply Co. (Booth #1500)

Thursday, March 10	9:30–10:30 AM	122, Moscone Center	Get Their Heads into the Clouds: Exploring Space Science with the GEMS® Space Science Sequence (p. 123)
Thursday, March 10	9:30–11:00 AM	121, Moscone Center	AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 124)
Thursday, March 10	9:30–11:00 AM	120, Moscone Center	Introduction to Electrophoresis (p. 124)
Thursday, March 10	11:00 AM–2:00 PM	122, Moscone Center	Lunch and Learn: Discover a New Inquiry Program for Secondary Schools (p. 133)
Thursday, March 10	11:30 AM–1:00 PM	120, Moscone Center	Mendelian Genetics with Wisconsin Fast Plants® (p. 135)
Thursday, March 10	11:30 AM–1:00 PM	121, Moscone Center	Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (p. 135)
Thursday, March 10	1:30–3:00 PM	120, Moscone Center	Hands-On Science with Classroom Critters (p. 150)
Thursday, March 10	1:30–3:00 PM	121, Moscone Center	Sharing 35 Years of Teaching High School Chemistry: Demos, Tips, and Best Practices (p. 150)
Thursday, March 10	2:30–4:00 PM	122, Moscone Center	Dive into Ocean Literacy with the NEW GEMS® Ocean Sciences Sequence for Grades 3–5! (p.164)
Thursday, March 10	3:30–5:00 PM	120, Moscone Center	Amplify Your Genetics Teaching Skills with Carolina's New Inquiries in Science® Biology Units (p. 173)
Thursday, March 10	3:30–5:00 PM	121, Moscone Center	Take the Leap: Carolina's Perfect Solution® Frog Dissection (p. 173)
Thursday, March 10	4:30–5:30 PM	122, Moscone Center	Flexible Instruction for the 21st-Century Student: The Inquiry Approach to Differentiation (p. 178)

CENCO Physics (Booth #1907)

Thursday, March 10	7:30–9:00 AM	274/276, Moscone	Put Me in Coach! The Physics of Baseball (p. 97)

Cengage Learning (Booth #1442)

Thursday, March 10	3:30–5:00 PM	300, Moscone Center	How to Start a Forensic Science Program (p. 174)

CPO Science/School Specialty Science (Booth #1628)

Thursday, March 10	8:00–9:30 AM	131, Moscone Center	Chemistry and the Atom: Fun with Atom-building Games! (p. 108)
Thursday, March 10	10:00–11:30 AM	131, Moscone Center	Genetics: Crazy Traits and Adaptation Survivor (p. 128)
Thursday, March 10	12 Noon–1:30 PM	131, Moscone Center	Real-Time Displacement, Velocity, and Acceleration Measurements with CPO's Velocity Sensor (p. 138)
Thursday, March 10	2:00–3:30 PM	131, Moscone Center	Harmonic Motion and Hooke's Law with CPO's Springs and Swings (p. 162)
Thursday, March 10	4:00–5:30 PM	131, Moscone Center	Charles' Law and Boyle's Law Uncovered with CPO's Gas Laws Kit (p. 177)

Delta Education/School Specialty Science (Booth #1529)

Thursday, March 10	8:00–9:15 AM	123, Moscone Center	Experimental Design (p. 108)
Thursday, March 10	10:00–11:15 AM	123, Moscone Center	Introducing the Delta Science Module Program (p. 127)
Thursday, March 10	12:30–1:45 PM	123, Moscone Center	What's Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Teachers (p. 148)
Thursday, March 10	2:00–3:15 PM	123, Moscone Center	Science Gnus: Science Inquiry Skills in the Stories of Famous and Not So Famous Scientists (p. 162)

Delta Education/School Specialty Science–FOSS (Booth #1529)

Thursday, March 10	8:30–11:00 AM	130, Moscone Center	Using Science Notebooks with FOSS Middle School (p. 114)
Thursday, March 10	12 Noon–1:15 PM	130, Moscone Center	Beyond the Classroom Walls with FOSS (p. 138)
Thursday, March 10	2:00–4:30 PM	130, Moscone Center	Chemical Interactions for Middle School (p. 163)

Delta Education/School Specialty Science–Seeds (Booth #1529)

Thursday, March 10	8:30–10:00 AM	125, Moscone Center	Variation and Adaptation: Seeds of Science/Roots of Reading® (p. 113)
Thursday, March 10	11:00 AM–12:30 PM	125, Moscone Center	Shoreline Science: Seeds of Science/Roots of Reading® (p. 133)
Thursday, March 10	2:30–4:00 PM	125, Moscone Center	Chemical Changes: Seeds of Science/Roots of Reading® (p. 164)

Discovery Education (Booth #2123)

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Thursday, March 10	9:30–11:00 AM	206, Moscone Center	It's How They Learn: 50 Ways to Use Discovery Education Content (p. 124)
Thursday, March 10	11:30 AM–1:00 PM	206, Moscone Center	What's the Connection—Louisiana, Florida, Oregon, and Indiana? (p. 136)
Thursday, March 10	1:30–3:00 PM	206, Moscone Center	Raising Test Scores with Discovery Education Science (p. 151)
Thursday, March 10	3:30–5:00 PM	206, Moscone Center	What's the Connection—Louisiana, Florida, Oregon, and Indiana? (p. 173)

EduChange and Teachers for Learners (Booth #1141)

Thursday, March 10	9:30–11:00 AM	202/204, Moscone Ctr.	A Systematic Approach to Academic Language (p. 124)

EDVOTEK (Booth #919)

Thursday, March 10	7:30–9:00 AM	110, Moscone Center	Come Learn How to Fingerprint Your Own DNA: Affordable Classroom PCR That Works (p. 97)
Thursday, March 10	9:30–11:00 AM	110, Moscone Center	Experiments for Environmental Science, Ecology, and Agribiotechnology (p. 124)

Energy Concepts, Inc. (Booth #2541)

Thursday, March 10	3:30–5:00 PM	202/204, Moscone Ctr.	Applications in Biotechnology (p. 173)

Flinn Scientific, Inc. (Booth #1801)

Thursday, March 10	9:30–11:00 AM	304, Moscone Center	Flinn Favorite Biology Lab Activities and Games (p. 126)
Thursday, March 10	11:30 AM–1:00 PM	304, Moscone Center	Make Safety a Habit! Flinn Scientific Workshop (p. 137)
Thursday, March 10	1:30–3:00 PM	304, Moscone Center	Hands-On Integrated Science Activities for Middle School (p. 152)
Thursday, March 10	3:30–5:00 PM	304, Moscone Center	Flinn Scientific Presents Best Practices for Teaching Chemistry Experiments and Demos (p. 174)

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Frey Scientific (Booth #1629) and Ohaus Corp. (Booth #2021)

Thursday, March 10	9:30–11:00 AM	134, Moscone Center	Exploring the OHAUS Scout Pro Through Educational Software (p. 124)
Thursday, March 10	11:30 AM–1:00 PM	134, Moscone Center	Exploring the OHAUS Scout Pro Through Educational Software (p. 135)
Thursday, March 10	1:30–3:00 PM	134, Moscone Center	Exploring the OHAUS Triple Beam Balance Through Educational Software (p. 150)
Thursday, March 10	3:30–5:00 PM	134, Moscone Center	Exploring the OHAUS Triple Beam Balance Through Educational Software (p. 173)

Frey Scientific/School Specialty Science (Booth #1629)

Thursday, March 10	8:00–9:15 AM	124, Moscone Center	Introducing Inquiry Investigations™ Hands-On Inquiry Activities Focusing On Technology (p. 108)
Thursday, March 10	10:00–11:15 AM	124, Moscone Center	Inquiry Investigations™ Forensics Science Curriculum Module and Kits (p. 128)
Thursday, March 10	12 Noon–1:15 PM	124, Moscone Center	Educational Science Lab Design and Implementation for the 21st Century Made Easy (p. 138)
Thursday, March 10	2:00–3:15 PM	124, Moscone Center	Bring Your Science Lab into the 21st Century Using iNeo/SCI™ Virtual Science Solutions (p. 162)
Thursday, March 10	4:00–5:15 PM	124, Moscone Center	Inquiry Investigations™ Biotechnology Activities with E-Gels® (p. 177)

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Thursday, March 10	1:30–3:00 PM	202/204, Moscone Ctr.	Youth Policy Summit: Challenge Your Students to Take Action and Have Their Voices Heard! (p. 151)

McGraw-Hill School Education Group (Booth #2129)

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Thursday, March 10	9:30–11:00 AM	303, Moscone Center	Fun, Fabulous Foldables® (p. 126)
Thursday, March 10	11:30 AM–1:00 PM	303, Moscone Center	Teaching Inquiry with Toys and Treats (p. 136)
Thursday, March 10	1:30–3:00 PM	303, Moscone Center	Teaching Inquiry with Toys and Treats (p. 152)
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Millmark Education (Booth #1101)

Thursday, March 10	3:30–5:00 PM	110, Moscone Center	Exploring Potential and Kinetic Energy Through Guided Inquiry (p. 173)

NASA Education (Booth #729)

Thursday, March 10	8:00–8:30 AM	309, Moscone Center	Education Flight Projects (p. 98)
Thursday, March 10	8:00–8:50 AM	310, Moscone Center	NASA Kepler Mission: In Search of Other "Earths" (p. 98)
Thursday, March 10	8:40–9:30 AM	309, Moscone Center	Learning Through Engineering Design Challenges (p. 114)
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NASA Education, cont.

