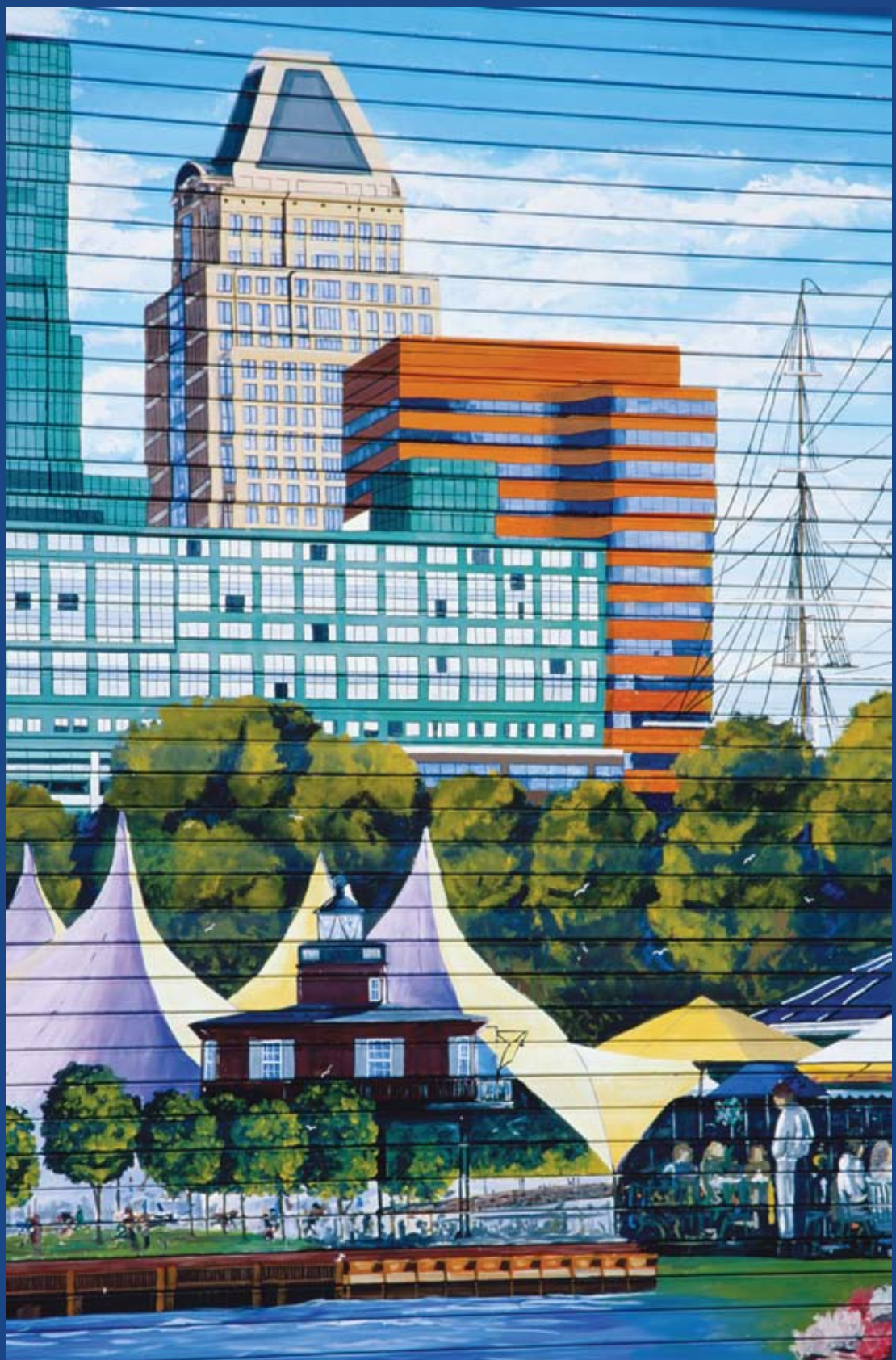
Charting the Course to Excellence

BALTIMORE



NSTA 2010 Area Conference on Science Education

National Science Teachers Association

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12:00 – 1:30 P.M.	DEVELOPING 21ST-CENTURY MINDS WITH VERNIER
2:00 – 3:30 P.M.	DEVELOPING 21ST-CENTURY MINDS WITH VERNIER

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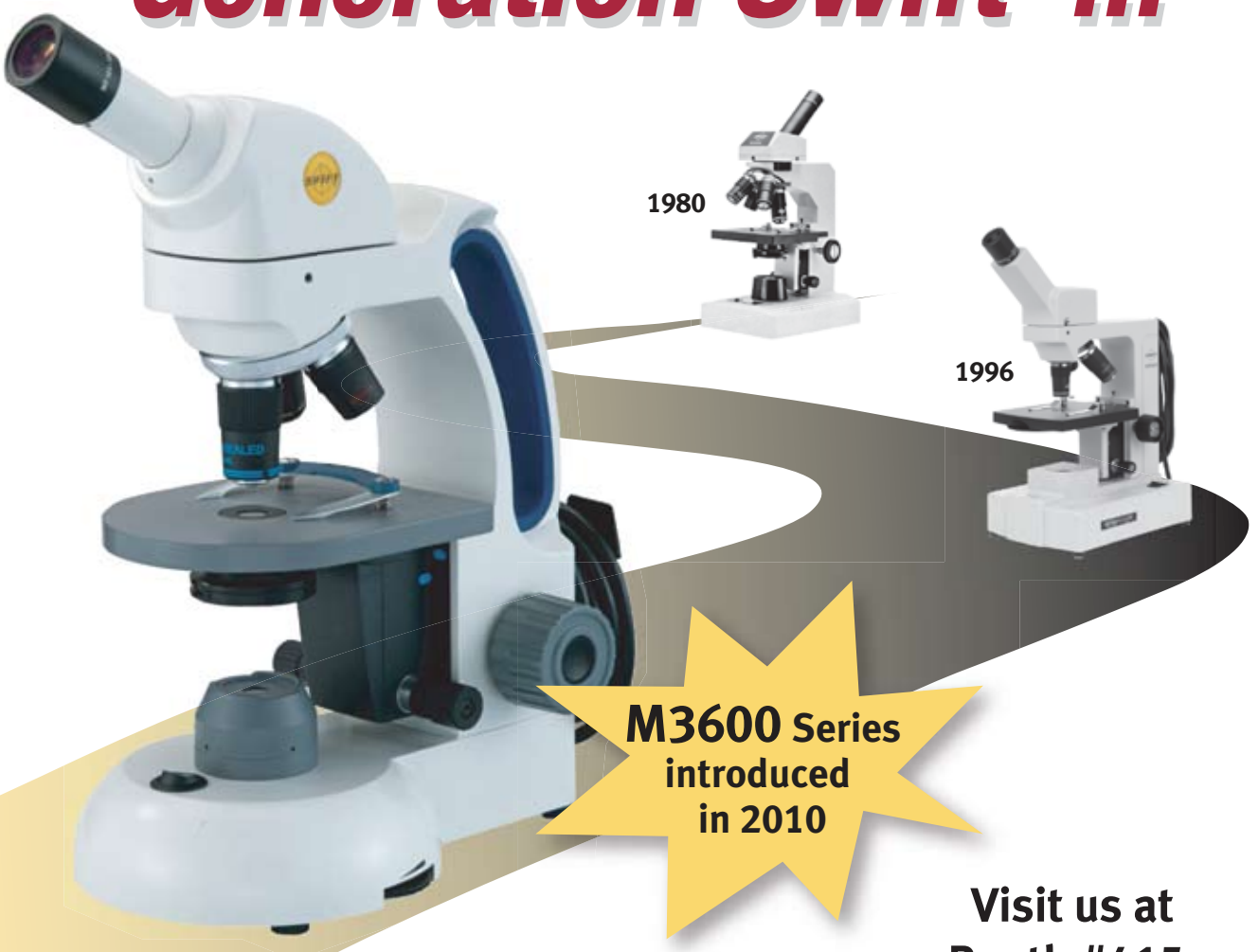

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NSTA 2010 Area Conference on Science Education

Baltimore, Maryland • November 11–13, 2010

Registration, Travel, and Hotels

Conference Resources

Conference Resources, cont.

Conference Program

Indexes

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

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Richard Cummins/Lonely Planet Images

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)
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Welcome to Baltimore

Mary Weller

Beth McCook

Ron Hermann

On behalf of the Baltimore Conference Planning Committee, we are delighted to welcome you to Maryland for a most extraordinary NSTA conference. Your visit to Baltimore, located in the heart of the mid-Atlantic, promises numerous historical, cultural, and scientific discoveries. Fort McHenry, site of the Battle of Baltimore and Francis Scott Key's inspiration for the "Star Spangled Banner;" the American Visionary Art Museum; and the National Aquarium are easily accessed from the conference hotels. Additionally, you are sure to enjoy many culinary delights when you visit some of Maryland's most storied restaurants at the Inner Harbor where Maryland crab cakes are always in season.

Whether this is your first or fiftieth NSTA conference, you will find opportunities for professional growth that are second to none. The Conference Committee has planned a wide array of sessions, field trips, meetings, and presentations that are designed to offer you some of the latest information in science education research and practice. These experiences, coupled with innumerable networking opportunities, promise to provide you a firm foundation for renewed professional growth.

So, welcome to Baltimore. Together we continue "Charting the Course to Excellence" in science education for all students.

2010 Baltimore Conference Committee Leaders
Mary Weller, Beth McCook, and Ron Hermann

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

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Baltimore Conference Committee

Program Committee

Strand Leader: Teaching Science in the 21st-Century Classroom
Deborah Batzer
Howard County Public School System
Ellicott City, MD

Strand Leader: Building Tomorrow's Workforce: Science, Technology, Engineering, and Mathematics (STEM)
Francis (Frank) J. Cardo
Cecil County Public Schools
Elkton, MD

Strand Leader: Embracing the World from Our Own Backyard: Environmental Education
Carol Lancaster
Baltimore County Public Schools
Baltimore, MD

District III Representative
Gloria Allen
Plummer Elementary School
Washington, D.C.

Program Representative
Mary Gloster
Patuxent High School
Lusby, MD

Local Arrangements Committee

Exhibits Liaison
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Taylor Science Materials Center
Boyds, MD

Field Trips Manager
Abby Bookhultz
Prince George's County Public Schools
Capitol Heights, MD

Guides Manager
Ella Jay Parfiff
Friendship Academy of Science & Technology
Baltimore, MD

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Rommel Miranda
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Publicity Manager
Elena S. Takaki
Maryland Dept. of Natural Resources
Annapolis, MD

Volunteers Manager
Lois Waters
Morgan State University
Baltimore, MD

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

President's Welcome

More Than Just Learning—Imagine, Invent, and Create Great Science Education!

Welcome to the Baltimore Area Conference on Science Education. I believe your experiences here will immerse you in the passion of my presidential theme: *Imagine and Invent: Create a Great Future*. Imagine your personal involvement in learning new and exciting approaches to teaching. Invent ways to adapt the treasures you will find in our exhibit hall, workshops, and in sharing with colleagues at social events. Create a better world of science education for yourself and your students. In these tough economic times, it can be tempting to be discouraged, but we have fashioned a program that will rekindle your spirit and send you back to your workplace refreshed and eager to innovate.

The conference theme—*Charting the Course to Excellence*—reflects our focus on how science can positively prepare for a seemingly scary and ominous tomorrow. Science provides the motivation, activating attitudes and producing dependable skills and essential understandings for coping with practical problems, new challenges, and career development. In the future, every person will need to apply at least some of the skills of science.

The theme is bolstered by strands of highly engaging sessions:

- *Teaching Science in the 21st-Century Classroom.* Find new ways to use assessment to improve student motivation and learning. Help students harness high-tech means to collect and analyze data, forming deeply understood scientific conceptualizations. Be sure to catch Lynne Schrum's featured presentation "Visualizing the Possible: Science Teaching and Learning in the Age of Web 2.0."
- *Embracing the World from Our Own Backyard.* Learn to think green and teach green. Tap into adventures in environmental education in your school's vicinity—school yards, vacant lots, and parks can be treasure troves of ecological concepts. You especially should attend our green-oriented feature presentations: "Wild Patterson Park: Discovering Nature's Treasures in Baltimore's Best Backyard" by Middleton Evans and "No Child Left Inside: Systemic Boost for Hands-On Science" by Don Baugh.
- *Building Tomorrow's Workforce: Science, Technology, Engineering, and Mathematics (STEM).* Creativity is not just for professional inventors and artists—everyone needs to innovate in many ways to cope with life's everyday problems. Future occupations will require interacting skills from science, technology, engineering, and mathematics with emphasis on problem-solving processes. Check out our featured presentation by Kent Pankratz "Where Dreams Really Do Become Reality: DARPA and the Future Workplace."

Join us—imagine, invent, and create superb science education for all! I look forward to innovating with you.

Alan J. McCormack
2010–2011 NSTA President

Contributors to the Baltimore Conference

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

American Association of Physics Teachers and the Chesapeake Section of AAPT
American Chemical Society
American Chemical Society, Education Division
Carolina Biological Supply Co.
Kendall Hunt Publishing Co.
Maryland Association of Science Teachers
National Association of Biology Teachers (NABT)
Sargent-Welch ~ Science Kit ~ WARD'S Natural Science

Special thanks to the *Journal of Chemical Education* for providing the e-mail stations for this conference.

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

Accessible, Informative, and Affordable!

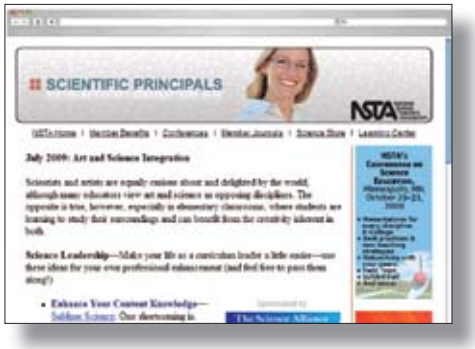
NSTA's free electronic publications will help you build your educational portfolio and keep you up-to-date on issues, events, science topics, teaching resources, and special offers.

NSTA Express (weekly)

Delivers the latest news, events, classes, seminars, and NSTA happenings.

Science Class (monthly)

With separate editions for elementary, middle, and high school teachers, theme-based content that is supported with pertinent resource suggestions.



NSTA Scientific Principals (monthly)

Exclusively for elementary school principals and based on typical themes found in elementary science curricula, each issue offers a science toolbox full of new ideas and practical applications.

NSTA Book Beat (monthly)

Our newest electronic publication is aimed to keep NSTA Press readers and the wider audience of science teachers informed on the latest books and teacher resources. Each issue highlights selected topics in science education, with links to free sample chapters and lessons.

Sign up today using promo code ENEWS to enter a raffle for an iPod Touch!

www.nsta.org/publications/enewsletters.aspx

National Science Teachers Association

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 printing and shipping requirements.

Recycled Paper and Sustainable Print Services

The conference program is printed on recycled paper. In addition, our printer Goodway Graphics is FSC certified and offers a variety of recycled and post-consumer recycled products. Goodway Graphics receives energy credits from Dominion Virginia Power and recycles wherever possible. Goodway also uses soy-based inks and, whenever possible, low-VOC chemicals.

Green Initiatives at The Baltimore Convention Center

The Baltimore Convention Center is committed to supporting "green initiatives" both at the center and throughout the community!

- **Energy.** The center recycles paper, plastic, bottles, and cans, and meeting room tables are made from 30% recycled products. Exterior glass and skylights allow for the use of natural light to reduce electricity cost and photo sensors in the public lobbies reduce the need of artificial light. Lighting and motion sensors in meeting rooms also reduce the need of artificial light.
- **Catering.** China service is used to help reduce waste and reusable service equipment is used on buffets and break stations. Centerplate's sustainable preferential purchasing system increases support of local farmers and the community, and their "Farm-to-Table" program buys locally, whenever possible. Coffee stirrers along with beverage cups and sleeves are made of recycled materials, all of which are biodegradable, and plates, spoons, forks, and knives are made of recycled plastics.
- **Waste Reduction.** The Solid Waste Reduction System, SOMAT, reduces solid catering waste by 90% and transforms reduced solid waste into a soil amendment product that is used for the upkeep of the grounds and flower beds. An active ion system is currently used for hard, solid surfaces. This system transforms tap water into a product that cleans 99.9% of bacteria. The center uses 60–65% Green Seal Eco-friendly–certified cleaning chemicals.

Eco-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.

"Go Green" at the Baltimore Conference!

- Recycle your conference programs in the clearly marked recycle bins located throughout the Convention Center.
- Recycle or reuse 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 NSTA Communities, the NSTA online professional learning community.
- Session evaluations will now be completed online.

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8:00 - 9:00 A.M.	Discovery-based Physics with SPARKscience Science: Harmonic Motion
9:30 - 10:30 A.M.	Discovery-based Biology with SPARKscience: Measuring Reaction Time to a Visual Stimulus, a Guided Inquiry Approach
11:00 - 12:00 P.M.	Discovery-based Chemistry with SPARKscience: Chemical Reactions
1:00 - 2:00 P.M.	Discovery-based Middle School Science: Sally Ride Science & SPARKscience
2:30 - 4:00 P.M.	Renewable Energy Exploration – Solar, Wind, and Hydrogen Fuel Cells

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Meeting Location and Times

The conference headquarters hotel is the Hilton Baltimore. Conference registration, the exhibits, NSTA Avenue, the NSTA Science Bookstore, and most sessions will be located at The Baltimore Convention Center. Additional sessions and events will be held at the Hilton. The conference will begin on Thursday, November 11, at 8:00 AM, and end on Saturday, November 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 those for which a separate fee is stated (e.g., NSTA symposia, short courses, field trips, and social events).

The NSTA Registration Area located in Hall E of the Convention Center will be open during the following hours:

Wed., Nov. 10	5:00–7:00 PM
Thu., Nov. 11	7:00 AM–5:00 PM
Fri., Nov. 12	7:00 AM–5:00 PM
Sat., Nov. 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 Baltimore Planning Committee has scheduled a variety of ticketed events. Each of these events requires a separate fee and ticket. You may purchase tickets for these events, space permitting, in the NSTA Registration Area. See the Conference Program section (starting on page 26) for details. Note that some events may have required advance registration.

Airlines

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

AirTran	866-683-8368	NSTA10*
American	800-433-1790	5210TT
Continental	800-468-7022	C7XLNFS and Z Code ZGE4
United	800-521-4041	510CK
Amtrak Rail	800-872-7245	X46D-908

**For phone reservations only*

Ground Transportation to/from Airport

A variety of ground transportation options are available to and from BWI Thurgood Marshall Airport. SuperShuttle to and from the Inner Harbor hotels is approximately $13 each way or $24 round-trip. Please proceed to one of the two BWI Shuttle ticket counters—both located on the lower level baggage claim area. Average taxi fare to downtown Baltimore is $20–25.

Getting Around Town

You'll find that many of Baltimore's hotels, attractions, restaurants, and nightlife are located within comfortable walking distance of each other. If you prefer not to walk, the Maryland Transit Administration (MTA) operates local bus routes, Metro Subway, and Light Rail. Call the MTA at 410-539-5000 or visit *mta.maryland.gov* for more information about MARC and other services.

Fast, frequent and free … that's the trademark of downtown Baltimore's new shuttle bus system—the Charm City Circulator. The free shuttles run every 10 minutes from early morning to late night, seven days a week.