Thursday, March 10	9:40–10:10 AM	309, Moscone Center	eClips (p. 126)
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Thursday, March 10	11:20 AM–12:10 PM	309, Moscone Center	Rocketry (p. 134)
Thursday, March 10	1:05–1:55 PM	309, Moscone Center	Daytime Astronomy (p. 150)
Thursday, March 10	1:05–2:25 PM	310, Moscone Center	Forces of Flight (p. 150)
Thursday, March 10	2:05–3:55 PM	309, Moscone Center	Balloon Satellite Challenge (p. 163)
Thursday, March 10	2:35–4:00 PM	310, Moscone Center	NASA Smart Skies: Investigating Motion with an Air Traffic Control Simulator (p. 164)
Thursday, March 10	4:05–4:55 PM	309, Moscone Center	Feel the Heat (p. 178)
Thursday, March 10	4:10–5:00 PM	310, Moscone Center	Introduction to the Periodic Table of Elements and the Solar System (p. 178)

National Geographic School Publishing (Booth #1528)

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Thursday, March 10	8:00–9:30 AM	132, Moscone Center	Rise Above the Storm: Introducing STEM in High School (p. 108)
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Thursday, March 10	12 Noon–1:30 PM	132, Moscone Center	AP Environmental Science: Modeling an Ecosystem (p. 138)
Thursday, March 10	12 Noon–1:30 PM	133, Moscone Center	Middle School Life Science: Learn Key Concepts Through Hands-On, Probeware-based Activities (p. 138)
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Thursday, March 10	2:00–3:30 PM	133, Moscone Center	IB Chemistry with PASCO Datalogging Technology (p. 163)
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Pearson (Booth #1601)

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Thursday, March 10	7:30–9:00 AM	305, Moscone Center	Inquiry in the Classroom (p. 97)
Thursday, March 10	9:30–11:00 AM	305, Moscone Center	From Science to Engineering (p. 126)
Thursday, March 10	9:30–11:00 AM	307, Moscone Center	Creating and Using Scenario-based Science Tests in the Classroom (p. 126)
Thursday, March 10	11:30 AM–1:00 PM	305, Moscone Center	Inquiry and Evidence: Keys to Getting Students to Inquire (p. 137)
Thursday, March 10	11:30 AM–1:00 PM	307, Moscone Center	Increasing Physics Enrollments (p. 137)
Thursday, March 10	1:30–3:00 PM	307, Moscone Center	Real Issues, Real Data, Real Choices: Teaching Environmental Science in Today's High School Classroom (p. 152)
Thursday, March 10	1:30–3:00 PM	305, Moscone Center	Web 2.0 and Science… (p. 152)
Thursday, March 10	3:30–5:00 PM	307, Moscone Center	Supporting Grades 5–8 Students in Constructing Explanations in Science: The Claim, Evidence, and Reasoning Framework for Talk and Writing (p. 174)
Thursday, March 10	3:30–5:00 PM	305, Moscone Center	The Next Generation of Life Science Virtual Labs—No Cleanup Required (p. 174)

SAE International (Booth #1232)

Thursday, March 10	4:00–5:30 PM	256, Moscone Center	A World In Motion®: JetToy Challenge (p. 177)

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ScholAR® Chemistry (Booth #1907)

Thursday, March 10	9:30–11:00 AM	274/276, Moscone Ctr.	ScholAR's Got a Brand-new Bag and It's RED! (p. 125)

Science Kit & Boreal Laboratories (Booth #1901)

Thursday, March 10	7:30–9:00 AM	270/272, Moscone Ctr.	Paint It RED! Using Technology to Teach Physical Science (p. 97)
Thursday, March 10	9:30–11:00 AM	270/272, Moscone Ctr.	Paint It RED! Using Technology to Teach Life Science (p. 125)
Thursday, March 10	11:30 AM–1:00 PM	270/272, Moscone Ctr.	All the Small Things: Teaching STEM with Digital Microscopes (p. 136)
Thursday, March 10	1:30–3:00 PM	270/272, Moscone Ctr.	Paint It RED! Using Technology to Teach Middle School Science (p. 152)
Thursday, March 10	3:30–5:00 PM	270/272, Moscone Ctr.	Paint It RED! Using Technology to Teach Elementary Science (p. 174)
Thursday, March 10	7:00–9:00 PM	Yerba Buena 8, Marriott	ReallyEasyData Launch Party (p. 180)

Simulation Curriculum Corp. (Booth #928)

Thursday, March 10	9:30–11:00 AM	256, Moscone Center	The Sky Through the Ages (p. 124)

Swift Optical Instruments, Inc. (Booth #1110)

Thursday, March 10	7:30–9:00 AM	256, Moscone Center	Forensics Made Easy—See What's New! (p. 97)
Thursday, March 10	11:30 AM–1:00 PM	256, Moscone Center	New Ways to Prepare Your Students Using 21st-Century STEM Initiatives: GO DIGITAL! (p. 136)
Thursday, March 10	1:30–3:00 PM	256, Moscone Center	Forensics Made Easy—See What's New! (p. 152)

Vernier Software & Technology (Booth #1518)

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Thursday, March 10	10:00–11:30 AM	302, Moscone Center	Water Quality with Vernier (p. 128)
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Thursday, March 10	2:00–3:30 PM	302, Moscone Center	Engineering with Vernier (p. 163)
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WARD'S Natural Science (Booth #2005)

Thursday, March 10	11:30 AM–1:00 PM	274/276, Moscone Ctr.	Watching the Detectives: Blood Spatter (p. 136)
Thursday, March 10	1:30–3:00 PM	274/276, Moscone Ctr.	There's a Whole Lot of Shakin' Goin' On! (p. 152)
Thursday, March 10	3:30–5:00 PM	274/276, Moscone Ctr.	Who Are You? Blood Typing (p. 174)

Wavefunction, Inc. (Booth #1712)

Thursday, March 10	9:30–11:00 AM	300, Moscone Center	Using Modern Molecular Modeling Techniques in Middle and High School Science Classes (p. 125)
Thursday, March 10	11:30 AM–1:00 PM	300, Moscone Center	Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (p. 136)
Thursday, March 10	1:30–3:00 PM	300, Moscone Center	Using Modern Molecular Modeling Techniques in Middle and High School Science Classes (p. 152)

G = General M = Middle School S = Supervision/Administration T = Teacher Preparation
P = Preschool H = High School I = Informal EducationE = Elementary
C = College R = Research

Biology/Life Science

7:30–9:00 AM	8–C	256, Moscone Center	Forensics Made Easy—See What's New! (p. 97)
7:30–9:00 AM	9–C	110, Moscone Center	Come Learn How to Fingerprint Your Own DNA: Affordable Classroom PCR That Works (p. 97)
7:30–9:00 AM	9–C	307, Moscone Center	Using MasteringBiology® to Improve Learning Outcomes (p. 98)
8:00–8:30 AM	K–12	309, Moscone Center	Education Flight Projects (p. 98)
8:00–9:00 AM	H	Pacific I, Marriott	Hands-On Learning Activities for AP Biology (p. 105)
8:00–9:00 AM	7–C	308, Moscone Center	How to Start a Biotech Program (p. 107)
8:00–9:00 AM	M–H	Yerba Buena 4, Marriott	SEPUP Pathway Session: Developing Literacy and Addressing Content Standards Through Issue-oriented Science (p. 105)
8:00–9:00 AM	H/S	Yerba Buena 2, Marriott	BSCS Pathway Session: Looking for PCK (Pedagogical Content Knowledge) in All the Wrong Places? (p. 102)
8:00–9:00 AM	G	Pacific H, Marriott	Biomimicry: Human Solutions Inspired by Nature (p. 105)
8:00–9:00 AM	M	Golden Gate 2, Hilton	Naturally Selecting an Effective Teaching Method (p. 99)
8:00–9:00 AM	H–C	Golden Gate 1, Hilton	AP Biology Teachers' Open Forum (p. 98)
8:00–9:00 AM	G	Sierra A, Marriott	Why Teach Evolution? (p. 101)
9:00–11:30 AM	9–C	306, Moscone Center	Bio-Rad Determine Your Genotype with PCR (p. 115)
9:30–10:30 AM	M–H	Yerba Buena 10, Marriott	ELL Pathway Session: Engaging ELL Students in Scientific Discourse Using Seven Strategies (p. 122)
9:30–10:30 AM	M	Golden Gate 2, Hilton	Video Games: A Tool for Students with Learning Disabilities (p. 116)
9:30–10:30 AM	H–C/S	Union Square 17/18, Hilt	SCST Session: Merging of Two Worlds: Academic and Industrial Science (p. 117)
9:30–10:30 AM	M–H	228/230, Moscone Center	Engaging Students in Biology Through Real-World Connections (p. 123)
9:30–10:30 AM	E	Continental 7, Hilton	Gardening in the Classroom (p. 120)
9:30–10:30 AM	H–C	Golden Gate 1, Hilton	Gel Filtration Chromatography: An Experiment for High School and College Natural Science Laboratory Programs (p. 116)
9:30–10:30 AM	G	Pacific I, Marriott	Promoting Science Engagement Among Underrepresented Minorities Through Partnerships (p. 119)
9:30–10:30 AM	E–M	Golden Gate 2, Hilton	Animal Communication Research on the California Singing Fish: From the Field to the Classroom (p. 116)
9:30–10:30 AM	M–H	Sierra A, Marriott	Is a Picture Worth a Thousand Words? (p. 119)
9:30–11:00 AM	9–12	121, Moscone Center	AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 124)
9:30–11:00 AM	7–12	304, Moscone Center	Flinn Favorite Biology Lab Activities and Games (p. 126)
9:30–11:00 AM	9–12	120, Moscone Center	Introduction to Electrophoresis (p. 124)
9:30–11:00 AM	6–11	270/272, Moscone Center	Paint It RED! Using Technology to Teach Life Science (p. 125)
9:30–11:00 AM	9–C	110, Moscone Center	Experiments for Environmental Science, Ecology, and Agribiotechnology (p. 124)
10:00–11:15 AM	7–C	308, Moscone Center	Bio-Rad ELISA and Swine Flu (p. 128)
10:00–11:30 AM	9–12	132, Moscone Center	Investigating Mitochondrial Genetics (p. 128)
10:00–11:30 AM	5–12	131, Moscone Center	Genetics: Crazy Traits and Adaptation Survivor (p. 128)
11:00 AM–12 Noon	M–H/S	Yerba Buena 2, Marriott	BSCS Pathway Session: How "Educative" Curriculum Materials Help Teach for Understanding (p. 132)
11:00 AM–12 Noon	M–H	Yerba Buena 9, Marriott	NMEA Session: Ocean Acidification: How Our Oceans Are Responding to Carbon Dioxide Increases (p. 132)
11:30 AM–1:00 PM	6–12	270/272, Moscone Center	All the Small Things: Teaching STEM with Digital Microscopes (p. 136)
11:30 AM–1:00 PM	6–12	274/276, Moscone Center	Watching the Detectives: Blood Spatter (p. 136)
11:30 AM–1:00 PM	7–C	256, Moscone Center	New Ways to Prepare Your Students Using 21st-Century Stem Initiatives: GO DIGITAL! (p. 136)
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11:30 AM–1:00 PM	K–12	120, Moscone Center	Mendelian Genetics with Wisconsin Fast Plants® (p. 135)
11:30 AM–1:00 PM	6–12	121, Moscone Center	Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (p. 135)

12 Noon–1:30 PM	6–8	133, Moscone Center	Middle School Life Science: Learn Key Concepts Through Hands-On, Probeware-based Activities (p. 138)
12:30–1:30 PM	H	Yerba Buena 4, Marriott	SEPUP Pathway Session: Life Science Issues: Integrating Biodiversity Into the Teaching of Ecology and Evolution (p. 147)
12:30–1:30 PM	H–C	Yerba Buena 2, Marriott	BSCS Pathway Session: Evolution and Medicine (p. 147)
12:30–1:30 PM	E–H	224/226, Moscone Center	Practical Strategies to Help English Learners Comprehend Science Texts (p. 145)
12:30–1:30 PM	E	Golden Gate 6, Hilton	Evolution Readiness: The Modeling Approach (p. 141)
12:30–1:30 PM	M–C	Pacific H, Marriott	Standards-based Active Learning: Protein Structure and Function (p. 147)
12:30–1:30 PM	M–H	Sierra A, Marriott	Epidemiology 101: Using the Framingham Heart Study to Teach Kids About the Human Body (p. 143)
12:30–1:30 PM	H	Sierra A, Marriott	Finding the CURE: Engaging High School Students in Science Through Cancer Research Experiences (p. 143)
12:30–1:30 PM	G	Pacific I, Marriott	DNA, Mitosis, and Me (p. 147)
1:00–1:30 PM	H–C	Golden Gate 1, Hilton	Enhancing Scientific Literacy in a Senior-Level Ecology Classroom (p. 149)
1:00–2:30 PM	9–C	308, Moscone Center	Bio-Rad Enzymes and Biofuels—Go from Grass to Gas! (p. 149)
1:00–3:30 PM	9–C	306, Moscone Center	Bio-Rad GMO Investigator Kit (p. 149)
1:30–3:00 PM	7–C	256, Moscone Center	Forensics Made Easy—See What's New! (p. 152)
1:30–3:00 PM	K–12	120, Moscone Center	Hands-On Science with Classroom Critters (p. 150)
2:00–3:00 PM	G	Pacific I, Marriott	Using the C. elegans Model Organism for More Than Research
2:00–3:00 PM	H	Sierra A, Marriott	Collaborative Student Activities in Biology (p. 157)
2:00–3:00 PM	M–C	Golden Gate C3, Marriott	Maintaining and Sustaining Ecosystems, One Enzyme at a Time (p. 157)
2:00–3:00 PM	C	Union Square 17/18, Hilton	SCST Session: A Model of Visual Literacy Skills in Undergraduate Biology Education (p. 156)
2:00–3:00 PM	H	Pacific H, Marriott	Do You See What I See? Using an NIH SEPA-funded Biology Curriculum to Experience Hands-On Learning (p. 161)
2:00–3:00 PM	H	Sierra A, Marriott	Science Notebooks: Reflections on the First Year (p. 157)
2:00–3:00 PM	H–C	Golden Gate 1, Hilton	The Biology and Physiology of Methamphetamine (p. 155)
2:00–3:30 PM	9–C	301, Moscone Center	Biology with Vernier (p. 163)
2:00–3:30 PM	9–12	132, Moscone Center	IB Biology with PASCO Datalogging Technology (p. 162)
3:00–4:00 PM	9–C	308, Moscone Center	Bio-Rad Cloning and Sequencing Explorer Series (p. 164)
3:30–4:30 PM	I	Pacific I, Marriott	Unlock Scientific Thinking with Dichotomous Keys (p. 170)
3:30–4:30 PM	E–M	224/226, Moscone Center	What Can We Learn from Skulls? Teaching Science to English Language Learners (ELLs) (p. 172)
3:30–4:30 PM	C	Union Square 17/18, Hilt	SCST Session: Predictors of Success in a Human Anatomy Course for Non-Majors (p. 167)
3:30–4:30 PM	C	Union Square 17/18, Hilt	SCST Session: Improving Student Success in Introductory College Biology Courses (p. 167)
3:30–4:30 PM	H–C	Golden Gate 1, Hilton	Best Practices in Molecular Biology: Better Transformations, Faster Gels, Stronger Science (p. 165)
3:30–4:30 PM	G	Pacific H, Marriott	Science-specific Mentoring: Why It's Needed and How to Effectively Cultivate Reflective Practices Among Science Teachers (p. 170)
3:30–4:30 PM	G	Sierra A, Marriott	How Darwin Changed Our View of the Nature and History of the Natural World (p. 168)
3:30–4:30 PM	E	Golden Gate 7, Hilton	Which Soils Do Plants Like Best? Bring the Scientific Method to Your Classroom! (p. 169)
3:30–5:00 PM	6–12	274/276, Moscone Center	Who Are You? Blood Typing (p. 174)
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3:30–5:00 PM	9–12	300, Moscone Center	How to Start a Forensic Science Program (p. 174)
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3:30–5:00 PM	6–12	121, Moscone Center	Take the Leap: Carolina's Perfect Solution® Frog Dissection (p. 173)
3:30–5:00 PM	9–12	305, Moscone Center	The Next Generation of Life Science Virtual Labs—No Cleanup Required (p. 174)
5:00–5:30 PM	M–H	Sierra A, Marriott	Building Nervous Systems for Robots: An Interactive and Collaborative Neuroscience Curriculum (p. 178)
5:00–6:00 PM	Null	Yerba Buena 9, Marriott	NMEA Session: Sea Turtle Survivor (p. 180)

5:00–6:00 PM	H–C/S	Union Square 17/18, Hilton	SCST Session: Impact of Pedagogy Training Intervention on Student Achievement and the Student Perception of Learning (p. 179)
5:00–6:00 PM	M–H	Pacific I, Marriott	Big Macs and Healthy Teens? A New Approach to Nutrition Education (p. 179)