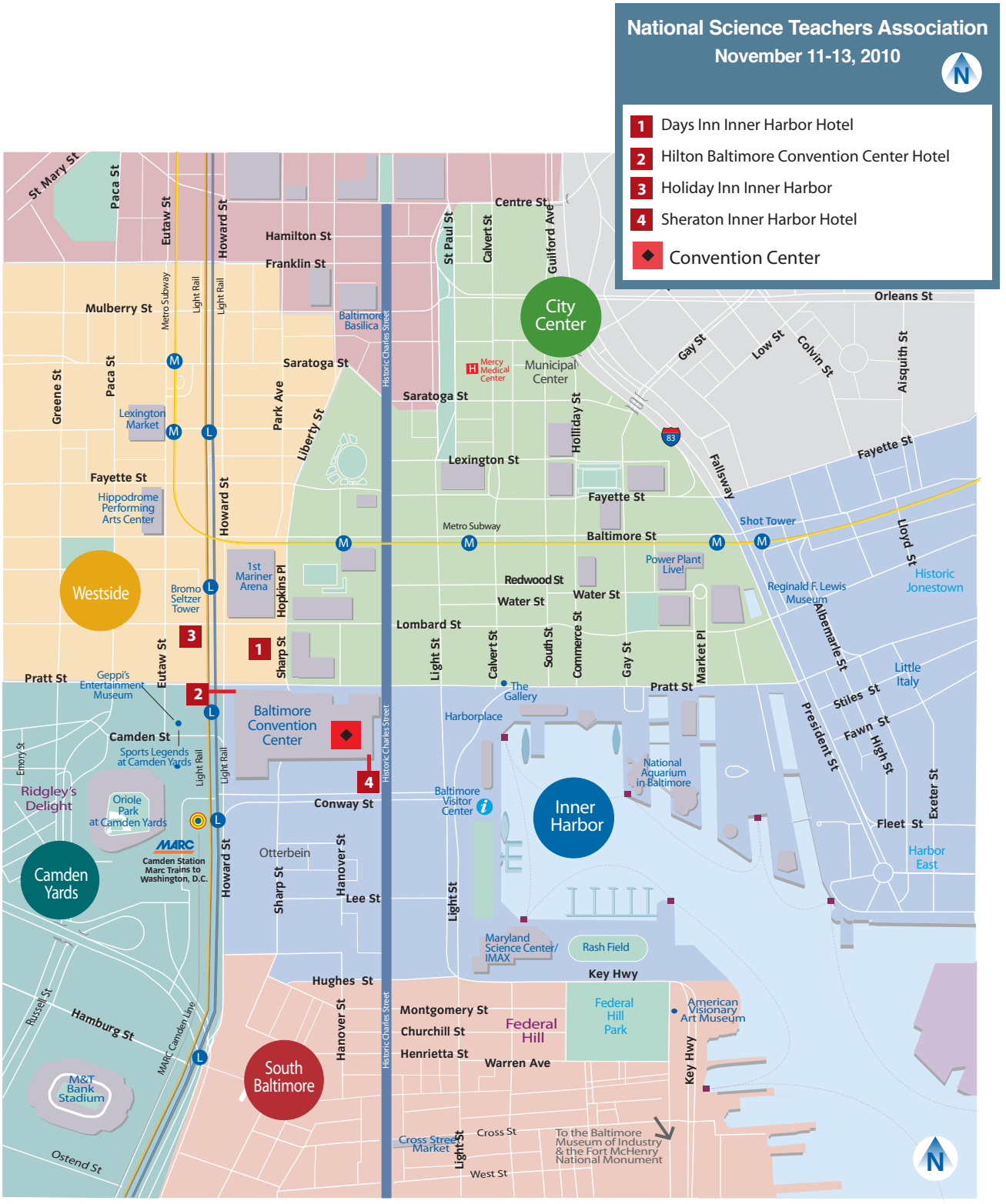
Parking

There are a number of parking lots at Camden Yards (across the street from the Convention Center). The closest lots are North and East Warehouse Lots, followed by Lot A. Parking in these lots is $4 for the first hour, $8 for the second hour, and $12 for the third hour (24-hour max). See map at *www.nsta.org/baltimoretravel.*

Discounted Rental Cars

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

Enterprise	800-593-0505	32H7476
Hertz	800-433-1790	CV#031C0015



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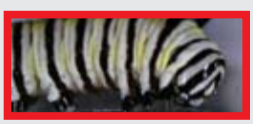

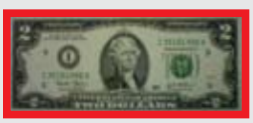

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Specimen images taken with the kena by Leslie Carisle of St. Gabriel School, Kansas City, MO.

Don't forget to visit the newly redesigned NSTA Science Bookstore. We offer a wide range of books as well as "Science Matters' and "I Love Science" NSTA Gear product lines.

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 starts on page 125. A foldout map of the Exhibit Hall floor plan is available at Program Pickup.

Exhibit Hall Hours. Located in Hall E of the Convention Center, exhibits will be open for viewing during the following hours:

Thu., Nov. 11	11:00 AM–5:00 PM
Fri., Nov. 12	9:00 AM–5:00 PM
Sat., Nov. 13	9:00 AM–12 Noon

Ribbon Cutting. An opening ceremony is scheduled on Thursday at 11:00 AM in the Pratt Street Lobby of the Convention Center.

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 booths. With the leads retrieval system, an exhibitor scans your badge as you visit the booth. This allows exhibitors to send information to you while the conference is still fresh in your mind.

Exhibitor Workshops. Exhibitor-sponsored workshops for science teachers are offered throughout the conference. These workshops give you an opportunity to use a variety of commercial instructional materials. Attendance is on a first-come, first-served basis. See page 138 for a complete listing of exhibitor workshops.

NSTA Avenue

Stop by NSTA Avenue and learn about NSTA's benefits, products and services, and programs and partners…all created for you! Share with others, expand your knowledge, and earn rewards for you and your students. See page 133 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 fall titles: *Developing Visual Literacy in Science K–8; Predict, Observe, Explain: Activities Enhancing Scientific Understanding;* Rodger Bybee's *The Teaching of Science: 21st Century Perspectives;* and many more. Meet NSTA Press® authors and have your books signed.

The Science Bookstore is located in the NSTA Registration Area. 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.

Welcome and Information Center

A Welcome and Information Center is located at the Program Pickup Kiosk. Here you'll find information on conference activities, tourist attractions, transportation, and program changes. The center will be staffed during registration hours.

MAST Booth

The **Maryland Association of Science Teachers (MAST)** booth is located in the NSTA Registration Area. Stop by for information about Maryland and the benefits of becoming a member of MAST. Membership forms and information on association activities will be available, along with registration forms for graduate credit through

Graduate Credit Opportunity

Baltimore conference attendees can earn one graduate-level credit in professional development through Framingham State University. Learn more about the assignment requirements and pick up a registration form at the Maryland Association of Science Teachers (MAST) booth, located in the NSTA Registration Area, or visit *www.nsta.org/baltimoreresources.* Registration will be available on Wednesday, November 10, from 5:00 PM to 7:00 PM, and Thursday, November 11, from 7:00 AM to 4:00 PM.

Framingham State University. Stop by the booth to update your information, renew your membership, or become a member and enter in our drawing for prizes. Find out what is happening in science education in Maryland!

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/2010bal/conference_evaluation.asp*.

Lost and Found

All lost-and-found items will be turned in at the NSTA Exhibitor Registration counter in the Pratt Street Lobby of the Convention Center.

Audiovisual Needs

NSTA will fulfill AV needs originally requested on the program proposals as long as the request is within the limits of equipment that NSTA provides (an LCD projector and screen). For any last-minute AV needs, presenters must arrange and pay for their own equipment. Technology Express, the designated AV company on-site, will be located in the following rooms:

- Room 335, Convention Center
- Pickersgill Room, Hilton

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.

First Aid Services

The First Aid room is located behind Hall A near the Security Office. For emergencies, contact Security at x7055 from an in-house phone, or 410-649-7055.

Business Services

Operated by ABC Imaging, the Business Center is located in the Pratt Street Lobby (300 Level) of the Convention Center. The Business Center (410-649-7194) is available to serve your business needs. Hours are 8:30 AM–4:30 PM Thursday and Friday, and 9:00 AM–2:00 PM on Saturday. Services include photocopies and laser prints (color and black/white), faxes, PC rentals, network connections to both ABC printers and the internet, office supply sales (pens, tape, glue, batteries, etc.), and shipping services with DHL, UPS, and FedEx. ABC Imaging has a full-production print shop located at 400 E. Pratt Street (three blocks down from the Convention Center). The shop is equipped to handle all of your large and small color graphic, binding, and mounting needs.

NEW! Online Session Evaluations and Tracking Professional Development

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

Help NSTA's **GREEN** efforts by completing session evaluations online from November 11 to December 1, 2010, 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.

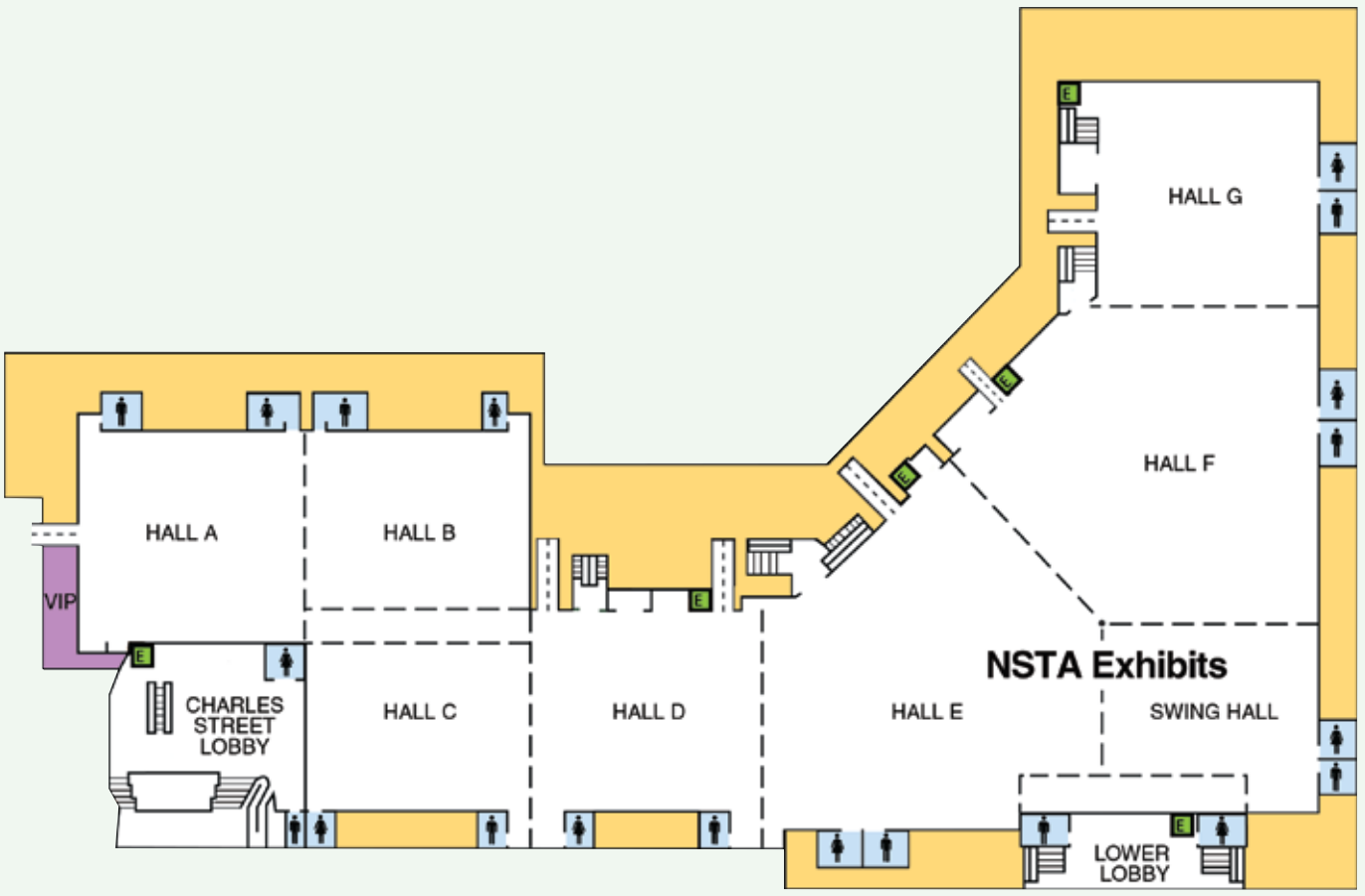
Concurrent session presenters may also complete evaluation forms for their own sessions in order to track professional development credit.

A Professional Development Documentation Form is included following page 44 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 December 7, 2010, 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., field trips, NSTA symposia, short courses, Exhibit Hall visits, featured speakers, and meetings). 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.

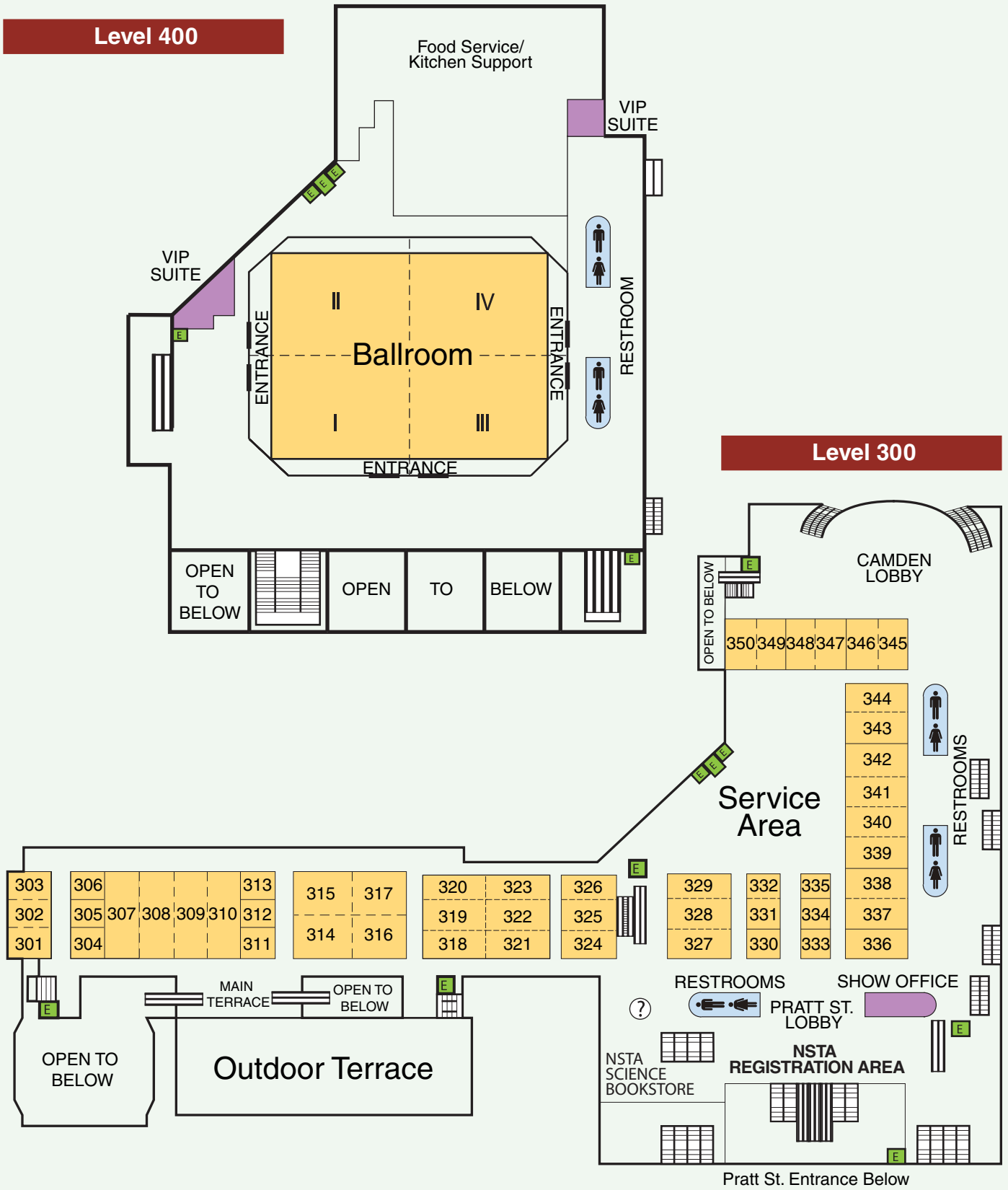
The Baltimore Convention Center

Level 100



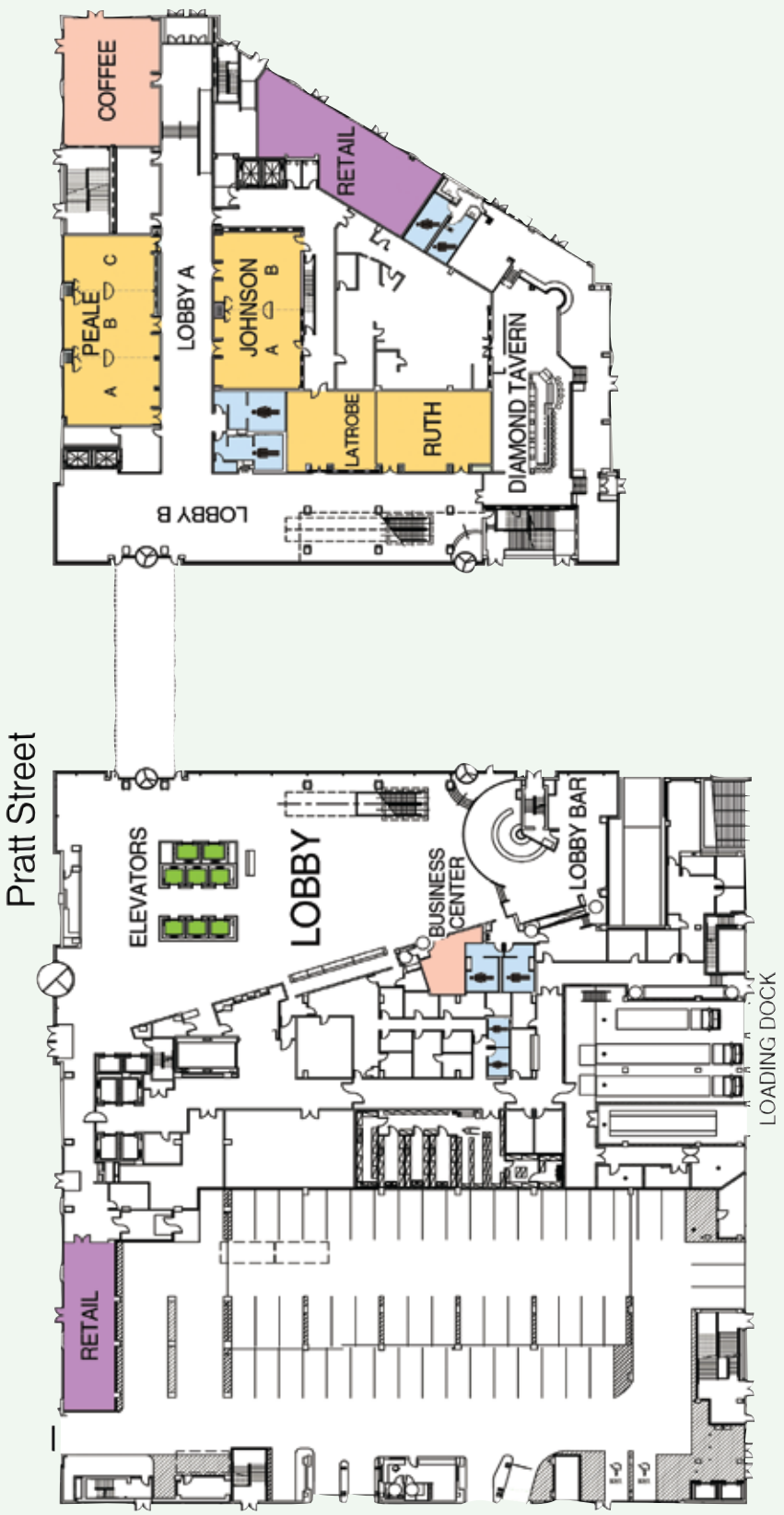
The Baltimore Convention Center

Level 300 and Level 400



Hilton Baltimore

First Floor



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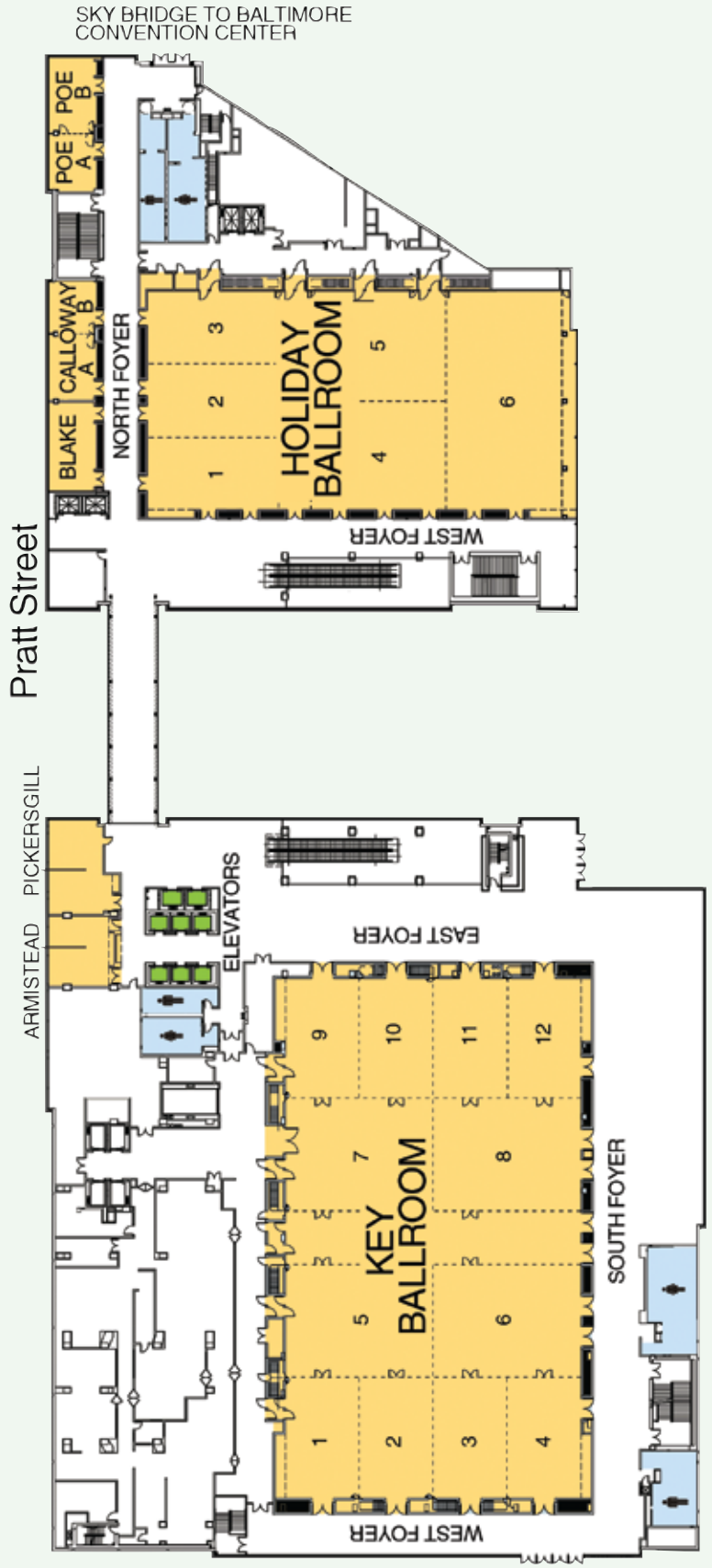
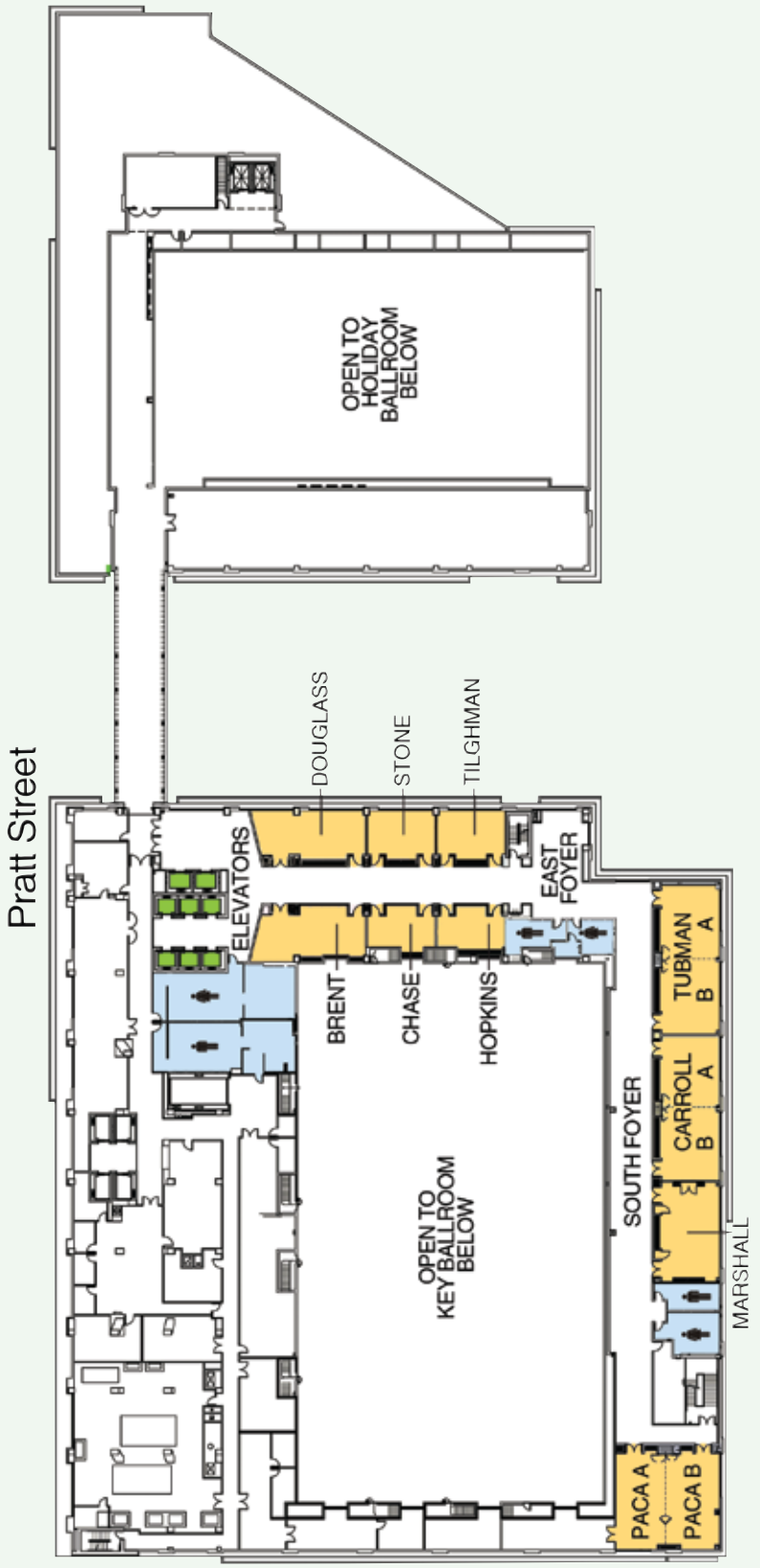
Second Floor



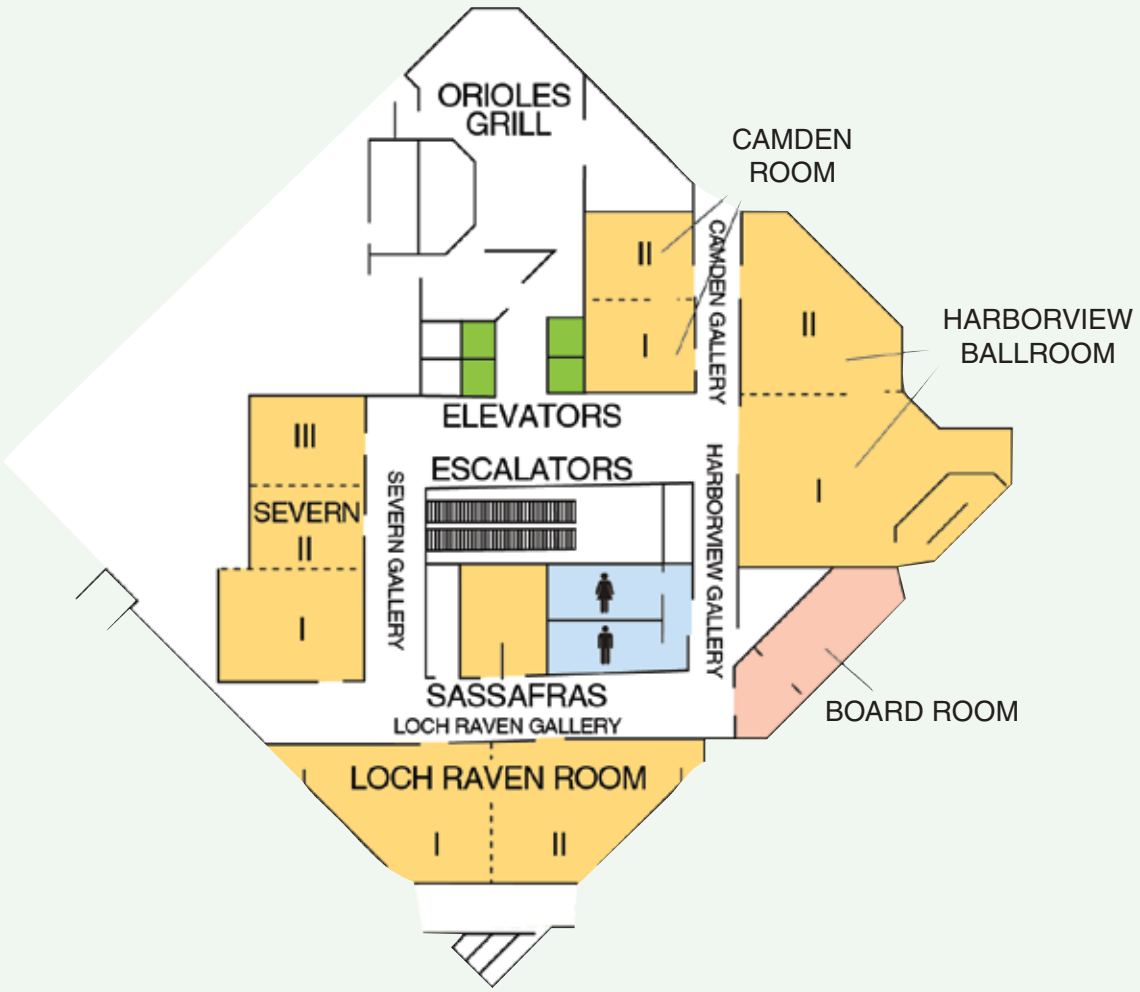
Hilton Baltimore

Third Floor



Sheraton Inner Harbor Hotel

Second Level



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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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Connie Russell, SCST

All cities are subject to change pending final negotiation.

National Conferences on Science Education

San Francisco, California
March 10–13, 2011

Indianapolis, Indiana
March 29–April 1, 2012

San Antonio, Texas
April 11–14, 2013

Area Conferences on Science Education

2010 Area Conference

Nashville, Tennessee
December 2–4

2011 Area Conferences

Hartford, Connecticut
October 27–29

New Orleans, Louisiana
November 10–12

Seattle, Washington
December 8–10

2011 National Conference on Science Education

Your International Gateway to STEM Education




San Francisco, CA • March 10–13, 2011

Celebrating the Joy of Science: Imagine and Create

Professional Development Strands:

- 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

Featured Speakers:

- Safety expert, **Dr. Ken Roy,** will discuss How to Cure Safety Stress and Legal Sweats.
- **Art Sussman,** author and star of *Dr. Art's Planet Earth Show* will provide an entertaining way to teach and learn key principles that explain how our planet works.

Register by January 14 and save!

Professional Development Institutes

Pre-conference (Wed. March 9), full day, comprehensive learning sessions on the most critical issues in education. Formatted for both small and full-group work and discussion, topics include ELL, Formative Assessment, Inquiry-based Classroom, Designing Effective Science Instruction and more. Most include follow-on Pathway sessions for deeper understanding.

Visit *www.nsta.org* for information or to register.

NSTA National Science Teachers Association

Is This Your First NSTA Conference?

Yes, you say? Then you are invited to attend a special session on Thursday, 8:00–9:00 AM. Learn how you can gain the most from your conference experience and have fun doing it! See page 46 for details.

Ribbon-Cutting Ceremony

An opening ceremony is scheduled on Thursday at 11:00 AM in the Pratt Street Lobby of the Convention Center. See page 53 for details.

Thursday, November 11

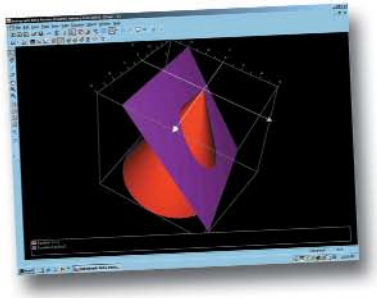
Friday, November 12

Saturday, November 13

Preparing our students for the 21st century...

Project-Based Inquiry Learning

Inquiry



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HERFF JONES EDUCATION DIVISION

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

Teaching Science in the 21st-Century Classroom

Today's student learns differently. The 21st-century student deserves and demands an interactive and student-centric approach to learning. This presents many challenges to educators, including meeting the needs of students with diverse learning styles such as English language learners, special needs students, and advanced and below-grade-level readers. The effective science teacher uses innovative, research-based instructional strategies to facilitate achievement in science for all students. Differentiation, universal design for learning, project-based learning, and brain-based learning are just a few of these strategies. This strand will increase participants' knowledge of and expertise in the integration of these and other innovative pedagogies for helping students attain high standards.

Embracing the World from Our Own Backyard: Environmental Education

Our environment is changing. Science educators are powerful agents for helping our students understand and respond to these changes. In this increasingly interconnected global community, all members must understand the implications of our choices and the impact we can have both globally and locally. This strand will increase participants' knowledge of effective practices to help students understand, appreciate, protect, and restore our natural environment.

Building Tomorrow's Workforce: Science, Technology, Engineering, and Mathematics (STEM)

Imagination, invention, and creativity drive development in our world. In preparing today's students to be tomorrow's workforce we must prepare them for all jobs, even some that do not yet exist. Educators must help guide students into careers in science, technology, engineering, and mathematics. This strand will highlight classroom practices that emphasize skills in critical thinking, leadership, problem solving, collaboration, communication, media, and technology in the transdisciplinary context of STEM.

Teaching Science in the 21st-Century Classroom

Thursday, November 11

8:00–9:00 AM
Videos, Podcasts, and Wikis, Oh My!

1:00–5:00 PM
SC-2: Why Evolution Matters in the 21st Century
(Tickets required: $25)

2:00–3:00 PM
Paperless Formative and Summative Assessment

Friday, November 12

8:00–9:00 AM
Featured Presentation: Visualizing the Possible: Science Teaching and Learning in the Age of Web 2.0
(Speaker: Lynne Schrum)

9:30–10:30 AM
Cross-Age Mentoring Through a Science Exposition Model

11:00 AM–12 Noon
Successful Blogging in the Physics Classroom

12:30–1:30 PM
School Inquiry Conference

1:00–4:30 PM
SC-6: Marriage of Science and Interactive Boards
(Tickets required: $20)

2:00 –3:00 PM
Saving Energy at Home and School

3:30–4:30 PM
iCan Digitize Science

Saturday, November 13

8:00–9:00 AM
Full-Inclusion Strategies Used in Science in Three High Schools

9:30–10:30 AM
Using a Virtual Learning Environment for High School Science Education

11:00–11:30 AM
Teaching Science in a Web 2.0 World

Embracing the World from Our Own Backyard: Environmental Education

Thursday, November 11

8:00–9:00 AM
Facilitating Early Childhood Education with Project Learning Tree

12:30–1:30 PM
Studying Soil Ecology in the Classroom

12:45–4:15 PM
SC-1: NSTA Press Session: Inside Out: Environmental Science in the Classroom and the Field
(Tickets required: $25)

2:00–3:00 PM
Empowering Youth: Reducing Carbon Dioxide Emissions in Your Community

3:30–4:30 PM
Featured Presentation: Wild Patterson Park: Discovering Nature's Treasures in Baltimore's Best Backyard
(Speaker: Middleton Evans)

Friday, November 12

8:00–9:00 AM
Tackling the Global Warming Challenge in a Rapidly Changing World

9:30–10:30 AM
American Chestnuts in and out of the Classroom

11:00 AM–12 Noon
Meeting the Climate Challenges Ahead

12:15–4:15 PM
SC-5: Growing Greener Schools with the Maryland Green Schools Program
(Tickets required: $40)

12:30–1:30 PM
Using Real-Time Data to Teach About Chesapeake Bay

2:00–3:00 PM
Featured Presentation: No Child Left Inside: Systemic Boost for Hands-On Science
(Speaker: Don Baugh)

2:00–3:00 PM
Creating and Sustaining SchoolYard Habitat Learning Environments

3:30–4:30 PM
Student Energy Audit Teams

Saturday, November 13

8:00–9:00 AM
GIS for Biology and Environmental Science

11:00 AM–12 Noon
Rebuilding the Bay's Oyster Population One Ball at a Time

Building Tomorrow's Workforce: Science, Technology, Engineering, and Mathematics (STEM)

Thursday, November 11

8:00–9:00 AM
Systemic STEM Best Practices in the Middle School Trenches

12:30–1:30 PM
Making Lemonade: Using Construction as a Curriculum

2:00–3:00 PM
Implementing a Successful High School Biomedical Sciences Program

3:30–4:30 PM
NASA CERES S'COOL Project: Be a S'COOL Cloud Observer!

Friday, November 12

8:00–9:00 AM
Food Chemistry

8:00 AM–12 Noon
SC-4: Building a Well-informed Workforce for Our Future
(Tickets required: $43)

9:30–10:30 AM
STEM: It's Elementary!

11:00 AM–12 Noon
Featured Presentation: Where Dreams Really Do Become Reality: DARPA and the Future Workplace
(Speaker: Kent Pankratz)

12:30–1:30 PM
Beyond the Science Fair: A Science Research Program for Gifted Middle School Students

2:00–3:00 PM
STEM Academy

3:30–4:30 PM
Moving Toward STEM Literacy: A Model for Middle School

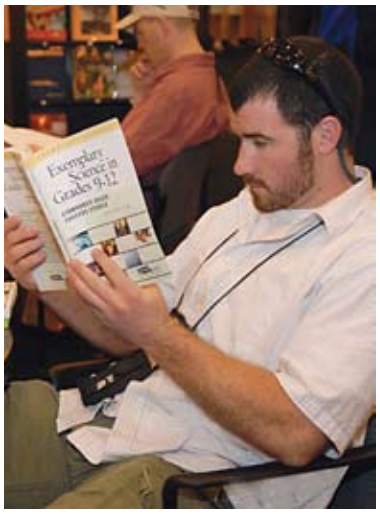
Saturday, November 13

8:00–9:00 AM
Ocean, Coasts, and Climate Education for Teachers: NOAA/NSTA Professional Development Tools

9:30–10:30 AM
Model My Watershed: A "Backyard" Cyber-learning Experience

11:00 AM–12 Noon
The Environmental Science Summer Research Experience for Young Women

Mars Education Student Data Teams: Students Explore the Red Planet



NSTA Exemplary Science Program (ESP)

Meeting the Reform Features from the National Science Education Standards

Friday, November 12 • Holiday Ballroom 1, Hilton

The NSTA Exemplary Science Program (ESP) was initiated to highlight programs that have been proven to produce superior student learning. Under the guidance of Robert E. Yager, 1982–1983 NSTA President, five monographs have been produced thus far—PreK–4, 5–8, 9–12, informal education, and best practices in professional development—each detailing exemplary programs selected by a national advisory board of NSES and NSTA leaders.