Chemistry/Physical Science

8:00–9:00 AM	E	Golden Gate 4, Hilton	Science Is Magic, Magic Is Not Science (p. 104)
8:00–9:00 AM	E	228/230, Moscone Center	Chemistry Is Elementary! Giving Elementary Science Teachers the Confidence, Skills, and Experience to Teach Chemistry (p. 107)
8:00–9:00 AM	H	Sierra H, Marriott	Teaching the Periodic Table Using the Nature of Science (p. 102)
8:00–9:30 AM	5–12	131, Moscone Center	Chemistry and the Atom: Fun with Atom-building Games! (p. 108)
8:00–9:30 AM	9–C	301, Moscone Center	Chemistry with Vernier (p. 109)
9:30–10:00 AM	M–C	Sierra H, Marriott	Safety First! (p. 115)
9:30–10:30 AM	M	Continental 2, Hilton	Techno-Matter…What? Integrating Project-based Science Instruction with Technology (p. 116)
9:30–10:30 AM	G	Golden Gate 8, Hilton	NSTA Press Session: Constructive Class Climate: Building a Self-Sufficient, Collaborative Community of Scientists (p. 117)
9:30–10:30 AM	Null	Yosemite C, Hilton	A Required Studio-Type, Inquiry-Based Course for K–8 Preservice Students in Chemistry (p. 118)
9:30–10:30 AM	H	Yerba Buena 4, Marriott	SEPUP Pathway Session: Alternative Energy and Transportation: Hydrogen Fuel Cell and Other Bus Technologies (p. 122)
9:30–11:00 AM	9–12	236/238, Moscone Center	Sparking Interest and Learning with Chemistry: A Part 1 Experience (p. 124)
9:30–11:00 AM	9–12	274/276, Moscone Center	ScholAR's Got a Brand-new Bag and It's RED! (p. 125)
9:30–11:00 AM	8–C	300, Moscone Center	Using Modern Molecular Modeling Techniques in Middle and High School Science Classes (p. 125)
11:30 AM–1:00 PM	8–C	300, Moscone Center	Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (p. 136)
11:30 AM–1:00 PM	6–12	304, Moscone Center	Make Safety a Habit! Flinn Scientific Workshop (p. 137)
12:30–1:30 PM	H	Golden Gate B, Marriott	"Simple"y the Best Demos (p. 142)
12:30–1:30 PM	H	Pacific J, Marriott	A Coherent Approach to Energy in High School Chemistry (p. 147)
12:30–1:30 PM	H	Sierra H, Marriott	Teaching High School Chemistry with a Materials Science and Engineering Focus (p. 144)
12:30–1:30 PM	M	Continental 2, Hilton	Your World: What It's Made Of and How It Works (p. 146)
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1:30–3:00 PM	9–12	121, Moscone Center	Sharing 35 Years of Teaching High School Chemistry: Demos, Tips, and Best Practices (p. 150)
2:00–3:00 PM	M–H	Yerba Buena 4, Marriott	SEPUP Pathway Session: Green Chemistry: Using Chemistry Knowledge to Inform Societal Decisions (p. 161)
2:00–3:00 PM	H	Pacific J, Marriott	A Coherent Approach to Energy in High School Physics (p. 161)
2:00–3:00 PM	M–H	Golden Gate B, Marriott	The Periodic Table of Students (p. 157)
2:00–3:00 PM	M–H	Sierra H, Marriott	BioPlastic: Going from Synthetic to Natural Polymers (p. 158)
2:00–3:00 PM	E–M	Continental 2, Hilton	Do-Talk-Do: An Alternative Approach to Inquiry (p. 159)
2:00–3:30 PM	9–12	133, Moscone Center	IB Chemistry with PASCO Datalogging Technology (p. 163)
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3:30–4:30 PM	G	Pacific C, Marriott	Telling the Stories of the Elements in Your Community (p. 168)
3:30–4:30 PM	G	Sierra H, Marriott	The Chemistry of Sherlock Holmes (p. 168)
3:30–4:30 PM	M–C	Golden Gate B, Marriott	When Will I Ever Use This In Real Life? Incorporating Authentic Application into the Chemistry Classroom (p. 170)
3:30–4:30 PM	H	Pacific J, Marriott	Strategies to Enhance Student's Attainment of Important Concepts in Chemistry (p. 170)
3:30–4:30 PM	H/S	Continental 3, Hilton	ACS Guidelines and Recommendations for Teaching High School Chemistry: A Resource for High School Chemistry Teaching (p. 165)
3:30–4:30 PM	H	Yerba Buena 9, Marriott	NMEA Session: The Power of pH: Changing Ocean Chemistry (p. 171)

3:30–5:00 PM	7–12	304, Moscone Center	Flinn Scientific Presents Best Practices for Teaching Chemistry Experiments and Demos (p. 174)
4:10–5:00 PM	3–5	310, Moscone Center	Introduction to the Periodic Table of Elements and the Solar System (p. 178)
5:00–6:00 PM	G	Sierra B, Marriott	Using the Apple iTouch Device for Learning in Undergraduate Organic Chemistry (p. 179)
5:00–6:00 PM	M–C	Union Square 15/16, Hilton	NARST Session: Learning Progressions as a Foundation for the Development of Formative Assessment That Informs Instruction (p. 180)
5:00–6:00 PM	M–H	Pacific J, Marriott	Experience It to Believe It! Fun with the Periodic Table (p. 180)
5:00–6:00 PM	G	Sierra B, Marriott	Using the Apple iTouch in a Symbiotic, Interdisciplinary Collaboration Between Science and Software Development Courses (p. 179)

Earth/Space Science

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8:00–9:00 AM	M–H	Willow, Marriott	Teaching Earth Science Content with iPods, Laptops, and Other Portable Accelerometers (p. 105)
8:00–9:00 AM	G	Pacific B, Marriott	NASA: Bring NASA Science into Your Classroom (p. 101)
8:00–9:00 AM	G	Pacific C, Marriott	Understanding Lightning and Lightning Safety (p. 101)
8:00–9:00 AM	E–M	220/222, Moscone Center	Activities from Across the Earth System (p. 106)
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8:00–9:00 AM	E	Golden Gate 7, Hilton	Ready-to-Go Space Science Activities for the K–5 Classroom (p. 105)
9:30–10:30 AM	M	Continental 1, Hilton	Disaster…Naturally! (p. 120)
9:30–10:30 AM	G	Yerba Buena 12/13, Marr.	Geoscience ROCKS! Discover the Excitement of Geosciences Research in Antarctica (p. 122)
9:30–10:30 AM	E–H	Golden Gate C3, Marriott	Interdisciplinary Space Exploration Using the WorldWide Telescope (p. 118)
9:30–10:30 AM	E–M	220/222, Moscone Center	Eating Your Way Through the Earth Science Standards (p. 123)
9:30–10:30 AM	M–C	Willow, Marriott	Lights, Camera, Action! Introducing the Nature of Science and Scientific Inquiry Using Instructional Videos (p. 121)
9:30–10:30 AM	H	Golden Gate C3, Marriott	Experiencing Astronomy Research in Schools (p. 118)
9:30–10:30 AM	M–C	Pacific C, Marriott	PBLs in the Classroom (p. 118)
9:30–10:30 AM	3–8	122, Moscone Center	Get Their Heads into the Clouds: Exploring Space Science with the GEMS® Space Science Sequence (p. 123)
9:30–11:00 AM	5–12	256, Moscone Center	The Sky Through the Ages (p. 124)
11:00 AM–12:30 PM	2–5	125, Moscone Center	Shoreline Science: Seeds of Science/Roots of Reading® (p. 133)
12:30–1:30 PM	G	Golden Gate C1, Marriott	Become a Researcher on the International Space Station (ISS) (p. 142)
12:30–1:30 PM	I	228/230, Moscone Center	How We Know What We Know: The Most Important Tools for Teaching Earth Science (p. 145)
12:30–1:30 PM	M	Continental 1, Hilton	Unleashing the Potential of Clickers: Strategies for Fostering Productive Classroom Science Discussions (p. 146)
12:30–1:30 PM	M–C	Pacific B, Marriott	Challenging Students' Misconceptions of the Seasons Using Free, Authentic Online Data (p. 143)
12:30–1:30 PM	E–H	Pacific C, Marriott	Project-based Water Education in the Classroom (p. 143)
12:30–1:30 PM	G	Union Square 5/6, Hilton	CSSS Session: Geo Focus: Bays (p. 146)
12:30–1:30 PM	G	Pacific C, Marriott	Teaching Energy Sources and Environment Together (p. 143)
12:30–1:30 PM	M–C	Pacific B, Marriott	Earth System Science Education and NASA's Global Climate Change Education Program (p. 143)
1:05–1:55 PM	K–12	309, Moscone Center	Daytime Astronomy (p. 150)
2:00–3:00 PM	G	Pacific C, Marriott	So Many Possibilities…How to Incorporate Google Earth in Your Classroom (p. 157)
2:00–3:00 PM	M–H	Golden Gate C1, Marriott	NASA INSPIRE Project (p. 157)
2:00–3:00 PM	M	220/222, Moscone Center	The Geometry of Earth Science (p. 162)
2:00–3:00 PM	M–H	Willow, Marriott	Help Your Students Discover Earth's Layered Interior with Seismic Data
2:00–3:00 PM	M–H	Golden Gate 2, Hilton	Where Have All the Salmon Gone? (p. 155)
2:00–3:00 PM	G	Pacific B, Marriott	Promoting Authentic Learning Using a Problem-based Format (p. 157)
2:00–3:00 PM	E–M	Continental 1, Hilton	The MESSENGER Space Mission: Bridging to the Future in the 21st Century (p. 159)
2:30–4:00 PM	3–5	122, Moscone Center	Dive into Ocean Literacy with the NEW GEMS® Ocean Sciences Sequence for Grades 3–5! (p. 164)