It Takes ESP to Find Exemplary Science Programs!

12:30–2:30 PM Symposium I *(page 102)*

Unique Features of Programs That Meet "More Emphasis" Features in the NSES

Coordinators: Robert E. Yager, University of Iowa, Iowa City; Susan Blunck, University of Maryland, Baltimore County, Baltimore

Sing and Dance Your Way to Science Success (from ESP #3)

Bringing School Science to College (from ESP #4)

Knowledge and Wonder (from ESP #5)

Inquiry: A Challenge for Changing the Teaching of Science (from ESP #6)

3:30–4:30 PM Symposium II *(page 110)*

Realizing Goals Two and Three of the NSES

Coordinators: Robert E. Yager, University of Iowa, Iowa City; Patricia Simmons, North Carolina State University, Raleigh

Sing and Dance Your Way to Science Success (from ESP #3)

Developing Inquiry Skills (from ESP #6)

Project-based After-School Science in New York City (from ESP #7)

ACS Chemistry for Life™

Chemistry Day at NSTA

Chemical Bonding and Its Consequences

For Grades 9–12

Friday, November 12, 8:00 AM–4:30 PM

332, Convention Center

Sponsored by the American Chemical Society, Education Division

Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter. Education research indicates a positive correlation between teacher content knowledge and student learning. The goals of this program are to enhance and enrich secondary chemistry teachers' knowledge of chemical bonding and its effects on the properties of matter and to engage teachers in activities, discussion, and analyses that demonstrate how lessons on chemical bond properties can be presented in a way that stimulates student thinking and prompts exploration of the complexity of the concepts in advanced and honors level courses.

The content and structure of this program draw on several decades of experience the American Chemical Society has in activity-based curricula development. The program consists of a daylong series of lessons on the chemical bond and its relationship to the properties and reactions of molecules—topics central to understanding the behavior of matter and chemical change. A complementary theme of Chemistry Day is the incorporation of activities as part of the assessment of student learning.

8:00–9:00 AM	**What's Matter Made Of?** (p. 80)
9:30–10:30 AM	**What Holds Molecules Together?** (p. 89)
11:00 AM–12 Noon	**Why Is Water Different?** (p. 95)
12:30–1:30 PM	**Bond Connections in More Complex Molecules** (p. 100)
2:00–3:00 PM	**Chemistry of Aqueous Solutions of Gases** (p. 106)
3:30–4:30 PM	**Coupled Reactions, Energetics, and Chemical Bonds** (p. 112)

Middle School Chemistry Day

Big Ideas About the Very Small

Friday, November 12, 8:00 AM–4:30 PM

331, Convention Center

Sponsored by the American Chemical Society

Come to one, two, or as many sessions as you like during this full day of activities and information for teaching and learning middle school chemistry. Staff from the American Chemical Society (ACS) will introduce participants to the new online and free ACS Middle School Chemistry Unit—Big Ideas About the Very Small. Each of the six sessions will include hands-on activities and explanations that participants can easily incorporate into their teaching to support their current textbook and curriculum. Handouts of the session activities will be available for all participants.

8:00–9:00 AM	**Solids, Liquids, and Gases: The Kinetic Theory of Matter** (p. 80)
9:30–10:30 AM	**Heat Transfer and Changes of State** (p. 88)
11:00 AM–12 Noon	**Density** (p. 95)
12:30–1:30 PM	**The Periodic Table, Energy Levels, and Bonding** (p. 100)
2:00–3:00 PM	**Polarity of the Water Molecule and Dissolving** (p. 106)
3:30–4:30 PM	**Chemical Change and Energy** (p. 112)

Biology Day at NSTA

Friday, November 12, 9:30 AM–4:30 PM

Key Ballroom 11, Hilton

Sponsored by the National Association of Biology Teachers

NABT is proud to present Biology Day, a day of programs designed to provide the resources and tools you need to excel as a biology and life science teacher. Featuring informative speakers and hands-on workshops, Biology Day provides relevant information and pedagogy for every biology teacher at every level.

Highlighted sessions include inquiry-based activities for teaching cellular function, hands-on workshops for demonstrating variation and selection concepts, and an exploration of the evolutionary history of life on Earth (in less than an hour).

Engage your students and enhance your teaching—join NABT for Biology Day!

9:30–10:30 AM	**Are Your Students Reading Their Biology Textbooks?** (p. 88)
11:00 AM–12 Noon	**Writing for *The American Biology Teacher*** (p. 94)
12:30–1:30 PM	**Intuitive Software for Biology Students** (p. 100)
2:00–3:00 PM	**Exploring Biodiversity: The Search for New Medicines and Treatments—Free Teaching Resources from the Howard Hughes Medical Institute** (p. 105)
3:30–4:30 PM	**Teacher-generated Materials, Demos, and FREE Resources from the Howard Hughes Medical Institute to Enrich Your Lessons on AIDS/HIV** (p. 113)

Physics Day at NSTA

Friday, November 12, 8:00 AM–4:30 PM

Key Ballroom 9/10, Hilton

Sponsored by the American Association of Physics Teachers (AAPT) and the Chesapeake Section of AAPT

The American Association of Physics Teachers offers a full day of physics content. Physics Day consists of presentations on physics topics of current interest, physics demonstrations for the precollege classroom, and a make and take session where participants can construct a piece of physics apparatus for use as a demonstration or as laboratory experiment. Physics Day in Baltimore is being organized by the Chesapeake Section of the American Association of Physics Teachers.

8:00–9:00 AM	**Time, Einstein, and the Coolest Stuff in the Universe** (p. 76)
9:30–10:30 AM	**Fun with Physics Demos** (p. 88)
11:00 AM–12 Noon	**Is God a Mathematician?** (p. 94)
12:30–1:30 PM	**Making Sport of Physics** (p. 100)
2:00–3:00 PM	**Physics Explorations Using Inquiry in a Box** (p. 107)
3:30–4:30 PM	**From Thales to Volta—Twenty-Six Centuries of a Fundamental Force** (p. 113)

NSTA Press Sessions

NSTA Press® offers new classroom ideas and standards-based strategies, from Earth science to nanoscience and from preK to college. Join NSTA Press authors for these sessions linked to the topics of their books.

Thursday, November 11

8:00–9:00 AM	Science Teaching as a Profession (p. 46)
12:30–1:30 PM	Teaching for Conceptual Change (p. 57)
12:45–4:15 PM	SC-1: Inside Out: Environmental Science in the Classroom and the Field (Tickets required: $25) (p. 60)
2:00–3:00 PM	A Leader's Guide to Curriculum Topic Study (CTS) (p. 62)

Friday, November 12

8:00–9:00 AM	Stop Faking It! Finally Understand MATH So You Can Teach It (p. 80)
9:30–10:30 AM	Stop Faking It! Finally Understand ENERGY So You Can Teach It (p. 90)
11:00 AM–12 Noon	Stop Faking It! Finally Understand FORCE AND MOTION So You Can Teach It (p. 95)
12:30–1:30 PM	Outdoor Science: A Practical Guide (p. 102)
2:00–3:00 PM	Get the FACTs (Formative Assessment Classroom Techniques) (p. 105)
3:30–4:30 PM	So You Want New Science Facilities (Science Facilities 101) (p. 113)

Saturday, November 13

8:00–9:00 AM	The Architects Have Started Without Me: What Do I Do Now? (Science Facilities 102) (p. 118)
9:30–10:30 AM	Take a Walk on the Safe Side (p. 121)
11:00 AM–12 Noon	Magnetic Moments, Electrifying Connections, and Analogies for Interactive Teaching (p. 123)

NSTA Avenue Sessions

Visit the NSTA Avenue (Booth #519), our marketplace in the Exhibit Hall, to learn about member benefits, products and services, programs and partners…all created for you! Meet staff, register for the NSTA Learning Center, learn about NSTA Communities, or become a member. We're looking for connections to educators with a passion for science education, and we welcome you to our network.

Friday, November 12

9:30–10:30 AM	Toshiba/NSTA ExploraVision Awards (p. 87)
11:00 AM–12 Noon	Siemens We Can Change the World Challenge: 21st-Century Tools for Project Based Learning (p. 93)
12:30–1:30 PM	Toyota TAPESTRY Grants for Science Teachers = $$$ for Your School! (p. 98)
2:00–3:00 PM	SciLinks: Using the Online Assignment Tool (p. 104)
3:30–4:30 PM	The NSTA Learning Center: Free Professional Development Resources and Opportunities for Educators (p. 110)

NSTA symposia are blended 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 allows for extended interaction between participants and presenters. 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.

FDA/NSTA Symposium: Teaching Nutrition Science and the Food Label (SYM-1)

Crystal Rasnake and **Blakeley Denkinger,** U.S. Food and Drug Administration, College Park, Md.
Mimi Cooper *(mimicooper@verizon.net),* Consultant, Green Cove Springs, Fla.
Level: Grades 5–12
Date/Time: Friday, November 12, 8:00 AM–12:30 PM
Location: 330, Convention Center
Registration Fee: $54

Learn the basics of nutrition science, nutrition-related health trends in the United States, 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.

Walk away with a wealth of materials and information about resources available on the FDA website. A drawing for fantastic 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 partipants upon completion. In addition, graduate credit is available to participants at an additional cost. To receive graduate credit, participants must pay a nominal fee and complete an action plan and a lesson plan.

Related FDA session (all conference attendees welcome)

Friday, November 12
3:30–4:30 PM Food Irradiation Science (p. 111)

NSTA Press Session: Inside Out: Environmental Science in the Classroom and the Field (SC-1)

Sarah Haines *(shaines@towson.edu)* and **Robert Blake** *(rblake@towson.edu),* Towson University, Towson, Md.
J. Adam Frederick *(frederic@mdsg.umd.edu),* Center of Marine Biotechnology, Baltimore, Md.

Level: Grades 3–8
Date/Time: Thursday, November 11, 12:45–4:15 PM
Location: Off-site, Columbus Center
SOLD OUT
Registration Fee: $25

This course will provide attendees with hands-on engagement and the practical application of the classroom and field-tested activities presented in the NSTA Press book *Inside Out: Environmental Science in the Classroom and the Field, Grades 3–8.* Join us as we present some of our favorite environmental activities for students in grades 3–8 that acquaint them with concepts related to topography, physical geography, water, soil, energy and nutrients, and biodiversity.

Why Evolution Matters in the 21st Century (SC-2)

Jerald B. Johnson *(jerry.johnson@byu.edu),* **Duane E. Jeffery, Byron J. Adams** *(bjadams@byu.edu),* **Scott M. Ritter,** and **Duane Merrell,** Brigham Young University, Provo, Utah
Daniel J. Fairbanks and **Richard R. Tolman** *(tolmanri@uvu.edu),* Utah Valley University, Orem

Level: Middle Level–College/Supervision
Date/Time: Thursday, November 11, 1:00–5:00 PM
Location: Tubman, Hilton
Registration Fee: $25

Let us introduce you to a proven model to bring together public school teachers, administrators, and university professors to overcome barriers when teaching evolution as part of the grades 7–12 school curriculum. Learn how to create a forum in which school boards, public school administrators, public school teachers, and a university team can openly discuss concerns and challeneges to teaching evolution. The program is designed to empower public school teachers with recent advances in evolutionary biology that can be integrated into their curricula and that clearly illustrate the value of evolutionary biology as a theory with practical applications to improve the human condition. We'll explore four areas where evolution has directly and dramatically been applied in human activities—medicine, forensics, agriculture, and conservation.

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. SC-1, SC-5, SC-7, and SC-8 participants should meet their group on Level 200 in Pratt Street Lobby at the corner of Pratt and Howard streets 15 minutes prior to departure.

Home and School Science Activities (SC-3)

Bernie Horvath *(bgrizwald@aol.com),* Jeffersonville, Ind.

Level: Grades 4–9
Date/Time: Friday, November 12, 8:00–11:00 AM
Location: Tubman, Hilton
Registration Fee: $54

Join us for demonstrations of hands-on activities in physical science that relate to the everyday world. Engage and excite students while defining concepts critical to understanding. The focus of this course is literacy in the relationships between friction, gravity, inertia, and centripetal forces. These will be demonstrated with activities such as a car going around a curve, space travel, airplane flight, NASCAR, and how these forces work together to produce different causes and effects. We'll also demonstrate relationships of events that, on the surface, do not seem to be related. Concepts covered will include air pressure activities relating evaporation, condensation, tornadoes, Bernoulli's principle, bathroom drains, and vacuums. Participants will also discover how to introduce the periodic table in a very simple and unintimidating way. Extending this concept to circumstantial evidence for spaces between molecules,

we'll discover what elements make up simple compounds and physical and chemical change. Receive two resource books, lesson plans, and materials.

Building a Well-informed Workforce for Our Future (SC-4)

Arloa Woolford *(wimef@womeninmining.org),* Women in Mining Education Foundation, Winnemucca, Nev.
Level: Grades 4–9
Date/Time: Friday, November 12, 8:00 AM–12 Noon
Location: Peale, Hilton
Registration Fee: $43

The integration of science, math, and literacy strengthens students' ability to become tomorrow's workers and leaders. A factual knowledge in science allows our upcoming workers to be ready to step into the many occupations in academia, private industry, and government needed to keep our country strong. Explore the many careers available in the geosciences through integrated hands-on activities that encourage students to investigate opportunities in the natural resource industry. Attendees will leave with a CD of all activities, webites, and career information. For more information, visit *www.womeninmining.org.*

Growing Greener Schools with the Maryland Green Schools Program (SC-5)

Bronwyn Mitchell *(greenschools@maeoe.org),* Maryland Association of Environmental and Outdoor Education (MAEOE), Jessup
Level: Grades K–12
Date/Time: Friday, November 12, 12:15–4:15 PM
Location: Off-site; ENVIRO CENTER
Registration Fee: $40

Grow a greener school by cultivating ecological literacy and creating a compelling culture of learning. Participants will start a portfolio for the Maryland Green Schools Program. Hosted at the ENVIRO CENTER, this course is an example of how businesses model ecosystem behavior by sharing work space and synergizing ideas within a state-of-the-art LEED Gold Certified Building. Participants will get a tour of the building during the course.

One of the first programs of its kind in the nation, MAEOE's Maryland Green School (MDGS) award program is a holistic, integrated approach to learning that incorporates local environmental issue investigation and professional development with environmental best management practices and community stewardship. The process of becoming a Maryland Green School leads to higher-achieving students, happier teachers, and an ecologically literate community.

Marriage of Science and Interactive Boards (SC-6)

Charity Lawson *(charity.lawson@pgcps.org),* **Linda Armwood** *(linda.armwood@pgcps.org),* and **Michelle A. Carter** *(michelle.carter@pgcps.org),* Prince George's County Public Schools, Landover, Md.
Level: Grades 6–8 SOLD OUT
Date/Time: Friday, November 12, 1:00–4:30 PM
Location: Tubman, Hilton
Registration Fee: $20

This interactive whiteboard–based course will provide multi-level guidance through whole group, cooperative group, and independent activities. Participants will learn how to promote active student engagement through the use of interactive whiteboards. The session activities will focus on enhancing the pedagogy practices by identifying and clarifying important science content, stimulating classroom discussions with voting devices that allow teachers to ask probing questions to determine why selections were made, and conducting informal assessments of student knowledge to uncover science misconceptions.

Bioscience Boot Camp for Middle School (SC-7)

Mary Stapleton *(mkstapleton@gmail.com),* Towson University Center for STEM Excellence, Baltimore, Md.
Lisa McDonald *(mcdonald@jcvi.org),* J. Craig Venter Institute, Rockville, Md.
Jennifer Colvin *(jcolvin@mdbiolab.org),* MdBio Foundation and MdBioLab, Tech Council of Maryland, Rockville
Level: Middle Level
Date/Time: Friday, November 12, 9:00 AM–5:00 PM
Location: Off-site; Columbus Center
Registration Fee: $35

Explore the world of biotechnology and its role in science, society, and your classroom. Bioscience offers teachers hands-on tools to engage students while reinforcing content mandated in national, state, and local standards. In this short course developed by MdBio Foundation, J. Craig Venter Institute, and Towson University, you will be introduced to basic bioscience concepts and techniques relevant in your middle school classroom. In addition, you will receive information about a variety of bioscience education resources available free to all Maryland secondary science teachers, including the MdBioLab, the Maryland Loaner Lab, and Discover Genomics! Science Education Program. Lunch on your own in the Inner Harbor area.

Bioscience Boot Camp for High School (SC-8)

Mary Stapleton *(mkstapleton@gmail.com),* Towson University Center for STEM Excellence, Baltimore, Md.
Lisa McDonald *(mcdonald@jcvi.org)*, J. Craig Venter Institute, Rockville, Md.
Jennifer Colvin *(jcolvin@mdbiolab.org),* MdBio Foundation and MdBioLab, Tech Council of Maryland, Rockville
Level: High School
Date/Time: Friday, November 12, 9:00 AM–5:00 PM
Location: Off-site; Columbus Center
Registration Fee: $35

Explore the world of biotechnology and its role in science, society, and your classroom. Bioscience offers teachers hands-on tools to engage students while reinforcing content mandated in national, state, and local standards. In this short course developed by MdBio Foundation, J. Craig Venter Institute, and Towson University, you will be introduced to basic bioscience concepts and techniques relevant in your high school classroom. In addition, you will receive information about a variety of bioscience education resources available free to all Maryland secondary science teachers, including the MdBioLab, the Maryland Loaner Lab, and Discover Genomics! Science Education Program. Lunch on your own in the Inner Harbor area.

—Photo courtesy of National Aquarium

—Photo courtesy of Steve Noyes, U.S. Fish and Wildlife Service

Tickets for field trips may be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your field trip leader on Level 200 in Pratt Street Lobby at the corner of Pratt and Howard streets 15 minutes before departure time.

Chesapeake Classrooms Aboard the *Snow Goose* $25

#T-1	Thursday, Nov. 11	10:45 AM–5:30 PM
#F-3	Friday, Nov. 12	8:45 AM–3:30 PM

A unique opportunity to travel aboard the *Snow Goose,* Chesapeake Bay Foundation's (CBF) Chesapeake Classrooms' 46-foot work boat. Within minutes of leaving the Convention Center, you'll board CBF's *Snow Goose* and spend an exciting and educational day developing a keener awareness of the complex and fascinating interrelationship between the estuary and its most demanding users. Your field program will focus on biological sampling and water quality testing, oyster dredging, food webs, and human impact. Participants should wear appropriate outdoor clothing and shoes for a day on the water. Box lunch included.

Behind the Scenes at the National Aquarium in Baltimore $49

#T-2	Thursday, Nov. 11	12 Noon–6:30 PM
#F-6	Friday, Nov. 12	12 Noon–6:30 PM

T-2: SOLD OUT

This exciting tour takes you behind the scenes for a look into the inner workings of the aquarium's spectacular exhibits and backup areas. As you navigate through the maze of pipes and filters, education staff members will explain the intricacies of caring for the 16,000 animals that compose the aquarium's collection. From anemones to fish, food to filtration, you'll get an intimate look at life behind the scenes. We'll participate in squid dissection; see the new dolphin show, "Our Ocean Planet"; and experience the aquarium's 4-D Immersion Theater, which brings you closer to the sights, sounds, and smells of the action. Participants will have time for leisure browsing in the aquarium from 4:30 to 6:15 PM.

Philip Merrill Environmental Center: LEED Platinum Building Tour and Program $25

#T-3	Thursday, Nov. 11	12:30–5:00 PM

CANCELED

A guided tour of the Chesapeake Bay Foundation's (CBF) LEED Platinum–certified headquarters provides participants with an understanding of how geothermal wells, natural ventilation, solar power, the use of rainwater, and composting toilets all play a role in protecting and restoring the Chesapeake Bay. The Merrill Center is an interactive model that educates and inspires people, including hundreds of businesses, organizations, and government agencies. It is extremely cost effective and operates in harmony with the land, natural resources, and the Chesapeake Bay, proving that "green" buildings work. Our facility also proves that it isn't necessary to lose comfort or beauty to build responsi-

bly. Learn about CBF educational programs for students and teachers, resources, and building green.

Benjamin Banneker Historical Park and Museum **$29**

#T-4 Thursday, Nov. 11 1:00–3:30 PM

Baltimore is home to many sites that have played a role in our nation's history. The Benjamin Banneker Historical Park and Museum provides an opportunity for visitors to learn about the first African American man of science. The 142-acre site includes a visitor's center, extensive nature trails, a restored 19th-century farmhouse, a patio garden, gallery, and gift shop for participants to explore. We'll learn how this historic park is dedicated to environmental conservation, preserving the historical legacy of Benjamin Banneker, his contributions to science, and early America's cultural times. For those interested in experiencing some of the hiking trails, be sure to dress appropriately.

CANCELED

Behind the Scenes: What's New at the Maryland Science Center? **$15**

#T-5 Thursday, Nov. 11 1:30–4:30 PM

Join our Planetarium and Links staff in experiencing Earth science in 3-D on NOAA's Science On a Sphere to learn how oceans can affect the climate and how tropical cyclones form. Explore our new Green Roof using the tools of Maryland Science Center's Citizen Scientists to measure Baltimore's Urban Heat Island effect and go behind the scenes in our planetarium. Experience our newest show, "Dark Matters," and explore this mystifying new topic in physics and astronomy. The dark, empty space between the stars in galaxies contains mysterious "dark matter" and "dark energy." We don't know what they're made of, and we can't see them, but we detect their influence and are trying to understand them. A final highlight occurs as the Liz Lerman Dance Exchange reveals some unique aspects of design incorporating kinesthetic learning within the exhibit "Cells: The Universe Inside Us."

Chesapeake High School ARENA Virtual Learning Experience **$30**

#F-1 Friday, Nov. 12 8:15–12:45 PM

Experience Chesapeake High School's new VLE (Virtual Learning Environment) while carrying out a training mission. Learn how the curriculum addresses applications in science and other forms of instructional technology used on a daily basis as a STEM school. A tour of the facility will include classroom observations and a Q&A with some students and teachers.

CANCELED

Back River Wastewater Treatment Plant **$20**

#F-2 Friday, Nov. 12 8:30–12 Noon

A visit to the Arabia Steamboat Museum (*www.1856.com*) re- Wastewater from both Baltimore City and County enters the Back River plant through two large conduits. Visit this 466-acre site with a 35-foot elevation difference from influent to outfall and watch wastewater flow through the plant entirely by gravity. Situated on the west shore of Back River, a tributary of Chesapeake Bay, the Back River Wastewater Treatment Plant was originally constructed in 1907. Participants will learn about the recycling of sludge and the technology that is incorporated into the activated sludge process, gas handling system, and generation of electricity and useful heat.

CANCELED

NASA Goddard Space Flight Center/Howard B. Owens Science Center **$30**

#F-4 Friday, Nov. 12 9:15 AM–3:15 PM

This field trip will begin at NASA Goddard Space Flight Center with a screening in the Science on a Sphere Theater, followed by an overview of NASA's Educator Resource Center (ERC). Participants will have the opportunity to complete an ERC materials request form and learn about the use of NASA educational technologies and resources. A behind-the-scenes tour will include a viewing of the Clean Room and Thermal Blanket Lab. Lunch in the cafeteria (available for purchase) will be followed by a Gallery Walk and a collection of ERC requested resources. Our field trip will conclude with a visit to the Howard B. Owens Science Center, a STEM center for Prince George's County Public Schools. This unique public school district center features the largest planetarium in Maryland, the Challenger Learning Center, naturalist areas, animal exhibits, and biology/chemistry classroom labs. Here we'll interact with staff members and participate in a short program in one of the center's classrooms.

Note: All participants are required to bring a picture I.D., such as a driver's license or passport, for admission to site.

Fossil Hunt: Miocene Fossil Collecting and Identification **$25**

#F-5 Friday, Nov. 12 9:30–11:45 AM

Join us at the Maryland Science Center and learn about the marine creatures that inhabited the Chesapeake Bay/eastern U.S. region approximately 30 million years ago. Dig through material and add to your own fossil collection. Learn how fossils can be used with your students and receive teacher resource material to complete the lesson.

NASA Goddard Space Flight Center **$25**

#F-7 Friday, Nov. 12 12:15–3:45 PM

This field trip will begin at NASA Goddard Space Flight Center with a screening in the Science on a Sphere Theater, followed by an overview of NASA's Educator Resource Center (ERC). Participants will have the opportunity to complete an ERC materials request form and learn about the use of NASA educational technologies and resources. We'll conclude with a behind-the-scenes tour that includes a viewing of the Clean Room and Thermal Blanket Lab.

Note: All participants are required to bring a picture I.D., such as a driver's license or passport, for admission to site.

Patuxent Research Refuge and National Visitor Center **$21**

#F-8 Friday, Nov. 12 12:15–4:45 PM

Visit the Patuxent Research Refuge and Visitor Center to learn about current research and how museums and nature centers can be used as extensions of the classroom. Weather permitting, we'll tour refuge habitats by tram (dress appropriately). Visitor Center interactive exhibits provide participants with the opportunity to focus on global environmental issues, migratory bird routes, wildlife habitats, and endangered species recovery efforts.

Baltimore Museum of Industry **$24**

#F-9 Friday, Nov. 12 1:15–4:15 PM

Experience Baltimore's industrial past through interactive tours of the Baltimore Museum of Industry. Galleries can include a belt-driven machine shop, a blacksmith's shop, an oyster cannery, a print shop, a garment loft, and a pharmacy. Learn about industries that were important to Baltimore in days past and participate in discussions and demonstrations of working museum artifacts. Topic areas include technology and innovation, labor issues, and Baltimore City history.

CANCELED

Participate in the cannery program and become workers in Mr. Platt's 1883 oyster cannery. You'll become managers, foremen, can makers, printers, labelers, shuckers, and fillers and learn about the training and wages of skilled and unskilled workers. You'll be paid for your work in brass tokens that can be redeemed in the company store. Here you'll discover how quickly students grasp the concept of a day's work.

21st-Century Learning Skills: Introducing SCRATCH **$20**

#F-10 Friday, Nov. 12 2:00–4:00 PM

Technology induces change that exerts strong influences on how we communicate and learn. In this workshop at the Maryland Science Center, we will explore those skills expected in the workplace of the future. You will have hands-on experience using SCRATCH, a product of the MIT Media Lab, to create your own computer-based animation while highlighting each of the skills. The software, educator support, and teacher resources are all available online at no charge to participants.

Wednesday, November 10

ESP Informal Interaction Meeting *(By Invitation Only)*
Marshall, Hilton ..... 7:00–9:00 PM

Thursday, November 11

Elementary Institute *(By Invitation Only)*
Harborview I/II, Sheraton..... 9:00 AM–12 Noon

Preservice and New Teachers Luncheon
(Tickets required: M-1; $12)
Sponsored by Kendall Hunt Publishing Co.
322, Convention Center..... 12 Noon–1:30 PM

Desserts with Jellies, Dolphins, and 4D Fun!
(Tickets required: M-2; $45)
National Aquarium in Baltimore (off-site) ... 7:00–11:00 PM

Friday, November 12

Council for Elementary Science International (CESI) Breakfast
(Tickets required: M-3; $37)
322, Convention Center..... 8:00–10:00 AM

Grades 6–12 Secondary Institute *(By Invitation Only)*
Harborview I/II, Sheraton..... 9:00 AM–12 Noon

Informal Science Education Networking Meeting
334, Convention Center ..... 11:00 AM–12 Noon

Maryland Association of Science Teachers/Maryland Science Supervisors Association Luncheon
Key Ballroom 6, Hilton ..... 12 Noon–2:00 PM

Maryland STEM Portfolio Project Meeting *(By Invitation Only)*
Johnson, Hilton..... 2:00–3:00 PM

Council for Elementary Science International Presidents' Roundtable
Marshall, Hilton ..... 2:30–4:30 PM

NMLSTA Ice Cream Social
322, Convention Center..... 3:30–5:00 PM

Association for Science Teacher Education (ASTE)

President: Meta Van Sickle

Friday, November 12

9:30–10:00 AM	Teaching Principles of Ecology and Environmental Science in High School Biology	326, Convention Center

Council for Elementary Science International (CESI)

President: Kay Atchison Warfield

Thursday, November 11

3:30–4:30 PM	Fun and Easy Ways to Get Started with Robots	325, Convention Center

Friday, November 12

8:00–10:00 AM	Council for Elementary Science International (CESI) Breakfast (Ticket M-3) Speaker: Leshia Hoot, LEGO® Education, Pittsburg, Kans.	322, Convention Center
12:30–1:30 PM	Council for Elementary Science International Share-a-Thon	Holiday 6, Hilton
2:30–4:30 PM	Council for Elementary Science International Presidents' Roundtable	Marshall, Hilton

National Association for Research in Science Teaching (NARST)

President: Dana L. Zeidler

Friday, November 12

9:30–10:30 AM	Global Climate Change 101 for Teachers	324, Convention Center
11:00 AM–12 Noon	Virtual Laboratories in Your Classroom: What Does Research Tell Us?	324, Convention Center

National Middle Level Science Teachers Association (NMLSTA)

President: Rajeev Swami

Friday, November 12

3:30–5:00 PM	NMLSTA Ice Cream Social (Open to All Middle Level Teachers)	322, Convention Center

National Science Education Leadership Association (NSELA)

President: Janey Kaufmann

Friday, November 12

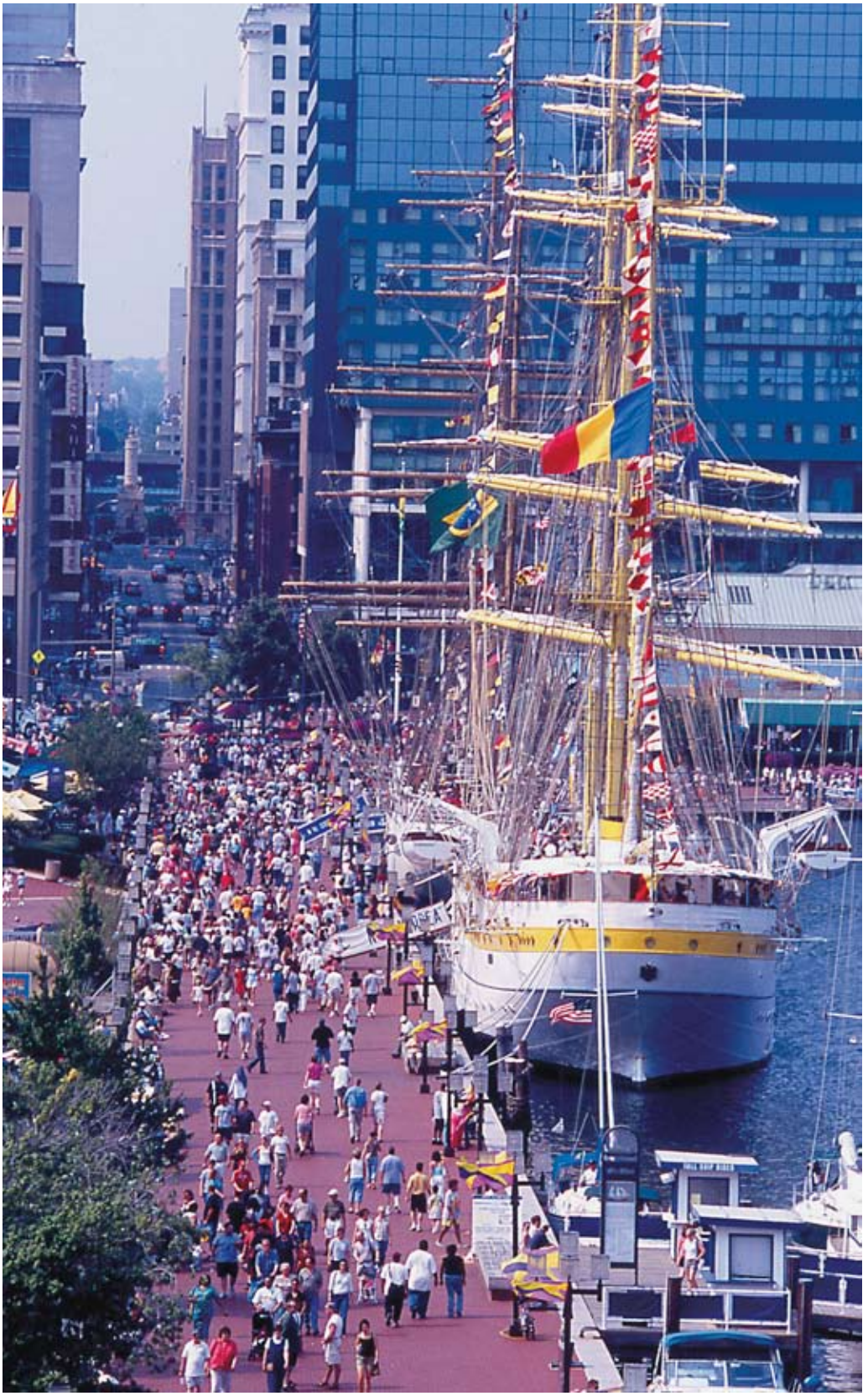
2:00–3:00 PM	Tools and Ideas for Leaders	324, Convention Center
3:30–4:30 PM	NSELA Working Groups—Network with Science Education Leaders	324, Convention Center

Society for College Science Teachers (SCST)

President: Connie Russell

Saturday, November 13

8:00–9:00 AM	NSF Funding Opportunities and the Evolving Face of STEM Education	323, Convention Center
	Less Effort, More Success: A Toolkit for Building a Gender-inclusive STEM Classroom	
9:30–10:30 AM	Preparing Tomorrow's Workforce: Assessment of Quantitative and Scientific Reasoning	323, Convention Center
	University Science Faculty Benefit from K–12 Outreach	
	A Collaborative Process to Create Simulations Demonstrating Mathematics and Science Concepts	



—*Visit Baltimore*

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

NSTA 2010 Baltimore Area 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 Baltimore conference. Sessions/events such as field trips, short courses, symposia, 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 November 30, 2010, Baltimore transcripts can be accessed at *www.nsta.org/transcripts* by logging on with your Baltimore Badge ID#. Keep this form and use it to add the following activities to your Baltimore 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 15 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

Thursday, November 11 8:00 AM–5:30 PM

Start Time	End Time	Activity/Event Title

Friday, November 12 8:00 AM–5:30 PM

Start Time	End Time	Activity/Event Title

Saturday, November 13 8:00 AM–12 Noon

Start Time	End Time	Activity/Event Title

8:00–9:00 AM Presentations

SESSION 1

Learn How to Use NOAA's Climate Change Resources in Your Classroom (Gen)

(General) *321, Convention Center*

Lindsay Knippenberg *(robert.c.hansen@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.

Improve your students' knowledge of climate change using NOAA's data along with high-interest educational materials surrounding this critical topic.

SESSION 2

Creating a Powerful Synergy in the K–6 Classroom with Hands-On Investigations, Science Literacy Skills, and Science Content (Gen)

(Preschool–Middle Level) *323, Convention Center*

Donna L. Knoell *(dknoell@sbcglobal.net),* Educational Consultant, Shawnee Mission, Kans.

RESCHEDULED (see page 87)

See what happens when investigative processes, science knowledge, and science literacy skills are developed side by side in the K–6 classroom. I'll share top-quality books, related print and technology resources, and investigative opportunities, as well as strategies for developing literacy skills.

SESSION 3

Motivation Through Science Integration (Bio)

(Elementary) *324, Convention Center*

Janemarie McKay, Governor Mifflin School District, Reading, Pa.

Jean McCarney, Robeson Elementary Center, Birdsboro, Pa.

Inspire and motivate your students with simple strategies that integrate instruction in science and language arts.

SESSION 4

Videos, Podcasts, and Wikis, Oh My! (Gen)

(Middle Level–High School) *328, Convention Center*

Jeremy A. Haack, Baltimore County Public Schools, Middle River, Md.

Thomas P. Michocki *(tmichocki@bcps.org),* Eastern Technical High School, Essex, Md.

Use the power of the wiki to present information from your science classes through videos and podcasts.

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 143, 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

SESSION 5

Systemic STEM Best Practices in the Middle School Trenches (Gen)

(General) *329, Convention Center*

William E. Ball *(william_e_ball@mcpsmd.org),* Montgomery County Public Schools, Rockville, Md.

Gerald P. Bush, Eugenia S. Dawson *(eugenia_s_dawson@mcpsmd.org),* **Matthew Freiman** *(matthew_freiman@mcpsmd.org),* and **Scott W. Durbin,** Earle B. Wood Middle School, Rockville, Md.

Presider: Anita O'Neill, Montgomery County Public Schools, Rockville, Md.

These collaborative, tried-and-true, ready-to-go STEM activities and strategies continuously encourage middle school students to think and solve STEM-relevant problems across disciplines. Classroom materials provided.

SESSION 6

An "Insider's Guide" to High-Stakes Assessment Creation: Elementary (Gen)

(Elementary) *331, Convention Center*

Sharon Bowen *(sd_bowen@msn.com)* and **Katherine Porter,** Words and Numbers, Inc., Baltimore, Md.

Gain insight into the complex process of creating high-stakes assessment items and prep materials from those who play a role in writing them.

SESSION 7

Co-teaching in a Science Classroom (Chem)
(General) *332, Convention Center*
Pauline E. Oji, Stemmers Run School, Baltimore, Md.
With the passage of No Child Left Behind (NCLB), the science classroom has changed. Let's look at some co-teaching methods.

SESSION 8

Is This Your First NSTA Conference? (Gen)
(General) *Holiday 6, 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 9

Fish, Physics, and the Estuarine Turbidity Maximum (Bio)
(Middle Level–High School) *Key Ballroom 3, Hilton*
April D. Rishert *(arishert@aacps.org),* Anne Arundel County Public Schools, Pasadena, Md.
This 5E educational module presented by Centers for Ocean Sciences Education Excellence (COSEE) Coastal Trends focuses on recent research in Chesapeake Bay on the Estuarine Turbidity Maximum, a nursery for rockfish larvae.

SESSION 10

NSTA Press Session: Science Teaching as a Profession (Gen)
(General) *Key Ballroom 7, Hilton*
Sheila Tobias, Author, Tucson, Ariz.
American students aren't the only ones dropping out of school. Their teachers are leaving, too. The dropout problem among science teachers is especially critical because they are hard to replace. Let's discuss accountability and teacher autonomy. Must there be a conflict?

SESSION 11

TASA and You! Earth and Space Science–based Computer Studies and Virtual Labs (Earth)
(Middle Level–High School) *Latrobe, Hilton*
Robert L. Campbell *(rcampbel@wiu.k12.pa.us)* and **Shaun Reddick** *(sreddick@wiu.k12.pa.us),* Charles Huston Middle School, Lower Burrell, Pa.
Discover award-winning CD-ROMs for the geosciences created by TASA Graphic Arts.

8:00–9:00 AM Workshops

Learning in 3-D: Building a Bridge to STEM (Gen)
(General) *325, Convention Center*
Leonisa Ardizzone *(ardizzone@salvadori.org),* Salvadori Center, New York, N.Y.
Arch and suspension bridges provide a platform for the exploration and application of forces, load, simple machines, measurement, geometry, and patterns.

Growing the Family STEM (Gen)
(General) *326, Convention Center*
Katie A. McDilda *(katie.mcdilda@marshall.edu)* and **Tina J. Cartwright** *(tina.cartwright@marshall.edu),* Marshall University, Huntington, W.Va.
Integrate interesting and fun STEM activities into Family Learning Nights and watch these events grow year after year.