3:30–4:30 PM	E–M	Continental 1, Hilton	Nevada Earth Space Science Initiative: Improving Student Learning Through Engaging Inquiry (p. 169)
3:30–4:30 PM	G	Golden Gate C3, Marriott	Eat, Sing, and, Dig Your Way Through Geology! (p. 170)
3:30–4:30 PM	M–C	Union Square 14, Hilton	NARST Session: Investigating Climate Change and Evolution Across Deep Time Through Argument-driven Inquiry (p. 166)
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3:30–4:30 PM	I	Golden Gate C1, Marriott	Creating Virtual Fieldwork Experiences as Professional Development (p. 168)
5:00–5:30 PM	H	Union Square 25, Hilton	ASTE Session: Teachers as Watershed Researchers: A Professional Development Model (p. 178)
5:00–6:00 PM	P–E	Golden Gate 7, Hilton	Weather Watchers: Using Instruments to Observe and Predict the Weather (p. 180)

Environmental Science

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8:00–9:00 AM	H–C	Continental 3, Hilton	Using Online Data for Investigations in Ecology and Animal Behavior (p. 98)
8:30–9:00 AM	G	Sierra B, Marriott	GreenSchools! (p. 112)
9:30–10:30 AM	M–H	Pacific B, Marriott	EcoMUVE: Exploring Ecosystems and Complex Causal Patterns in Immersive Virtual Worlds (p. 118)
9:30–10:30 AM	G	Yerba Buena 9, Marriott	NMEA Session: A Whale of a Tale Share-a-Thon (p. 122)
9:30–10:30 AM	I	Sierra B, Marriott	Exploring New York City Parks with EPA and GLOBE (p. 119)
9:30–10:30 AM	H	Pacific B, Marriott	EcoCasting: Using NetLogo Models of Aquatic Ecosystems to Teach Scientific Inquiry (p. 118)
9:30–10:30 AM	E/I	Golden Gate 6, Hilton	Partnering Teachers, Scientists, and Informal Science Educators to Improve Teaching and Learning (p. 116)
9:30–10:30 AM	H–C	Continental 3, Hilton	AP Environmental Science Teachers Open Forum (p. 116)
9:30–10:30 AM	M–H/I	Yerba Buena 11, Marriott	Tackling the Global Warming Challenge in a Rapidly Changing World (p. 122)
9:30–10:30 AM	E	Golden Gate 4, Hilton	Hydrogelling in the Desert (p. 121)
9:30–11:00 AM	E–M	Continental 9, Hilton	NSTA Press Session: Inside-Out: Grades 3–8 Environmental Science in the Field and the Classroom (p. 123)
10:00–11:30 AM	7–C	302, Moscone Center	Water Quality with Vernier (p. 128)
11:30 AM–1:00 PM	5–12	202/204, Moscone Center	Key Issues: Bringing Environmental Issues to the Classroom (p. 136)
12 Noon–1:30 PM	9–12	132, Moscone Center	AP Environmental Science: Modeling an Ecosystem (p. 138)
12 Noon–1:30 PM	7–C	302, Moscone Center	Environmental Science with Vernier (p. 139)
12:30–1:30 PM	E–H	Yerba Buena 9, Marriott	NMEA Session: You Scream, I Scream, We All Scream for...Algae? (p. 147)
12:30–1:30 PM	H	Sierra B, Marriott	Using Inquiry to Study Global Sustainability Issues (p. 143)
12:30–1:30 PM	I	Sierra B, Marriott	Innovative Professional Development for Teachers of K–12 Environmental and Geosciences Education (p. 143)
12:30–1:30 PM	M–H/I	Yerba Buena 11, Marriott	Playing with Ecosystem Science: Informal Modeling Games to Explore the Delicate Balance (p. 148)
12:30–1:30 PM	E–M	Golden Gate 5, Hilton	Not Senescent Yet! Forty Years of Environmental Education (p. 141)
1:30–3:00 PM	9–12	307, Moscone Center	Real Issues, Real Data, Real Choices: Teaching Environmental Science in Today's High School Classroom (p. 152)
1:30–3:00 PM	7–12	274/276, Moscone Center	There's a Whole Lot of Shakin' Goin' On! (p. 152)
2:00–3:00 PM	M–H	Yerba Buena 11, Marriott	Comparative Risk Assessment for Wildfires, Earthquakes, Tornadoes, and Hurricanes (p. 161)
2:00–3:00 PM	G	Yerba Buena 9, Marriott	NMEA Session: Hands-On Habitat Restoration (p. 158)
2:00–3:00 PM	E–M	Golden Gate 5, Hilton	Examining Environmental Issues with Elementary and Middle School Students (p. 155)
2:00–3:00 PM	G	Sierra B, Marriott	Climate Change in East Africa for Educators (p. 157)
2:00–3:00 PM	G	Sierra B, Marriott	Bioblitz: A Biodiversity Blast! (p. 157)
2:00–3:00 PM	C	Union Square 17/18, Hilt	SCST Session: Enhancing Science Education Through Video Conferencing (p. 156)
3:30–4:30 PM	M	Golden Gate 5, Hilton	Solar Energy: Sneaking Project-Based Learning into a Scripted Curriculum (p. 166)
3:30–4:30 PM	E–M	Golden Gate 5, Hilton	Key Resources for Educating Tomorrow's Leaders on Key Water Issues (p. 166)
3:30–4:30 PM	M–C	Yerba Buena 11, Marriott	Your Ecological Footprint: Taking Steps to Link Earth Systems Concepts (p. 171)

3:30–4:30 PM	M–H	Pacific B, Marriott	Wildland Fire: History, Theory, and Practice (p. 168)
4:00–4:30 PM	MI	Sierra B, Marriott	Baltimore Partnership for Environmental Science Literacy: Improving Urban Science Teaching and Learning (p. 177)
5:00–6:00 PM	E–H	Continental 7, Hilton	Vertical Collaboration Through Using Elementary and Middle School Student Models to Assess Understanding of Energy Systems (p. 178)

Integrated/General Science

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7:30–9:00 AM	K–12	303, Moscone Center	Fun, Fabulous Foldables® (p. 97)
7:30–9:00 AM	K–8	305, Moscone Center	Inquiry in the Classroom (p. 97)
7:30–9:00 AM	K–8	236/238, Moscone Center	Effective STEM Challenges for the Classroom (p. 97)
8:00–9:00 AM	G	232/234, Moscone Center	Mobile Learning in Science (p. 104)
8:00–9:00 AM	M–H	Yerba Buena 10, Marriott	ELL Pathway Session: Seven Strategies to Scaffold Language and Learning (p. 102)
8:00–9:00 AM	G	200, Moscone Center	Stand and Deliver: How to Present at an NSTA Conference! (p. 102)
8:00–9:00 AM	G	224/226, Moscone Center	Fab Vocab Strategies You Can Use Today! (p. 102)
8:00–9:00 AM	E–M	Continental 7, Hilton	Science + Writing = Learning (p. 104)
8:00–9:00 AM	E–H	Continental 6, Hilton	Science Olympiad: The Best Kept Secret in Science Education! (p. 98)
8:00–9:00 AM	P–E	212, Moscone Center	Budding Scientist (p. 106)
8:00–9:00 AM	G	Yosemite A, Hilton	PolarTREC: A Truly Awesome Experience That Inspires Teachers and Students (p. 101)
8:00–9:00 AM	M–C	111, Moscone Center	How to Engage and Assess Students Within Online 3-D Virtual Environments (p. 106)
8:00–9:00 AM	E–M	Yosemite A, Hilton	Science Instruction in Elementary School as an Ethical Responsibility (p. 101)
8:00–9:00 AM	H–C	Yosemite C, Hilton	Integrated Learning Experiences in Action: It's a What? (p. 101)
8:00–9:00 AM	G	Union Square 21, Hilton	NSELA Session: NSDL's Science Literacy Maps (p. 100)
8:00–9:00 AM	M–H	Union Square 25, Hilton	ASTE Session: Teachers as Learners: Cogntive Benefits of Online Professional Development (p. 100)
8:00–9:00 AM	E–M	Continental 9, Hilton	NSTA Press Session: Successfully Integrating Science, Math, and Art Instruction (p. 104)
8:00–9:00 AM	M	Union Square 5/6, Hilton	CSSS Session: Simulation-based Science Assessments (p. 105)
8:00–9:00 AM	M	Golden Gate 6, Hilton	Clue into Climate (p. 100)
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8:00–9:00 AM	Null	Union Square 17/18, Hilt.	SCST Session: How to Use Real-World Issues to Illustrate Science in Your Classroom (p. 100)
8:00–9:00 AM	C	Union Square 17/18, Hilt.	SCST Session: The Effects of an Inquiry-focused Undergraduate Biology Lab Course on Student Interest and Understanding of Scientific Research Practices (p. 100)
8:00–9:00 AM	G	Union Square 14, Hilton	NARST Session: Unpacking Mentorship: Voices from Science Teachers That Mentor Preservice Candidates (p. 100)
8:00–9:00 AM	G	Union Square 22, Hilton	The Life-changing Benefits of Connecting Children with Nature (p. 100)
8:00–9:00 AM	G	Golden Gate C1, Marriott	Association for Astronomy Education: Think Scientifically: NASA Solar Science Hidden in a Storybook (p. 105)
8:00–9:00 AM	C	Yosemite C, Hilton	Assessment of Formats for Peer Evaluation (p. 101)
8:00–9:00 AM	M–H	Sierra I, Marriott	Twenty Science Questions Teenagers Frequently Ask (p. 102)
8:00–9:00 AM	E–H	262, Moscone Center	Young Adult Literature for the Science Classroom (p. 104)
8:00–9:00 AM	M–H	Sierra I, Marriott	Forensic Science Through Unsolved Cases (p. 102)
8:00–9:00 AM	G	262, Moscone Center	A Formal Literacy Component to the Science Curriculum (p. 104)
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8:00–9:00 AM	G	252/254, Moscone Center	Notebooking for Meaning (p. 104)
8:00–9:00 AM	M–H	Sierra J, Marriott	Nature of Science: An Action Plan Promoting Student Understanding (p. 102)
8:00–9:00 AM	G	Golden Gate 8, Hilton	NSTA Press Session: Reflective Questions for Educators: Keeping Yourself Thoughtful (p. 100)
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8:00–9:00 AM	H	Sierra J, Marriott	Understanding and Teaching the Role of Science and Technology in Sustainability in the 21st Century (p. 102)
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8:00–9:15 AM	70	124, Moscone Center	Introducing Inquiry Investigations™ Hands-On Inquiry Activities Focusing On Technology (p. 108)
8:00–9:15 AM	K–6	123, Moscone Center	Experimental Design (p. 108)
8:00–9:30 AM	9–12	302, Moscone Center	Introducing Vernier DataQuest Data Collection for TI-Nspire™ Technology (p. 109)
8:00–9:30 AM	9–12	132, Moscone Center	Rise Above the Storm: Introducing STEM in High School (p. 108)
8:00–9:30 AM	6–8	133, Moscone Center	Rise Above the Storm: Introducing STEM in Middle School (p. 109)
8:00–10:00 AM	M–H	Yerba Buena 1, Marriott	TERC Pathway Session: From Cells to Sea Ice: Analyzing Data from Digital Images (p. 109)
8:00–10:00 AM	E	Yerba Buena 3, Marriott	EDC Pathway Session: Elementary Science Discussions: The Art of Whole Group Talk (p. 109)
8:00–10:00 AM	E	Yerba Buena 6, Marriott	LHS Pathway Session: Looking at Student Work: Where to Focus/What to Do (p. 109)
8:00–11:00 AM	G	Yerba Buena 5, Marriott	WestEd Pathway Session: The TLC Is a PLC! (p. 110)
8:30–9:00 AM	G	113, Moscone Center	Strategies for Successful Team Teaching (p. 112)
8:30–10:00 AM	2–5	125, Moscone Center	Variation and Adaptation: Seeds of Science/Roots of Reading® (p. 113)
8:30–11:00 AM	5–8	130, Moscone Center	Using Science Notebooks with FOSS Middle School (p. 114)
9:00–9:50 AM	21	310, Moscone Center	NASA Participatory Exploration Science (p. 114)
9:30–10:30 AM	G	250, Moscone Center	Wikis, Blogs and Virtual Worlds: New Tools for Teaching Science (p. 120)
9:30–10:30 AM	ES	Yerba Buena 2, Marriott	BSCS Pathway Session: Science Teachers Learning from Lesson Analysis (STeLLA) (p. 121)
9:30–10:30 AM	G	113, Moscone Center	Reflections on SETI after 50 Years (p. 120)
9:30–10:30 AM	G	212, Moscone Center	Model-based Teaching, Learning, and Assessment in Science (p. 123)
9:30–10:30 AM	E	Union Square 14, Hilton	NARST Session: Bringing Local Science Into the Elementary Classroom With an Integrated Science Unit (p. 117)
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9:30–10:30 AM	C	Union Square 17/18, Hilt.	SCST Session: Developing College Students' Scientific Literacy and Understanding of the Nature of Science Through Climate Change Discussions (p. 117)
9:30–10:30 AM	G	Union Square 25, Hilton	ASTE Session: Hands-On Performance Assessment for K–12 Students: The Impetus for Inquiry in Our Classrooms (p. 118)
9:30–10:30 AM	Null	Union Square 17/18, Hilt.	SCST Session: The Thousand-Word Picture: Reframing STEM Standards, Outcomes, and Strategies for the 21st-Century Workplace (p. 117)
9:30–10:30 AM	M–H	Yerba Buena 15, Marriott	Intersections of Art, Writing, and Science (p. 122)
9:30–10:30 AM	G	262, Moscone Center	Claims and Evidence: It Doesn't Begin in Middle School (p. 120)
9:30–10:30 AM	E–M	Union Square 22, Hilton	English Learners Access Science (p. 117)
9:30–10:30 AM	G	200, Moscone Center	Keys to Increasing Student Success in Science and Math: Current Research and Recommendations for Change (p. 120)
9:30–10:30 AM	G	111, Moscone Center	Nanoparticles: Engaging Students with Hands-On Nanotechnology Laboratory Activities (p. 122)
9:30–10:30 AM	G	Union Square 21, Hilton	NSELA Session: Action Research for Science Teachers: Useful Tools for Starting a Rewarding Professional Learning Community (p. 117)
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9:30–10:30 AM	M	Continental 6, Hilton	Developing Projects That Win (p. 116)
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9:30–10:30 AM	M	Union Square 19/20, Hilt.	Earth as a System: Seasons and the Seas (p. 121)
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9:30–10:30 AM	M–H	Sierra J, Marriott	Science 2.0: Integrating Technology in the Science Classroom (p. 119)
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9:30–11:00 AM	G	232/234, Moscone Center	Technology + Science: Making IT Work (p. 123)
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12 Noon–1:15 PM	5–8	130, Moscone Center	Beyond the Classroom Walls with FOSS (p. 138)
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12 Noon–1:30 PM	K–8	301, Moscone Center	K–8 Science with Vernier (p. 139)
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12:30–1:30 PM	E	Yerba Buena 10, Marriott	ELL Pathway Session: Scaffolding English Language Learners' Experiences with Science Texts (p. 144)
12:30–1:30 PM	M	Yosemite B, Hilton	Using FREE Online Games to Teach Science Content and Inspire STEM Careers (p. 142)
12:30–1:30 PM	E–H	Union Square 25, Hilton	Celebrating Science (p. 142)
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12:30–1:30 PM	P–E	Golden Gate 4, Hilton	Effortless Phonics for the Young Scientist (p. 146)
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12:30–1:30 PM	G	113, Moscone Center	STEM: Specific Learning and Studying Strategies (p. 144)
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12:30–1:30 PM	G	111, Moscone Center	GUESS What? This Experiment Is "Sick"! (p. 148)
12:30–1:30 PM	G	112, Moscone Center	Diagnosing What Students Know Before Science Instruction (p. 148)
12:30–1:30 PM	E–H	262, Moscone Center	Make It "Smathy": Supporting Math Skills Through Your Science Instruction (p. 145)
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12:30–1:30 PM	M–H	Sierra I, Marriott	Take Your Class to the Poles (p. 144)
12:30–1:30 PM	M–H	Golden Gate C3, Marriott	CRASH Science! Saving Lives with STEM Lessons (p. 143)
12:30–1:30 PM	G	262, Moscone Center	Using Electronic Book Writing and Publishing to Integrate Math, Science, and Language Arts Instruction (p. 145)