Facilitating Early Childhood Education with Project Learning Tree (Env)
(General) *327, Convention Center*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Sarah Haines *(shaines@towson.edu),* Towson University, Towson, Md.
Introduce science concepts to young children using Project Learning Tree's (PLT) new early childhood curriculum. Take home PLT's Environmental Experiences for Early Childhood activity guide and accompanying music CD.

How to Assess the Sustainability of Cellulosic Biofuel Production **(Env)**
(General) *Holiday 1, Hilton*
John M. Greenler *(jgreenler@glbrc.wisc.edu)* and **Sara Krauskopf** *(skrauskopf@glbrc.wisc.edu),* Great Lakes Bioenergy Research Center, University of Wisconsin, Madison
The United States is poised as a major producer of cellulosic ethanol. Explore ways to integrate biofuels into existing science courses.

Keeping Things in Motion **(Phys)**
(Preschool–Middle Level) *Holiday 2, Hilton*
Linda L. Smith *(lsmith@paulsboro.k12.nj.us),* Paulsboro (N.J.) Public Schools
Use NASA Space Science to spice up your classes, excite your students, and teach about Newton's laws of motion at the same time.

Climate Expeditions **(Earth)**
(Elementary–Middle Level/Informal Ed.) *Holiday 3, Hilton*
Linda M. Morris *(linda.m.morris@dartmouth.edu),* Dartmouth College, Hanover, N.H.
Zoe Courville, University of New Hampshire, White River Junction, Vt.
Partner with ice-drilling scientists or engineers to integrate career-focused activities into the classroom. We'll share climate change information and hands-on activities focusing on core formation and analysis.

Writing in Science: Beyond the Lab Report **(Bio)**
(High School) *Key Ballroom 1, Hilton*
Janet J. Hogan, William Sheehan *(william.sheehan@mansfieldschools.com),* **Deborah A. Fournier** *(deborah.fournier@mansfieldschools.com),* and **Anne Carroll** *(anne.carroll@mansfieldschools.com),* Mansfield High School, Mansfield, Mass.
Presider: Janet J. Hogan
Encourage independent thinking through writing. Inspire students to explore classroom topics through individualized writing assignments that require research and argumentation.

Ocean Energy **(Env)**
(Middle Level–High School) *Key Ballroom 2, Hilton*
Mary Spruill *(info@need.org),* The NEED Project, Manassas, Va.
Learn about and try some hands-on activities exploring offshore energy development, including offshore oil and natural gas development, offshore wind development, and tidal and wave energy.

The Mathematics of Human Population Growth **(Gen)**
(Middle Level–High School) *Key Ballroom 4, Hilton*
William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.
Assume the roles of five hypothetical families, each with very different reproductive strategies. The total populations after 100 years show amazing differences.

Simulations and Interactive Multimedia Across the Earth Sciences **(Earth)**
(Middle Level–College) *Key Ballroom 9, Hilton*
Randy M. Russell and **Becca Hatheway,** University Corporation for Atmospheric Research, Boulder, Colo.
Roberta M. Johnson, National Earth Science Teachers Association, Boulder, Colo.
Experience three activities—a very simple climate model, graphing sea ice extent near both poles over time, and virtual ballooning to explore Earth's atmosphere. Handouts provided.

From Mangroves to Maca: Explore Tropical Gardens **(Env)**
(Elementary–High School) *Key Ballroom 10, Hilton*
Lynne Cherry, Thurmont, Md.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Every day some 137 species disappear forever from tropical forests. They represent botanical treasures that maintain habitats and offer unique chemicals that might be keys to curing disease. In this workshop you'll learn content, master lab activities, and take a virtual trip to tropical forests.

8:00–9:00 AM Exhibitor Workshop

Fourier Probeware and Nova5000 (Chem)

(Grades 6–12) *337, Convention Center*

Sponsor: It's About Time

Brian DeSoto, Fourier Systems, Orland Park, Ill.

It's About Time and Fourier Systems have partnered to provide a world-class solution for curriculum and technology. Come participate in Fourier probeware and Nova5000 demonstrations for middle school and see why your students will be able to do more with Fourier. You'll see the benefits of Project-Based Inquiry Science and the integrated technology of Fourier Systems—the best of both worlds.

8:00–9:15 AM Exhibitor Workshops

Teaching About the Rock Cycle and Earth Time (Earth)

(Grades 6–8) *338, Convention Center*

Sponsor: LAB-AIDS, Inc.

Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.

Do your middle-level students have trouble with complex concepts like the rock cycle and geologic time? Maybe it has something to do with understanding small, incremental changes over millions of years. Come experience motivating hands-on techniques and strategies for learning about these and related topics, like plate tectonics and continental drift. Support for literacy and technology will be addressed.

First-Time Attendee Session

Is This Your First NSTA Conference?

If your answer is "YES," then please join us at our first-time-conference-attendee session where we'll walk through the program and you'll learn how to get the most from your conference experience.

Thursday
November 11
8:00–9:00 AM
Hilton Baltimore
Holiday 6

This session is generously supported by Carolina Biological Supply Company.

CAROLINA
World-Class Support for Science & Math

NSTA National Science Teachers Association

It's Here! The All-new *Pearson Chemistry* © 2012 (Chem)
(Grades 9–12) *340, Convention Center*
Sponsor: Pearson
Ed Waterman, Retired Educator, Fort Collins, Colo.
The most successful chemistry text ever just got better! In addition to digital and print formats, we use small-scale and virtual chemistry laboratory to promote effective inquiry and differentiation that facilitate learning content while students discover how to design and carry out experiments to solve problems.

Introducing Inquiry Investigations™: Hands-On Inquiry Activities Focusing On Technology (Gen)
(Grades 7–10) *341, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Lou Loftin, Wassau County Public Schools, 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 data logger probes.

Experimental Design (Gen)
(Grades K–6) *343, Convention 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 will be provided.

Come Learn How to Fingerprint Your Own DNA: Classroom PCR That Works (Bio)
(Grades 6–College) *347, Convention 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 how these procedures can be integrated into classroom experiments using Polymerase Chain Reaction (PCR) and electrophoresis. We will demonstrate gel staining with InstaStain™, a safe, nonliquid method that also reduces time and mess. One kit will be raffled (a $75 value)!

ScholAR Chemistry In-the-Bag Inquiry (Chem)
(Grades 6–12) *348, Convention Center*
Sponsor: Sargent-Welch
Mark Meszaros, Sargent-Welch, Rochester, N.Y.
These easy-to-perform demonstrations are designed to engage students and incorporate guided inquiry exercises so students can further explore and understand the concept. Participants will learn how to perform four different In-the-Bag inquiry demonstrations and two In-the-Bag learning activities.

Fun, Fabulous Foldables® (Gen)
(Grades K–12) *349/350, Convention Center*
Sponsor: McGraw-Hill School Education Group
Dinah D. 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.

8:00–9:30 AM Exhibitor Workshop

Chemistry and the Atom: Fun with Atom Building Games! (Gen)
(Grades 5–12) *345/346, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton and **Patsy Eldridge,** 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. In this workshop, you will experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

8:00–10:00 AM Exhibitor Workshop

Using Science Notebooks with FOSS Middle School (Gen)
(Grades 5–8) *344, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Jessica Penchos, Lawrence Hall of Science, University of California, Berkeley
Virginia Reid, Consultant, Olympia, Wash.
Using the FOSS Middle School curriculum, we'll demonstrate the use of science notebooks with students, grades 6–8. Learn how to implement student science notebooks to increase student understanding of inquiry and science content and to enhance literacy skills. Sample materials.

9:00–11:00 AM Exhibitor Workshop

Innovative Science and Literacy Integration: Seeds of Science/Roots of Reading® (Gen)

(Grades 2–5) *342, Convention Center*

Sponsor: Delta Education/School Specialty Science–Seeds

Traci Wierman, Jen Tilson, Suzy Loper, and **Megan Goss,** Lawrence Hall of Science, University of California, Berkeley

Immerse yourself in 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 (free samples).

9:00 AM–12 Noon Workshop

Elementary Institute

(By Invitation Only) *Harborview I/II, Sheraton*

9:30–10:30 AM Exhibitor Workshop

Project-Based Inquiry Science (PBIS): The Next Generation of Middle School Programs (Bio)

(Grades 6–8) *337, Convention Center*

Sponsor: It's About Time

Mary Starr, The University of Michigan, Ann Arbor

When you see this video footage of students collaborating and working to complete their projects, you'll understand why PBIS is truly the next generation of science programs. We'll review the latest cognitive research about how middle school students learn best and how this research has been put into practice in real-world classrooms. You'll see a transformation in your students as they become enthusiastic, collaborative learners and rigorous thinkers. Also see how Fourier probeware enhances project-based activities.

9:30–10:45 AM General Session

Finding Your Way When You're Not Sure Where You're Headed

(General) *Ballroom III/IV, Convention Center*

Bill Nye, Executive Director, The Planetary Society, Pasadena, Calif.

Presider: Alan McCormack, NSTA President, and San Diego State University, San Diego, Calif.

Welcome: Nancy Grasmick, State Superintendent, Maryland State Dept. of Education, Baltimore

Introduction: Diel Powell, 12th-Grade Student, Frederick Douglass High School, Baltimore, Md.

Platform Guests: Bill Nye; Alan McCormack; Nancy Grasmick; Diel Powell; 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; Mary Weller, Chairperson, NSTA Baltimore Area Conference, MAST Past-President, and Howard County Public School System, Ellicott City, Md.; Ronald Hermann, Local Arrangements Coordinator, NSTA Baltimore Area Conference, and Towson University, Towson, Md.; Elizabeth McCook, Program Coordinator, NSTA Baltimore Area Conference, and Urbana High School, Ijamsville, Md.; Gloria Allen, NSTA Director, District III, and Plummer Elementary School, Washington, D.C.; Mona Becker, Maryland Association of Science Teachers (MAST) President, and McDaniel College, Westminster, Md.; Mary M. Thurlow, Maryland State Dept. of Education, Baltimore; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.

It's easy to plan a route when someone has been there before us. But in science, we want to know how to navigate when the route is uncharted. It's the process that we want to get across to our students. As our students come of age, they'll learn to recognize problems and the process they can use to solve them. Humankind faces remarkable problems in disease, food production, transportation, and climate change. We need students who know how to figure out what to do next—it's science.

Executive director of The Planetary Society, the world's large space interest organization, Bill Nye the Science Guy® is a scientist, engineer, comedian, author, and inventor. A man with a mission, Nye seeks to help foster a scientifically literate society and to help people everywhere understand and appreciate the science that makes our world work.

10:00–11:15 AM Exhibitor Workshops

Need "Energy" in Your Environmental Classes? Learn About Carolina's Inquiries in Science™ Environmental Series (Env)

(Grades 9–12) *336, Convention Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Looking for relevant, exciting lab activities for environmental science? Investigate climate change and explore alternative energy sources in this inquiry-based workshop. Carolina's Inquiries in Science Environmental Series provides hands-on activities to make teaching challenging topics effortless. Free teacher materials and door prizes!

What Is the Difference Between Heat and Temperature? (Chem)

(Grades 9–12) *338, Convention Center*

Sponsor: LAB-AIDS, Inc.

Tom Hsu, Author, Andover, Mass.

How many of your students can answer this question? We will show you a powerful, intuitive, and nearly foolproof way to teach this key idea in chemistry. The concept of heat and the flow of energy is a modern way to look at a core concept that appears in many of your standards. We will also use a classroom-rugged new probe system that stores data on a portable SD card!

Promote Inquiry Using Chemistry Demonstrations (Chem)

(Grades 9–12) *339, Convention Center*

Sponsor: Flinn Scientific, Inc.

Scott Stahler, Flinn Scientific, Inc., Batavia, Ill.

Looking for new ways to incorporate more inquiry-based experiments in your chemistry classroom? Asking questions is the heart of inquiry, and there is no better way to get students to ask questions than by presenting exciting, engaging demonstrations! Join us as we present classic demonstrations and describe a series of inquiry-based activities that were developed based on these demonstrations.

Is America Flunking Science? If So, Why? (Bio)
(Grades 9–12) *340, Convention Center*
Sponsor: Pearson
Joseph Levine, Concord, Mass.
Science is more important to everyday life and policy-making today than it has ever been before. In fact, scientific literacy is vital to national health and security. Yet, from the standpoint of real understanding of real science, the public and many of our students seem to be "dumb and getting dumber." What works against public understanding of science and quality science education, and how can we as educators rise to the challenge?

Inquiry Investigations™ Forensics Science Curriculum Module and Kits (Gen)
(Grades 7–10) *341, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Lou Loftin, Wassau County Public Schools, Reno, Nev.
Our new Inquiry Investigations forensic series with more than 55 activities helps students learn foundational analysis skills and 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.

Introducing the Delta Science Module Program (Gen)
(Grades K–8) *343, Convention 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. Come get involved 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.

Experiments for AP Environmental Science and Ecotechnology (Bio)
(Grades 6–College) *347, Convention 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 and ecology courses. A selection of new experiments features activities in bioremediation, detection of environmental infectious agents in water and the environment, and the detection of biological-based toxicants. Participants will receive resource materials to help integrate new experiments into their courses.

The Moon, Minerals, and Magnetism, Oh My! Space Missions from APL to Your Classroom (Earth)
(Grades 4–9) *348, Convention Center*
Sponsor: Johns Hopkins University Applied Physics Laboratory
Alexandra Matiella Novak *(alexandra.matiella.novak@jhuapl.edu)*, Johns Hopkins University Applied Physics Laboratory, Laurel, Md.
Participants will learn about space science missions being led by the Johns Hopkins University Applied Physics Laboratory (APL), located in Maryland. APL's Education and Outreach staff will lead several hands-on activities as well as provide take-away lesson ideas and handouts for teachers to use in class.

Fun, Fabulous Foldables® (Gen)
(Grades K–12) *349/350, Convention Center*
Sponsor: McGraw-Hill School Education Group
Dinah D. 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.

10:00–11:30 AM Exhibitor Workshop

Genetics: Crazy Traits and Adaptation Survivor (Gen)

(Grades 5–12) *345/346, Convention Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton and **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.

11:00–11:10 AM Exhibits Opening/Ribbon Cutting Ceremony

Pratt Street Lobby, Convention Center

Presider: Alan McCormack, NSTA President, and San Diego State University, San Diego, Calif.

Special Guests: 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; Mary Weller, Chairperson, NSTA Baltimore Area Conference, MAST Past-President, and Howard County Public School System, Ellicott City, Md.; Ronald Hermann, Local Arrangements Coordinator, NSTA Baltimore Area Conference, and Towson University, Towson, Md.; Elizabeth McCook, Program Coordinator, NSTA Baltimore Area Conference, and Urbana High School, Ijamsville, Md.; Gloria Allen, NSTA Director, District III, and Plummer Elementary School, Washington, D.C.; Mona Becker, Maryland Association of Science Teachers (MAST) President, and McDaniel College, Westminster, Md.; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Rick Smith, NSTA Managing Director, Advertising, Exhibits, and Workshops, Arlington, Va.

Musical Entertainment courtesy of Roland Park Elementary Middle School Crystal Quartet under the direction of Laura Hui.

11:10 AM–5:00 PM Exhibits

Hall E, Convention Center

Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

11:00 AM–12 Noon Exhibitor Workshop

***Active Physics,* Newly Revised Third Edition (Phys)**

(Grades 9–12) *337, Convention Center*

Sponsor: It's About Time

Arthur Eisenkraft *(arthur.eisenkraft@umb.edu)*, 2000–2001 NSTA President, and University of Massachusetts, Boston

Let's perform a series of guided inquiry activities that prepare students to do a voice-over of a sports video and explain the physics of the action appearing on the screen. Watch what happens to the quality of students' work when they take ownership of real-world scientific challenges that matter to them. Leave with a practical hands-on activity that you can do in your classroom. Also see how Fourier probeware enhances project-based activities.

11:00 AM–1:30 PM Exhibitor Workshop

A Sneak Preview of the New Planetary Science Middle School Course from FOSS (Earth)

(Grades 5–8) *344, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Larry Malone, Alan Gould, and **Jessica Penchos,** Lawrence Hall of Science, University of California, Berkeley

How have we come to understand the Solar System? How many other planetary systems are there and how do we find and explore them? These are some of the questions students engage with in FOSS Planetary Science 2011. This sneak preview will highlight new features and strategies incorporated into the course.

11:30 AM–1:30 PM Exhibitor Workshop

Innovative Science and Literacy Integration: Seeds of Science/Roots of Reading® (Gen)
(Grades 2–5) *342, Convention Center*
Sponsor: Delta Education/School Specialty Science–Seeds
Traci Wierman, **Jen Tilson, Suzy Loper,** and **Megan Goss,** Lawrence Hall of Science, University of California, Berkeley
Immerse yourself in 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 (free samples).

12 Noon–1:15 PM Exhibitor Workshop

Educational Science Lab Design and Implementation for the 21st Century Made Easy (Gen)
(Grades 5–College) *341, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
John Flockenzier and **Gordon Strohminger,** Frey Scientific/School Specialty Science, Nashua, N.H.
Come 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.

12 Noon–1:30 PM Luncheon

Preservice and New Teachers Luncheon (M-1)
(Tickets Required; $12) *322, Convention Center*
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 NSTA resources at your fingertips for your science classroom, your career, and your own content knowledge. Enjoy lunch (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 7:00 PM on Wednesday.

Note: Tickets will be provided only to preservice teachers or teachers with up to five years of teaching experience.

12 Noon–1:30 PM Exhibitor Workshop

CPO SmartTrack with Velocity Sensor and Energy Car (Gen)
(Grades 5–12) *345/346, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton and **Patsy Eldridge,** CPO Science/School Specialty Science, Nashua, N.H.
Our new Velocity Sensor uses sound waves to measure and display position, velocity, and acceleration data of moving objects. We'll 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.

12:30–1:30 PM Presentations

SESSION 1
An "Insider's Guide" to High-Stakes Assessment Creation: Middle School (Gen)
(Middle Level) *321, Convention Center*
Sharon Bowen *(sd_bowen@msn.com)* and **Katherine Porter,** Words and Numbers, Inc., Baltimore, Md.
Gain insight into the complex process of creating high-stakes assessment items and prep materials from those who play a role in writing them.

SESSION 2
What Is STEM, Really? (Gen)
(High School) *323, Convention Center*
Louis B. Rosenblatt, Consultant, Baltimore, Md.
Let's examine the STEM movement, focusing on STEM as a way of doing science and looking at projects, design, and tinkering.

SESSION 3

Research Is Elementary (Gen)
(Elementary) 324, Convention Center

Cherry K. Sprague *(cksprague@hotmail.com),* Princeton High School, Princeton, N.J.
Roberta Hunter *(acorntooakee@gmail.com),* **Diane Lefenfeld** *(diane_lefenfeld@monet.prs.k12.nj.us),* **Amy Pfeffer** *(amy_pfeffer@monet.prs.k12.nj.us),* and **Kathleen Sanfillippo** *(kathy_sanfillippo@monet.prs.k12.nj.us),* Johnson Park School, Princeton, N.J.
Donna Eisenacher *(donna_eisenacher@monet.prs.k12.nj.us),* Princeton (N.J.) Regional Schools

Grades 3–5 students conduct research projects related to science units. Students select questions, do research, gather and analyze data, and present the results.

SESSION 4

Making Lemonade: Using Construction as a Curriculum (Phys)
(Elementary–High School) 329, Convention Center

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

Even if those jackhammers are renovating your school across the street, they are a distraction! Here is a set of activities that can help students understand the physical science of engineering and building.

SESSION 5

JetStream: An Online School for Weather (Earth)
(General) 332, Convention Center

Dennis Cain *(dennis.cain@noaa.gov),* National Weather Service, Fort Worth, Tex.

JetStream is a free online resource from the National Weather Service. Each module is designed with both text and graphic displays and includes "learning lessons."