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12:30–1:30 PM	E–H	Union Square 19/20, Hilt.	ELF: Environmental Literacy Framework with a Focus on Climate Change (p. 147)
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12:30–1:30 PM	H–C/S	Union Square 17/18, Hilt.	SCST Session: Aligning Assessment to Instruction: Group Testing in a Large Lecture Science Classroom (p. 141)
12:30–1:30 PM	G	Union Square 21, Hilton	NSELA Session: Examining Student Perceptions Toward Professional Development (p. 142)
12:30–1:30 PM	ES	Union Square 14, Hilton	NARST Session: Professional Development Ideas to Support Science Specialists and Elementary Generalists (p. 141)
12:30–1:30 PM	C	Yosemite C, Hilton	Integrating Literacy in a Team-taught STEM Course (p. 142)
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12:30–1:30 PM	S	Continental 3, Hilton	Mentoring for Success: Supporting the First-Year Science Teacher (p. 141)
12:30–1:30 PM	G	Sierra J, Marriott	Family Science Nights on Fire (p. 144)
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12:30–3:30 PM	G	Yerba Buena 5, Marriott	WestEd Pathway Session: Understanding the Conceptual Flow in Instructional Materials (p. 149)
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1:30–3:00 PM	6–8	304, Moscone Center	Hands-On Integrated Science Activities for Middle School (p. 152)
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2:00–3:00 PM	G	Continental 6, Hilton	Everything You Wanted to Know About Science Fairs But Were Afraid To Ask (p. 155)
2:00–3:00 PM	E–M	Yerba Buena 6, Marriott	LHS Pathway Session: Protocols for Observing Formative Assessment in the Classroom (p. 158)
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2:00–3:00 PM	G	Yerba Buena 7, Marriott	The Exploratorium Beginning Science Teacher Program (p. 158)
2:00–3:00 PM	E	Golden Gate 6, Hilton	Everyone Loves A.L.C.A.T.R.A.Z. (All Learners Crave Activities That Really Are exZilarating)! (p. 155)
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2:00–3:00 PM	H–C	Yosemite C, Hilton	Notebooking in High School and College Science (p. 160)
2:00–3:00 PM	H	Sierra I, Marriott	SLA's PLC: How Interdepartmental Observation and Self-Reflection Impact Student Achievement (p. 158)
2:00–3:00 PM	G	Continental 9, Hilton	NSTA Press Session: Planning and Designing Safe, Sustainable, and Flexible Facilities for Inquiry/Project-based Science (Science Facilities 101) (p. 160)
2:00–3:00 PM	E–M	Yosemite B, Hilton	World Perspectives: Using Technology to Provide a Glimpse of Our Dynamic Planet (p. 160)
2:00–3:00 PM	G	212, Moscone Center	Rethinking and "Greening" Classic Science Projects (p. 162)
2:00–3:00 PM	M–H	Sierra J, Marriott	Using Silent Movies in the Science Inquiry Classroom (p. 158)
2:00–3:00 PM	E–M	Union Square 19/20, Hilt.	From Wagons to Electric Cars: Design Technology Across the Curriculum (p. 160)

2:00–3:00 PM	MI	Golden Gate 8, Hilton	NSTA Press Session: Brain-powered Science: Teaching and Learning with Discrepant Events (p. 155)
2:00–3:00 PM	G	111, Moscone Center	Tablet PCs for Interactive STEM Teaching (p. 161)
2:00–3:00 PM	G	252/254, Moscone Center	How to Start an Awesome Engineering Program at Your School! (p. 159)
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2:00–3:00 PM	E–M	Yosemite A, Hilton	Teaching for Understanding: Lesson Study and Teaching Science (p. 156)
2:00–3:00 PM	MI	Union Square 14, Hilton	NARST Session: Policy That Makes a Difference in How to Effectively Support New Secondary Science Teachers (p. 156)
2:00–3:00 PM	G	Union Square 21, Hilton	NSELA Session: Improve Student Science Achievement with Standards-based Test Data (p. 156)
2:00–3:00 PM	C	Union Square 17/18, Hilt.	SCST Session: Interdisciplinary Student Projects with Interdisciplinary Groups (p. 156)
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2:00–3:00 PM	G	113, Moscone Center	NSTA Avenue Session: An Update on the Elementary and Secondary Act (No Child Left Behind) (p. 158)
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2:00–3:00 PM	P–E	Golden Gate 3, Hilton	Ten Science Investigations for Under $10 (p. 160)
2:00–3:00 PM	G	Union Square 22, Hilton	Leverage Your Science Community Through Science Festivals (p. 156)
2:00–3:00 PM	G	200, Moscone Center	SeaPerch and MITS: Formal and Informal Educators Inspire Students with Marine Engineering (p. 158)
2:00–3:00 PM	G	112, Moscone Center	Pairing Science Inquiry Lessons with "Active Reading" Activities (p. 161)
2:00–3:00 PM	G	Union Square 22, Hilton	Family Science Night—Involve the Entire Community! (p. 156)
2:00–3:15 PM	K–8	123, Moscone Center	Science Gnus: Science Inquiry Skills in the Stories of Famous and Not So Famous Scientists (p. 162)
2:00–3:15 PM	7–12	124, Moscone Center	Bring Your Science Lab into the 21st Century Using iNeo/SCI™ Virtual Science Solutions (p. 162)
2:00–3:30 PM	7–C	302, Moscone Center	Engineering with Vernier (p. 163)
2:00–4:00 PM	M–H	Yerba Buena 2, Marriott	BSCS Pathway Session: Amplifying Your Curriculum Through Argumentation (p. 163)
2:00–4:30 PM	5–8	130, Moscone Center	Chemical Interactions for Middle School (p. 163)
2:35–4:00 PM	5–9	310, Moscone Center	NASA Smart Skies: Investigating Motion with an Air Traffic Control Simulator (p. 164)
3:30–4:30 PM	M–H	Sierra I, Marriott	Incorporation of Ecological Engineering into Secondary Science Classrooms (p. 168)
3:30–4:30 PM	C/S	Continental 6, Hilton	The NSTA Learning Center: A Tool to Develop Preservice Teachers (p. 165)
3:30–4:30 PM	H	Union Square 5/6, Hilton	CSSS Session: Blended Learning Open Source Science or Math Studies (p. 166)
3:30–4:30 PM	E–H	Yerba Buena 12/13, Marr.	AMSE Session: Communicating Like Scientists: Reading Comprehension for English Language Learner Students (p. 171)
3:30–4:30 PM	M–H	Yerba Buena 4, Marriott	SEPUP Pathway Session: Integrating Sustainability-related Issues into the Science Classroom (p. 171)
3:30–4:30 PM	G	212, Moscone Center	Developing Critical Inquiry Thinking Through Effective Facilitation of Learning (p. 171)
3:30–4:30 PM	E–M	Continental 8, Hilton	Best Practices for Inclusive Science Instruction (p. 169)
3:30–4:30 PM	G	112, Moscone Center	Digging into Books: Botany and Children's Literature (p. 171)
3:30–4:30 PM	C	Yosemite C, Hilton	An Online Assessment Tool for Preservice Early Childhood and Elementary Students (p. 167)
3:30–4:30 PM	E	228/230, Moscone Center	Independent Investigations for Young Scientists (p. 172)
3:30–4:30 PM	I	113, Moscone Center	Ecological Investigation of Mount Kilimanjaro (p. 168)
3:30–4:30 PM	M–H	Yerba Buena 15, Marriott	Making Global Connections: Linking Science and Social Studies in Middle and High School Classrooms (p. 171)
3:30–4:30 PM	M	Union Square 15/16, Hilt.	Science Simulations in Multilevel Assessment Systems (p. 170)
3:30–4:30 PM	M–H	Golden Gate 2, Hilton	Signed with a Kiss: Guiding Students Through the Lab Report Writing Process (p. 166)
3:30–4:30 PM	E	Golden Gate 3, Hilton	Connecting Science and Math (p. 169)
3:30–4:30 PM	H	Sierra J, Marriott	Let Your Kids Pause and Rewind You! (p. 168)

3:30–4:30 PM	I	252/254, Moscone Center	Overcoming Content Knowledge Barriers to Teaching K–8 Science Through Informal Learning Using New Media Technologies (p. 169)
3:30–4:30 PM	C	Union Square 17/18, Hilt.	SCST Session: Assessing the Benefits and Failures of Student, Peer, and Self-Evaluations (p. 167)
3:30–4:30 PM	G	Continental 5, Hilton	Is This Your First NSTA Conference? (p. 165)
3:30–4:30 PM	G	Golden Gate 8, Hilton	CESI Session: Buzzing About Science: Behind the Scene with Scientific Trade Books That Invite Inquiry (p. 166)
3:30–4:30 PM	MS	Union Square 21, Hilton	NSELA Session: Leaders in Middle School Science Professional Development: One District's Journey (p. 167)
3:30–4:30 PM	G	Union Square 22, Hilton	UFOs, Crime Scenes, Mysteries, and More…It's Family Science Night! (p. 167)
3:30–4:30 PM	E	Golden Gate 4, Hilton	Creating Eager Scientists Through School Science Clubs (p. 169)
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3:30–4:30 PM	M	Continental 7, Hilton	Differentiating Science Projects Through Cross-curricular Instruction (p. 169)
3:30–4:30 PM	M–C	111, Moscone Center	Modeling and Systems Thinking Through Bioenergy Life Cycle Assessments (p. 171)
3:30–4:30 PM	G	Union Square 23/24, Hilt.	NMLSTA Session: The Basics of Grant Writing (p. 170)
3:30–4:30 PM	G	Yosemite A, Hilton	Sustainable Context for Science Content (p. 167)
3:30–4:30 PM	Null	220/222, Moscone Center	ART/Science (p. 168)
3:30–4:30 PM	G	252/254, Moscone Center	Learning and Teaching Through Collaborative Video-Conferencing (p. 169)
3:30–4:30 PM	M–H	Willow, Marriott	Climate Change Education (p. 171)
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3:30–5:00 PM	G	Continental 9, Hilton	NSTA Press Session: The Architects Have Started Without Me: What Do I Do Now? (Science Facilities 102) (p. 172)
3:30–5:00 PM	S	232/234, Moscone Center	Google Me This—How to Make Collaboration Work in a Wiki World (p. 172)
3:30–5:00 PM	K–5	236/238, Moscone Center	Teaching Inquiry and the Nature of Science in Elementary Classrooms (p. 173)
3:30–5:00 PM	5–8	307, Moscone Center	Supporting Grades 5–8 Students in Constructing Explanations in Science: The Claim, Evidence, and Reasoning Framework for Talk and Writing (p. 174)
3:30–5:00 PM	K–6	270/272, Moscone Center	Paint It RED! Using Technology to Teach Elementary Science (p. 174)
3:30–5:00 PM	K–8	303, Moscone Center	I See What You Mean! Developing Visual Literacy (p. 174)
3:30–5:00 PM	5–12	134, Moscone Center	Exploring the OHAUS Triple Beam Balance Through Educational Software (p. 173)
3:30–5:00 PM	K–12	206, Moscone Center	What's the Connection—Louisiana, Florida, Oregon, and Indiana? (p. 173)
3:30–5:30 PM	E–M	Yerba Buena 6, Marriott	LHS Pathway Session: Supporting Teachers Implementing Formative Assessment Practices (p. 176)
3:30–5:30 PM	E	Yerba Buena 3, Marriott	EDC Pathway Session: Expository Writing and Science Notebooks (p. 176)
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4:00–5:30 PM	9–12	132, Moscone Center	Renewable Energy Exploration: Solar and Wind Power (p. 177)
4:05–4:55 PM	5–12	309, Moscone Center	Feel the Heat (p. 178)
4:30–5:30 PM	K–8	122, Moscone Center	Flexible Instruction for the 21st-Century Student: The Inquiry Approach to Differentiation (p. 178)
5:00–6:00 PM	G	Yerba Buena 12/13, Marr.	AMSE Session: Closing the Achievement Gap—African-American Males: A Success Story (p. 179)
5:00–6:00 PM	G	Yosemite C, Hilton	The California Science Project Teacher Retention Initiative: Scientists and Teachers Together (p. 179)
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5:00–6:00 PM	E–M	Union Square 19/20, Hilt.	It's Elementary! Using the Four-Question Strategy to Design Experiments (p. 180)
5:00–6:00 PM	G	Union Square 17/18, Hilt.	SCST Session: Assessing Learning Outcomes of Technology in Large Lecture Introductory Science Courses: Will We Ever Find Something That Works? (p. 179)
5:00–6:00 PM	H–C	Union Square 17/18, Hilt.	SCST Session: Goldilocks Figured It Out: Finding the Amount of Classroom Inquiry That Is "Just Right" (p. 179)
5:00–6:00 PM	E–H	Union Square 22, Hilton	Making Science Music Videos (p. 179)

6:00 PM–12 Mid	G	Yosemite A, Hilton	A Video Showcase of Legendary Icons, Inspiring Teachers, Memorable Performances, and Stimulating, Engaging Courses: Part 1 (p. 181)
7:00–9:00 PM	41	Yerba Buena 8, Marriott	ReallyEasyData Launch Party (p. 180)

Physics/Physical Science

7:30–9:00 AM	9–C	274/276, Moscone Center	Put Me in Coach! The Physics of Baseball (p. 97)
7:30–9:00 AM	6–11	270/272, Moscone Center	Paint It RED! Using Technology to Teach Physical Science (p. 97)
8:00–9:00 AM	G	Yerba Buena 12/13, Marr.	AMSE Session: Strategies and Resources: Enhancing the Learning of Students from Underrepresented Groups in the Sciences (p. 106)
8:00–9:00 AM	H	Yerba Buena 15, Marriott	Catapulting into Physics (p. 106)
8:00–9:00 AM	M–H	Yerba Buena 14, Marriott	Stop at This Station (and Think)! (p. 106)
8:00–9:00 AM	E	Golden Gate 3, Hilton	IMP(rove) YOUR RIDE! Redesigning Homemade Cars to Include Lights and Horns (p. 104)
8:00–9:00 AM	E–M	Union Square 23/24, Hilt.	NMLSTA Session: Inquiry on the Cheap (p. 105)
8:00–9:00 AM	M	Union Square 15/16, Hilt.	Bike Gears: It's All in the Teeth (p. 105)
8:40–9:30 AM	9–12	309, Moscone Center	Learning Through Engineering Design Challenges (p. 114)
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10:00–11:30 AM	9–12	133, Moscone Center	AP Physics: Momentum and Impulse (p. 128)
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10:00–11:50 AM	K–8	310, Moscone Center	Problem-based Instruction Units for Physical Science (p. 130)
10:20–11:10 AM	5–8	309, Moscone Center	Mass vs. Weight (p. 130)
11:20 AM–12:10 PM	K–12	309, Moscone Center	Rocketry (p. 134)
11:30 AM–1:00 PM	9–12	307, Moscone Center	Increasing Physics Enrollments (p. 137)
12 Noon–1:30 PM	5–12	131, Moscone Center	Real-Time Displacement, Velocity, and Acceleration Measurements with CPO's Velocity Sensor (p. 138)
12:30–1:30 PM	I	Yerba Buena 14, Marr.	Science Doesn't Suck, It Blows! (p. 148)
12:30–1:30 PM	E–M	Union Square 15/16, Hilt.	Elastic Power: Wind Up Your Engines and Explore (p. 146)
12:30–1:30 PM	M–H	Golden Gate A, Marriott	ZAP! It's Electrifying! (p. 142)
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2:00–3:00 PM	M–H	Yerba Buena 12/13, Marr.	AMSE Session: Hands-On Optics and Photonics Activities (p. 161)
2:00–3:00 PM	E–M	Union Square 15/16, Hilt.	Close Enough: Playing with Light for Hands-on Thinking (p. 156)
2:00–3:00 PM	G	Yerba Buena 14, Marriott	Professional Development, Inquiry, and Student Learning (p. 161)
2:00–3:00 PM	P	Golden Gate 4, Hilton	Newton's Laws for Preschoolers...Who Knew?! (p. 160)
2:00–3:00 PM	M–C	Golden Gate A, Marriott	The 50 Best Physics Demos to Do Before You Die (p. 156)
2:00–3:30 PM	5–12	131, Moscone Center	Harmonic Motion and Hooke's Law with CPO's Springs and Swings (p. 162)
2:05–3:55 PM	41	309, Moscone Center	Balloon Satellite Challenge (p. 163)
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3:30–5:00 PM	3–8	110, Moscone Center	Exploring Potential and Kinetic Energy Through Guided Inquiry (p. 173)
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4:00–5:30 PM	5–12	131, Moscone Center	Charles' Law and Boyle's Law Uncovered with CPO's Gas Laws Kit (p. 177)
4:00–5:30 PM	K–5	256, Moscone Center	A World In Motion®: JetToy Challenge (p. 177)

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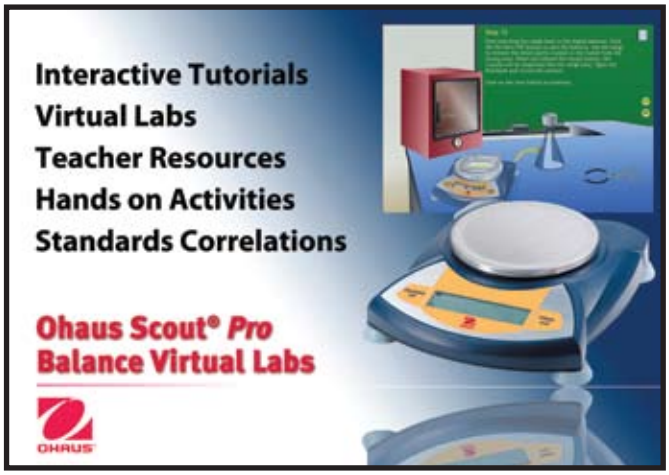

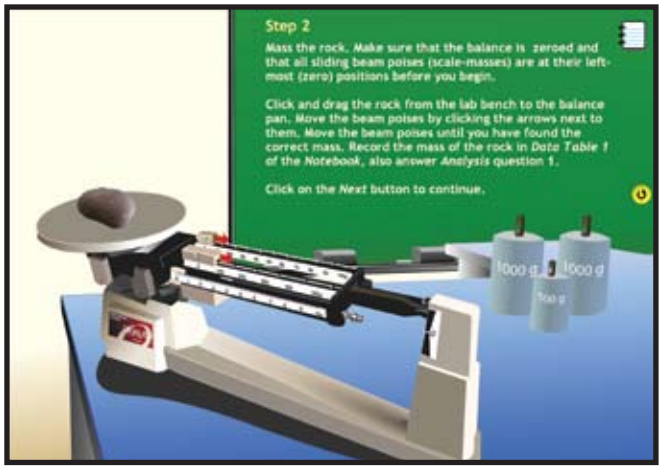

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