Tickets Required (M-1; $12 on-site) and, if still available, must be purchased at the Registration Area by 7 P.M. on **Wednesday, November 10.**

This event is generously sponsored by Kendall Hunt Publishing Company.

Kendall Hunt publishing company

NSTA National Science Teachers Association

SESSION 6

Earth System Model Project (Earth)
(Middle Level) *Holiday 3, Hilton*
Mona L. Becker *(mbecker@mcdaniel.edu),* Sykesville Middle School, Sykesville, Md.
Our professional learning community developed interdisciplinary science lessons for an Earth system project, emphasizing skills, processes, the scientific method, chemical/physical properties, and Earth cycles.

SESSION 7

Extreme Exploration: Journey to Earth's Radiation Belts (Earth)
(Middle Level–High School) *Key Ballroom 11, Hilton*
Dawn Turney *(dawn.turney@jhuapl.edu),* The Johns Hopkins Applied Physics Laboratory, Laurel, Md.
Hear how the radiation environment surrounding Earth can affect us and about the mysteries that await a new mission to this dangerous region.

SESSION 8

Science and the Special Educator: A Professional Learning Community Model (Gen)
(General) *Latrobe, Hilton*
Jim Peters, Gretchen Rockafellow *(garocka@carrollk12.org),* and **Jennifer Wolfarth** *(jawolfa@carrollk12.org),* Carroll County Public Schools, Westminster, Md.
Professional Learning Communities (PLC) provide staff development opportunities for teachers. This Carroll County model partners special education teachers with resources and strategies to enhance science instruction.

SESSION 9

CSI Baltimore: A Forensic Project Based Learning (PBL) Workshop as a Practical Approach for STEM Education (Gen)
(General) *Ruth, Hilton*
Debarati Ghosh *(dghosh@hccfl.edu)* and **Krista Noren-Santmyer** *(knorensantmyer@hccfl.edu),* Hillsborough Community College, Tampa, Fla.
Create a forensic crime scene that challenges students to work cooperatively in groups to solve real-world issues using scientific knowledge.

12:30–1:30 PM Workshops

Discovery Tree: Teaching Preschoolers Ecology by Connecting Literature and Visual Models (Env)
(Preschool–Elementary) *325, Convention Center*
Emily M. Ford and **Candace Lutzow-Felling** *(lutzow-felling@virginia.edu),* University of Virginia, Boyce
Learn about a preschool program focused on providing positive outdoor science experiences. Make your own 3-D tree and animal inhabitants for the classroom.

Teaching Energy Conservation with an Emphasis on Biofuels (Gen)
(Informal Education) *326, Convention Center*
Sue P. Kral *(spk@cdmfun.org),* Creative Discovery Museum, Chattanooga, Tenn.
We'll look at the research on a non-food alternative liquid fuel for transportation. Inquiry activities promote understanding of these issues.

Studying Soil Ecology in the Classroom (Env)
(Middle Level–High School) *327, Convention Center*
David L. Brock *(brockda@rpcs.org),* Roland Park Country School, Baltimore, Md.
Come discover the realm of the amoeba! Engage your students in field studies exploring the ecology of the microscopic world.

Boot Camp for Professional Development Providers: Learning the Basics (Gen)
(General) *331, Convention Center*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
Are you increasing or developing professional development skills to add to your repertoire? Join the NSTA Professional Development Committee to explore strategies and skills associated with conducting professional development presentations.

Science in the Media: Bringing Cutting-Edge Astronomy from Scientists to Students (Phys)
(High School) *Holiday 1, Hilton*
Barbara J. Mattson *(barb.mattson@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.
How does a scientific discovery go from scientists to interested audiences? Let your students try their hands at it with NASA's *Astronomy in the News.*

Activities, Materials, and Resources That Teach Science! (Phys)
(Elementary–Middle Level) *Holiday 2, Hilton*
Christine Wheeler *(wheelerc@jlab.org),* **Lisa Surles-Law** *(surles@jlab.org),* and **Stephen F. Gagnon** *(gagnon@jlab.org),* Thomas Jefferson National Accelerator Facility, Newport News, Va.
Teach physical science with these teacher-developed activities and materials. Leave this session with activities to use in class on Monday!

Cruisin' to Food Safety: Integrating Food Safety into Your Science Curriculum (Bio)
(Middle Level–High School) *Key Ballroom 1, Hilton*
Laurie A. Hayes *(lhayes@cart.org),* Center for Advanced Research and Technology, Clovis, Calif.
Susan E. Hartley *(susan.mumford.hartley@hotmail.com),* Navarro High School, Geronimo, Tex.
Explore the FDA's hands-on curriculum that teaches students the importance of food safety and nutrition while integrating science and health standards. Free teaching materials and door prizes!

Help! My Students Don't Understand Their Text and Readings (Gen)
(Middle Level–High School) *Key Ballroom 3, Hilton*
Barbara L. Teichman, Montgomery County Public Schools, Rockville, Md.
Stephanie J. Temme *(stephanie_j_temme@mcpsmd.org),* Rocky Hill Middle School, Clarksburg, Md.
Change reluctant readers, English language learners, and special needs students into engaged, scientifically literate individuals with these easily adaptable techniques.

Linear Motion (Phys)
(High School) *Key Ballroom 4, Hilton*
Kelly T. Rick *(kellyrick@dvrhs.k12.nj.us),* Delaware Valley Regional High School, Frenchtown, N.J.
Using motion detectors and MS Excel, students display and analyze real-time data collected on their own motion as well as the motion of a constant and accelerating buggy.

Science Homework: A Family Event (Phys)
(Middle Level–High School) *Key Ballroom 5, Hilton*
Dawn L. Cronauer *(dawn.cronauer@hcps.org),* North Harford Middle School, Pylesville, Md.
Excite students about homework and get their parents involved with hands-on science. Take home a CD of home demonstrations for each physical science unit.

NSTA Press Session: Teaching for Conceptual Change (Gen)
(Elementary–Middle Level) *Key Ballroom 7, Hilton*
Page Keeley *(pkeeley@mmsa.org),* 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta
Richard Konicek-Moran *(konmor@comcast.net),* Retired Educator, Amherst, Mass.
Learn how combining assessment probes and everyday mysteries from two best-selling NSTA Press series books supports conceptual change teaching and fosters a classroom climate rich in inquiry. Examples from *Uncovering Student Ideas in Science* and *Everyday Science Mysteries* will be featured.

Stellar Evolution: Cosmic Cycles of Formation and Destruction (Earth)
(Informal Education) *Key Ballroom 8, Hilton*
Doug Lombardi *(lombardi.doug@gmail.com),* Southern Nevada Regional Professional Development Program, North Las Vegas
Donna L. Young *(donna.young@tufts.edu),* Wright Center for Science Education, Tufts University, Medford, Mass.
Pamela Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine
Learn how stars evolve from formation in giant clouds of gas and dust to destruction in catastrophic explosions.

NASA Data, Activities, and Analysis in Your Classroom (Earth)
(High School) *Key Ballroom 9, Hilton*
James Lochner *(james.c.lochner@nasa.gov),* Universities Space Research Association and NASA Goddard Space Flight Center, Greenbelt, Md.
Bring the stars down to Earth with *Student Hera,* NASA software for studying satellite data! I'll share hands-on activities and computer software for student analysis.

12:30–1:30 PM Exhibitor Workshop

NEW! *Investigating Astronomy* from TERC/*EarthComm* from AGI (Earth)

(Grades 9–12) *337, Convention Center*

Sponsor: It's About Time

Tom Custer, It's About Time, Armonk, N.Y.

Developed by the education experts at TERC, *Investigating Astronomy* is the first comprehensive, yearlong astronomy curriculum designed specifically for high school students. *EarthComm* is brought to you by the geology education professionals at the American Geological Institute. Participate in activities and real-world projects that can motivate your students and leave with practical hands-on activities that you can do in your classroom. Also see how Fourier probeware enhances project-based activities.

12:30–1:45 PM Exhibitor Workshops

Explore Google Earth with Discovery Student Adventures (Gen)

(Grades 5–12) *330, Convention Center*

Sponsor: Discovery Student Adventures

Lance Rougeux *(lance_rougeux@discovery.com),* Discovery Education, Silver Spring, Md.

Google Earth has many layers, literally! Come explore the layers within Google Earth and see how you can use them in your instruction. Take students on virtual field trips that provide powerful geographic visualization—ruler tools, embedded videos, overlays of images that make Earth's actual terrain a part of the learning experience, and more. Investigate up-to-date seismic activity, weather data, sea surface temperatures, and 3-D buildings and learn how to add your own customized content.

Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (Bio)
(Grades 6–12) *336, Convention 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!

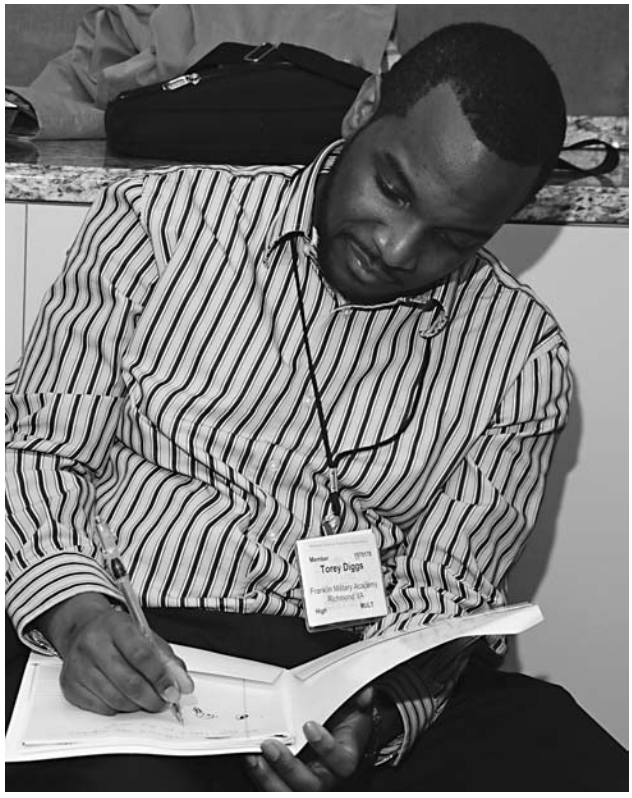
Real Chemistry for All Students…But How? (Chem)
(Grades 9–12) *338, Convention Center*
Sponsor: LAB-AIDS, Inc.
Tom Hsu, Author, Andover, Mass.
What are the barriers to teaching real, quantitative chemistry to all students, in a way that they can succeed? Dr. Hsu will lead a hands-on exploration that will touch the areas of greatest student difficulty and show you many intuitive and practical solutions that can help your students engage with chemistry and learn. *A Natural Approach to Chemistry* does not require Bunsen burners or fume hoods, and all the experiments use nontoxic chemicals that can be easily disposed of. This is real chemistry without expensive chemical disposal fees!

The Next Generation of Science Virtual Labs—No Cleanup Required (Gen)
(Grades 9–12) *340, Convention Center*
Sponsor: Pearson
Brian Woodfield, Brigham Young University, Provo, Utah
Brian Woodfield, author and creator of Pearson's innovative *Virtual Lab* series, will demo some of his latest eye-popping science virtual labs that are so visually realistic you have to see them to believe them! Whether you are short on time or short on lab materials in the classroom, virtual labs give you the flexibility to experiment. Handouts and free science virtual lab sample CDs will be provided so you can use them in your classroom next week.

Living by Chemistry: Feeling Under Pressure (Chem)
(Grades 9–12) *347, Convention Center*
Sponsor: Key Curriculum Press
Jeffrey Dowling *(jdowling@keypress.com),* Key Curriculum Press, Emeryville, Calif.
Teach rigorous chemistry with guided inquiry! Let's explore activities that help students understand gas behavior and gas laws through a weather context. Sample lessons from the Living by Chemistry curriculum will be provided.

The Layered Earth (Earth)
(Grades 5–12) *348, Convention Center*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(smeyers@simcur.com),* Simulation Curriculum Corp., Aurora, Ont., Canada
What powers the internal processes that produce volcanoes, earthquakes, and mountains? What is the rock cycle and how does it work? Exactly how are volcanoes formed? What might Earth look like in the future? Join us on the big screen and experience The Layered Earth, the new geology curriculum from the makers of the award-winning Starry Night!

I See What You Mean! Developing Visual Literacy (Gen)
(Grades K–8) *349/350, Convention Center*
Sponsor: McGraw-Hill School Education Group
Jo Anne Vasquez, 1996–1997 NSTA President, and Helios Education Foundation, Phoenix, Ariz.
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. Activities, handouts, and prizes.



12:45–4:15 PM Short Course

NSTA Press Session: Inside Out: Environmental Science in the Classroom and the Field (SC-1)
(Grades 3–8) *Off-site (Columbus Center)*
Tickets Required: $25
SOLD OUT
Sarah Haines *(shaines@towson.edu)* and **Robert Blake** *(rblake@towson.edu),* Towson University, Towson, Md.
J. Adam Frederick *(frederic@mdsg.umd.edu),* Center of Marine Biotechnology, Baltimore, Md.
For description, see page 35.

1:00–1:30 PM Presentation

SESSION 1
Engaging Digital Natives in an Inquiry Science Classroom (Gen)
(Elementary–High School) *Key Ballroom 10, Hilton*
Oliver Dreon *(oliver.dreon@millersville.edu)* and **Nanette Marcum-Dietrich,** Millersville University of Pennsylvania, Millersville
We'll look at the traits of digital natives and some applications that engage digital natives in an inquiry science classroom.

1:00–2:30 PM Exhibitor Workshop

What's Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Teachers (Gen)
(Grades K–8) *343, Convention Center*
Sponsor: Delta Education/School Specialty Science
John Cafarella, Consultant, Canadensis, Pa.
Support and evaluate an inquiry-based science lesson/program and learn how to observe an inquiry science lesson. 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 content/materials and implementation.

1:00–5:00 PM Short Course

Why Evolution Matters in the 21st Century (SC-2)
(Middle Level–College/Supervision) *Tubman, Hilton*
Tickets Required: $25
Jerald B. Johnson *(jerry.johnson@byu.edu),* **Duane E. Jeffery, Byron J. Adams** *(bjadams@byu.edu),* **Scott M. Ritter,** and **Duane Merrell,** Brigham Young University, Provo, Utah
Daniel J. Fairbanks and **Richard R. Tolman** *(tolmanri@uvu.edu),* Utah Valley University, Orem
For description, see page 35.

2:00–2:30 PM Presentations

SESSION 1
Incorporating Nature of Science in the Classroom (Gen)
(High School) *321, Convention Center*
Alicia J. Shaw *(ashaw@towson.edu)* and **Mary Stapleton** *(mkstapleton@towson.edu),* Towson University's Center for STEM Excellence, Baltimore, Md.
Learn some strategies for intertwining nature of science with the curriculum in order to teach science as a conceptually oriented, problem-solving activity.

SESSION 2
Examining the "Creativity" of Expository Writing in Science (Gen)
(General) *Latrobe, Hilton*
Nicole J. Glen *(nglen@bridgew.edu),* Bridgewater State College, Bridgewater, Mass.
We'll look at results of a science writing study, examples of how authors are creative scientific writers, and how to develop elementary students' creativity as writers in science.

2:00–3:00 PM Presentations

SESSION 1
An Ocean of Tools: NOAA's Inquiry-based Online Resources for Teaching Earth and Life Sciences in the 21st-Century Classroom (Env)
(General) *323, Convention Center*
Bruce Moravchik *(bruce.moravchik@noaa.gov)* and **Peggy L. Steffen** *(peg.steffen@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.
NOAA Ocean Service Education *(http://oceanservice.noaa.gov/education)* teaches about ocean, coastal, and climate research. We'll look at tutorials, case studies, lesson plans, and games that emphasize hands-on problem-based learning.

SESSION 2
Using Online Simulations to Enrich Curricula (Chem)
(Elementary) *324, Convention Center*
Sandra M. Russell *(sandra_m_russell@mcpsmd.org),* Beall Elementary School, Rockville, Md.
I'll share website simulations related to physics (force and motion, electricity), graphic organizers that record students' thinking, and ideas for integration.

SESSION 3

Empowering Youth: Reducing Carbon Dioxide Emissions in Your Community (Env)

(Elementary–High School) *327, Convention Center*

Lynne Cherry, Thurmont, Md.

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

K–12 students are concerned about climate change. Learn how students are working to reduce their carbon footprint and get some hands-on ideas for your classroom.

SESSION 4

Implementing a Successful High School Biomedical Sciences Program (Bio)

(High School) *329, Convention Center*

Heather B. Carias *(heather_b_carias@mcpsmd.org)* and **Catherine Sobieszczyk** *(catherine.sobieszczyk@gmail.com),* Wheaton High School, Wheaton, Md.

A biomedical sciences program consisting of four courses was implemented in a diverse suburban school and enhanced student achievement and interest in science-related careers.

SESSION 5

NASA's High-Energy Vision: Chandra and the X-ray Universe (Earth)

(General) *332, Convention Center*

Doug Lombardi *(lombardi.doug@gmail.com),* Southern Nevada Regional Professional Development Program, North Las Vegas

Donna L. Young *(donna.young@tufts.edu),* Wright Center for Science Education, Tufts University, Medford, Mass.

Pamela Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine

Learn the latest results from NASA's Chandra X-Ray Observatory concerning black holes, supernovae, colliding galaxies, stellar evolution, and the structure of the universe.

SESSION 6

Summer Ecology Experience (SEE) Across Your State (Env)

(Middle Level–College) *Key Ballroom 2, Hilton*

Michael B. Sustin *(mike.sustin@westg.org),* West Geauga High School, Chesterland, Ohio

Planning meaningful environmental experiences during the school year can be problematic. Planning an interdisciplinary summer field experience is easy. Our SEE Across Ohio paid big returns for all involved.

SESSION 7

Do They Get It? Using Clickers to Assess Student Learning (Bio)

(Middle Level–High School) *Key Ballroom 3, Hilton*

Teresa A. Stahl *(tstahl@aacps.org),* Severna Park High School, Severna Park, Md.

David L. Mensch *(dmmensch@zitomedia.net),* Port Allegany High School, Port Allegany, Pa.

Explore formative and summative assessment strategies that use student-response systems, also known as clickers.

SESSION 8

NSTA Press Session: A Leader's Guide to Curriculum Topic Study (CTS) (Gen)

(General) *Key Ballroom 7, Hilton*

Page Keeley *(pkeeley@mmsa.org),* 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta

Teacher leaders and PLC facilitators!—learn how you can use this NSF-funded comprehensive guide within a variety of professional learning structures to deepen teachers' understanding of the topics they teach.

SESSION 9

Celebrate Hubble's 20th Anniversary! (Earth)

(Informal Education) *Key Ballroom 8, Hilton*

Suzanne Pleau Kinnison, Institute for Global Environmental Strategies, Arlington, Va.

Bonnie Eisenhamer *(bonnie@stsci.edu),* Space Telescope Science Institute, Baltimore, Md.

The Top Stars contest invited U.S. educators to submit their best examples for using NASA's Hubble Space Telescope for science, technology, engineering, or mathematics education. Take a tour of the Showcase, which features all of the entries selected as Top Stars.

SESSION 10

Computer-enhanced Science Teaching (Bio)

(General) *Key Ballroom 11, Hilton*

Grace N. Ekpenyong *(gneassociates@yahoo.com),* Morgan State University, Baltimore, Md.

Presider: Obed Norman, Morgan State University, Baltimore, Md.

Enrich science learning with computer-based field trips. We'll look at factors that seem to contribute to low computer integration.

SESSION 11

Taking the Mystery Out of the T&E in STEM (Gen)

(General) *Ruth, Hilton*

William E. Ball *(william_e_ball@mcpsmd.org),* Montgomery County Public Schools, Rockville, Md.

Computers are important artifacts in today's society; they aren't the T&E in the STEM initiative as the National Academies and NSF see educators defining it. What is T&E really?

2:00–3:00 PM Workshops

Portable Affordable Simple Science (P.A.S.S. ©) for PreK–2: Linking Home and School (Gen)

(Preschool–Elementary/Supervision) *325, Convention Center*

Renee G. O'Leary and **Margaret "Peggy" Dee** *(drpeggydee@verizon.net),* Caravel Academy, Bear, Del.

P.A.S.S., a multisensory, hands-on, process-oriented science approach, assures success for every child. Each child has a science lesson bag with safe, inexpensive materials. Take home two lesson bags and teaching materials.

Radiation and Health Workshop for Teachers (Gen)

(Middle Level–High School) *326, Convention Center*

Raymond H. Johnson, Jr. *(ray.johnson@moellerinc.com),* Radiation Safety Academy, Gaithersburg, Md.

William F. Holcomb *(wfholcomb@comcast.net),* Baltimore-Washington Chapter, Health Physics Society, Montgomery Village, Md.

Presider: Raymond H. Johnson, Jr.

Review radiation fundamentals and explore radiation science issues. Get some hands-on experience with Geiger counters.

Paperless Formative and Summative Assessment (Gen)

(Middle Level–High School) *328, Convention Center*

Greg Dodd *(gbdodd@gmail.com),* George Washington High School, Charleston, W.Va.

Join me for a green hands-on experience using formative and summative assessment in a 21st-century science classroom to evaluate and improve science instruction and student comprehension.

Seven Simple Strategies for Cultivating Classroom Inquiry (Gen)

(Elementary–High School) *331, Convention Center*

Julia T. Gooding, Monaca, Pa.

William C. Metz *(wmetzgolf@aol.com),* Retired Educator, Fort Washington, Pa.

Experience seven simple strategies for turning the act of teaching into the art of inquiry. Handouts.

Help! Why Can't They Pass the Test? (Gen)

(Elementary–High School) *Holiday 1, Hilton*

Deborah M. Batzer *(deborah_batzer@hcpss.org),* Howard County Public School System, Ellicott City, Md.

These strategies improve student achievement using systematic approaches to building assessment vocabulary and skills.

Inquiry Matters: Incorporating Inquiry into Elementary and Middle School Physical Science (Chem)

(Elementary–Middle Level) *Holiday 2, Hilton*

Adam M. Boyd, American Chemical Society, Washington, D.C.

Explore the characteristic physical properties of four similar-looking household liquids and identify four unknowns. Take home handouts of all activities.

Activities from Across the Earth System (Bio)

(Elementary–Middle Level) *Holiday 3, Hilton*

Becca Hatheway *(hatheway@ucar.edu),* University Corporation for Atmospheric Research, Boulder, Colo.

Roberta M. Johnson, National Earth Science Teachers Association, 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.

Amazing Things Cells Can Do (Bio)

(Middle Level–High School) *Key Ballroom 1, Hilton*

Louisa Stark *(louisa.stark@utah.edu),* University of Utah, Salt Lake City

Bring your cell unit to life with a 3-D movie and interactive animations! Online and classroom activities explore organelles, cell communication, size, and scale. Activities are free at *http://learn.genetics.utah.edu.*

Content Literacy Strategies That Improve Cognition in Science (Gen)

(Middle Level–High School) *Key Ballroom 4, Hilton*

Gary Hedges *(ghedges@msde.state.md.us),* **Mary M. Thurlow** *(mthurlow@msde.state.md.us),* and **George Morse** *(gmorse@msde.state.md.us),* Maryland State Dept. of Education, Baltimore

Learn how content literacy strategies are used to improve student performance in science.

2:00–3:00 PM Exhibitor Workshop

Active Chemistry (Chem)
(Grades 9–12) *337, Convention Center*
Sponsor: It's About Time
Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts, Boston
Active Chemistry is an NSF inquiry-based curriculum that makes chemistry accessible to ALL high school students. Come join us and learn how Active Chemistry can enhance your chemistry instruction and how your students can become artists using chemistry, cooks using chemistry, and game developers using chemistry. Discover how Active Chemistry differentiates instruction so that all students succeed in chemistry. Also see how Fourier probeware enhances project-based activities.

2:00–3:15 PM Exhibitor Workshop

Bring Your Science Lab into the 21st Century Using iNeo/SCI™ Virtual Science Solutions (Gen)
(Grades 10–12) *341, Convention Center*
Sponsor: Frey Scientific/School Specialty Science
Lou Loftin, Wassau County Public Schools, Reno, Nev.
Extend e-Learning with virtual laboratory experiences to your students anywhere! iNeo/SCI provides web-based tools to facilitate teaching and learning with our new e-Learning series content, which includes virtual laboratory experiences, tutorials, assessment, and the active monitoring of student progress! Participants receive free 21-day trial access to iNeo/SCI.

2:00–3:30 PM Exhibitor Workshop

Springs and Swings: Harmonic Motion and Hooke's Law (Gen)
(Grades 5–12) *345/346, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton and **Patsy Eldridge,** CPO Science/School Specialty Science, Nashua, N.H.
Use CPO Science's new Springs and Swings to explore the concepts of harmonic motion, oscillation, natural frequency, resonance, and Hooke's Law. This new versatile piece of 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.

2:15–3:30 PM Exhibitor Workshops

Introduction to Wisconsin Fast Plants® (Bio)
(Grades K–12) *336, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Students can actively take part in science with new hands-on activities using Wisconsin Fast Plants. These minuscule and quick-growing plants are ideal classroom tools for exploring environmental effects, variation, life cycle, and nutrient cycling. Participants work with a variety of hands-on activities, including planting seeds. Free materials.

Teach Chemistry with Hydrogen Fuel Cells (Chem)
(Grades 9–12) *338, Convention Center*
Sponsor: LAB-AIDS, Inc.
Laura Lenz, Lawrence Hall of Science, University of California, Berkeley
Come learn how hydrogen fuel cells can be used to teach high school chemistry and environmental science. Participate in a SEPUP module and take home an activity that includes both web-based and hands-on models of fuel cell function.

Fantastic Physical Science Demonstrations from Flinn Scientific (Phys)
(Grades 7–12) *339, Convention Center*
Sponsor: Flinn Scientific, Inc.
Lori Kessler, Flinn Scientific, Inc., Batavia, Ill.
Amaze your students with quick demonstrations that teach common physical science topics—sound, color dynamics, energy, pressure, density, rotation, and scientific inquiry. More than a dozen effective demonstrations will be performed.

If You Teach AP Chemistry, You Gotta Get This! (Chem)
(Grades 9–12) *340, Convention Center*
Sponsor: Pearson
Ed Waterman, Retired Educator, Fort Collins, Colo.
Finally an AP Test Prep workbook that gets results! Acquire rich resources that help students learn to score well on the Advanced Placement Chemistry exam, even with limited time. Correlated to *Chemistry: The Central Science* by Brown and Le May, everything you need is here.

Help Students Discover the Science of Everyday Life **(Gen)**

(Grades K–8) *347, Convention Center*

Sponsor: Discovery Education

Patti Duncan, Wallenpaupack Area School District, Hawley, Pa.

What better way to excite students about science than to show them the role it plays in everything around them—from refrigerator magnets to adhesive bandages to soundproofing a room. Discovery Education and 3M have launched a new program that spotlights the science of everyday life and helps students prepare for the Discovery Education 3M Young Scientist Challenge. Learn about several hands-on activities and walk away with materials you can use in the classroom right away. Attendees can win free 3M school supplies!

***ARKive.org:* Using Audiovisuals to Promote Conservation Education** **(Bio)**

(General) *348, Convention Center*

Sponsor: ARKive (Wildscreen USA)

Liana Vitali *(liana.vitali@wildscreenusa.org),* Wildscreen USA/ARKive, Washington, D.C.

ARKive.org is leading the "virtual" conservation effort by creating a unique collection of multimedia fact files for every threatened species on Earth. After an introduction to ARKive's more than 60,000 films and photos that are freely available to formal educators and students, participants will explore ARKive lesson plans and activities for the classroom.

Teaching Inquiry Science with Toys and Treats **(Gen)**

(Grades 6–12) *349/350, Convention Center*

Sponsor: McGraw-Hill School Education Group

Ralph Feather, Jr., Bloomsburg University, Bloomsburg, Pa.

Learn fun, practical, and engaging hands-on teaching ideas using toys and treats. Take home a wealth of ideas for teaching difficult concepts in novel ways.

2:15–4:30 PM Exhibitor Workshop

Stream Assessment: An Active, Integrated Approach to Science Learning **(Env)**

(Grades 6–12) *330, Convention Center*

Sponsor: Water Environment Federation

Dan Boward, Maryland Dept. of Natural Resources, Annapolis

Amy Soli, Stony Brook-Millstone Watershed Association, Pennington, N.J.

Liz Anger and **Robin Myers,** LaMotte Co., Chestertown, Md.

Participate in a hands-on simulation of chemical, biological, and geophysical assessment of stream water quality. Take-home resources, including a World Water Monitoring Day™ test kit, will be supplied.

2:30–3:00 PM Presentation

SESSION 1

The Migration of "Ocean" the Harbor Seal **(Earth)**

(Middle Level–High School) *Key Ballroom 10, Hilton*

Jennifer C. Aydelotte *(aydeljen@wcboe.k12.md.us),* North Hagerstown High School, Hagerstown, Md.

Our students used inquiry to interpret satellite imagery to make predictions about harbor seal migration. Let's take a look at the students' final PowerPoint presentation.

2:30–4:30 PM Exhibitor Workshop

Using Science Notebooks with FOSS K–6 **(Gen)**

(Grades K–6) *344, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Brian Campbell, Lawrence Hall of Science, University of California, Berkeley

Ellen Mintz, Charleston County Schools, Charleston, S.C.

Jeri Calhoun, Science Associate, Isle of Palms, S.C.

Learn the essential components for creating and effectively using science notebooks with your students. Through a hands-on FOSS investigation, you'll discover how science notebooks can be used to impact student achievement and how to use science notebooks as an effective tool for building conceptual understanding. Sample FOSS materials will be distributed.

3:00–4:30 PM Exhibitor Workshop

The Craft of Questioning and Delta Science Modules (Gen)

(Grades K–8) *343, Convention Center*

Sponsor: Delta Education/School Specialty Science

John Cafarella, Consultant, Canadensis, Pa.

Using activities and strategies from Delta Science Modules units, we'll examine effective questions and questioning through a lens of "Bloomish" taxonomy as well as explore some appropriate questions for the stages of your lesson development—questions that assess, enhance student understanding, and inform your teaching.

3:30–4:00 PM Presentation

SESSION 1

The Environment and Service Learning (Env)

(Elementary–Middle Level) *Key Ballroom 10, Hilton*

Shelly Munoz *(smunoz@menifeeusd.org)* and **Cheryl C. Frye** *(cfrye@menifeeusd.org),* Menifee Valley Middle School, Menifee, Calif.

Engage in activities that simulate the social action process. We'll look at project components, timelines, ways to choose a topic, and correlations with the national standards.

3:30–4:30 PM Featured Presentation

Wild Patterson Park: Discovering Nature's Treasures in Baltimore's Best Backyard (Gen)

(General) *Holiday Ballroom 4/5, Hilton*

Middleton Evans *(middleton63@gmail.com),* Photographer, Ravenwood Press, Inc., Baltimore, Md.

Presider: Carol Lancaster, Baltimore County Public Schools, Baltimore, Md.

Baltimore's favorite green space, Patterson Park, is a beloved destination for picnics, dog walks, summer concerts, and Little League baseball, BUT few are aware that it teems with birdlife. Acclaimed Maryland photographer Middleton Evans has made hundreds of trips to the park over the past 12 years, enjoying sublime encounters with more than 130 species of birds and other critters that one would not expect to see in an urban park quilted in tidy mowed lawns. In addition to these treasures close to home, Evans will share remarkable images and stories from *Rhapsody in Blue,* his most recent publication about North American waterbirds.

Middleton Evans is known as Maryland's most devoted photographer. For 20 years, this Baltimore native has photographed the many faces of Maryland while capturing the essence of its colorful traditions, people, and places. While North American wildlife is a passionate interest, Evans has spent the majority of his career documenting the many faces of Maryland. Favorite subjects include Chesapeake Bay watermen, cities and towns, festivals, farm life, and equestrian sports. A milestone was reached in 2001 when Maryland Public Television selected Evans as one of six local photographers to be featured in the documentary film Images of Maryland: 1900–2000, *chronicling the state's most distinguished lensmen of the 20th century.*

3:30–4:30 PM Presentations

SESSION 1 (two presentations)
(General) *321, Convention Center*

Teaching Physics in Urban Settings (Phys)
Katya D. Denisova *(eddenisova@bcps.k12.md.us),* Baltimore (Md.) City Public Schools
Examine the issue of inequities in urban schools through the lens of a Baltimore City classroom teacher and district science supervisor. We will look at the influence of race and poverty on urban youths' self-perception of academic ability in physics classes, preparation and retention of physics teachers, and successful classroom practices and teaching techniques.

How an Inquiry-based Science and Technology Program Affects Female Students' Attitudes About Science (Gen)
Hanna Kim, DePaul University, Chicago, Ill.
To study whether or not an inquiry-based approach can motivate both female students' learning about science and improve their content knowledge of selected science concepts, an Inquiry-Based Science and Technology Enrichment Program (InSTEP) was designed for 127 seventh-grade female students for a weeklong period.

SESSION 2

How to Get Published in an NSTA Journal (Gen)
(General) *323, Convention Center*
Ken Roberts *(kroberts@nsta.org),* Assistant Executive Director, NSTA Journals, NSTA, Arlington, Va.
Meet the editors and learn how to properly prepare and submit an article for submission to one of NSTA's four award-winning journals.

SESSION 3

Starting an NSTA Student Chapter: Faculty and Student Perspectives (Gen)

(General) *324, Convention Center*

Howard Wahlberg *(hwahlberg@nsta.org),* Assistant Executive Director, Member, Chapter, and Customer Relations, NSTA, Arlington, Va.

Interested in getting your preservice teachers more involved in the profession? Don't miss this must-see panel discussion conducted by NSTA student chapter advisors on the advantages of starting an NSTA student chapter at your college or university.

SESSION 4

CESI Session: Fun and Easy Ways to Get Started with Robots (Gen)

(Elementary) *325, Convention Center*

Dianne O'Grady-Cunniff *(dianne_ogrady-cunniff@hcpss.org),* Howard High School, Ellicott City, Md.

Joshua Berenhaus *(jberenhaus@umd.edu),* Student, University of Maryland, College Park

Discover simple ways robots can be used to spark interest and curiosity and learn how a group of high school tutors with an elementary after-school program used LEGO® robots to benefit everyone.

SESSION 5

Hollywood BAD Science (Gen)

(Middle Level–College) *327, Convention Center*

Daryl L. Taylor *(daryl@darylscience.com),* Greenwich High School, Greenwich, Conn.

Learn how to use current media—movies, cartoons, and news—to drive home a point or demonstrate a misconception. Resources and freebies provided.

SESSION 6

NASA CERES S'COOL Project: Be a S'COOL Cloud Observer! (Earth)

(Elementary–High School) *329, Convention Center*

Preston M. Lewis, Science Systems and Applications, Inc./NASA Langley Research Center, Hampton, Va.

Engage your students in making real-world cloud and weather observations for NASA. Become a S'COOL cloud observer! Plenty of handouts!

SESSION 7

The American Chestnut Tree: Spiraling for Instructional Success (Gen)

(Middle Level–High School) *Holiday 2, Hilton*

Brad Yohe *(beyohe@carrollk12.org)* and **Jim Peters,** Carroll County Public Schools, Westminster, Md.

Sara Fitzsimmons *(sara@acf.org),* The Pennsylvania State University, University Park

The Carroll County Public School System has partnered with the American Chestnut Foundation to develop a spiraling science curriculum for grades 6–12.

SESSION 8

Motivating Students to "Want" to Learn the Scientific Method (Gen)

(Middle Level–High School) *Key Ballroom 5, Hilton*

Dawn L. Cronauer *(dawn.cronauer@hcps.org),* North Harford Middle School, Pylesville, Md.

Use a mysterious clear liquid that turns blue when shaken to motivate students to learn the scientific method. Students feel like "real" scientists as they debate their conflicting theories.

SESSION 9

Environmental Science as Ninth-Grade Science (Env)

(High School) *Key Ballroom 7, Hilton*

Susan K. Boyle *(sboyle@ccps.org)* and **Frank Cardo** *(fcardo@ccps.org),* Cecil County Public Schools, Elkton, Md.

How can offering environmental science in ninth grade reduce the dropout rate, improve High School Assessment (HSA) scores, and help students become better stewards of their environment?

SESSION 10

A 21st-Century Teacher Training Initiative Designed to Build Tomorrow's STEM Workforce (Phys)

(General) *Key Ballroom 11, Hilton*

Rebecca S. McMahan *(mcmahanb@apsu.edu)* and **Sheila Pirkle** *(pirkles@apsu.edu),* Austin Peay State University, Clarksville, Tenn.

This congressionally awarded project will implement a model of science and mathematics instruction designed to strengthen the initial preparation of K–8 teachers, ultimately improving the education of grades K–8 students.

SESSION 11

Following Their Footsteps: An Integrated Unit That Teaches the Science and History of the Lewis and Clark Expedition (Gen)

(Elementary–High School) *Latrobe, Hilton*

Robert Miller *(maxclassonline@mac.com),* Port Orange Elementary School, Port Orange, Fla.

Go West, young scientists! See how one class integrates science, math, and orienteering in a culminating excursion that models the scientific ventures of Lewis and Clark.

SESSION 12

A University and School District Collaboration on Science (Gen)

(General) *Ruth, Hilton*

Michael P. Mahan, Armstrong Atlantic State University, Savannah, Ga.

Horace Magwood *(horace.magwood@savannah.chatham.k12.ga.us),* Savannah-Chatham County Public School System, Savannah, Ga.

We'll share the results of a university and a local school district study that looked at the level and content of instruction in all science courses.

3:30–4:30 PM Workshops

Environmental Toxicology: Demystifying the LC_{50} (Env)

(Middle Level–High School) *326, Convention Center*

Jonathan E. Wilson *(jonathan.wilson@morgan.edu),* Morgan State University, Baltimore, Md.

Design an acute toxicity test; collect raw data; and complete basic data analysis, interpretation, and presentation.

Connecting the Dots Between Consumer Protection, Skepticism, and Science (Gen)

(Elementary–High School) *331, Convention Center*

Julia T. Gooding, Monaca, Pa.

William C. Metz *(wmetzgolf@aol.com),* Retired Educator, Fort Washington, Pa.

Clever manipulation of data can sell common products. Learn how this applies to your science classroom.

STEM in Action—I'm Ready for the Real World! (Earth)
(Elementary–High School) *332, Convention Center*
Barry Fried *(bfried@schools.nyc.gov)* and **Honora Dash** *(hdash@schools.nyc.gov),* John Dewey High School, Brooklyn, N.Y.
Learn how we establish partnerships and support deeper science understandings through STEM initiatives. We engage students in a collaborative learning environment using real-time data analysis.

Measurement with Smiles (Gen)
(General) *Holiday 1, Hilton*
Theresa M. Holt *(weluvourson4evr@gmail.com)* and **Tina Myers** *(tinamyers06@gmail.com),* Marshall University Research Corp., Huntington, W.Va.
Katie McDilda *(katie.mcdilda@marshall.edu),* Marshall University, Huntington, W.Va.
Presider: Tina J. Cartwright *(tina.cartwright@marshall.edu),* Marshall University, Huntington, W.Va.
Measure, record measurements, and make a graph that shows students' smiles.

You Can't Judge a Book by Its Cover…But a Fish Is a Different Story (Bio)
(Elementary–Middle Level) *Holiday 3, Hilton*
Howard L. Warren *(howard.warren@trinityschoolnyc.org)* and **Linda M. D'Apolito** *(linda.dapolito@trinityschoolnyc.org),* Trinity School, New York, N.Y.
Presider: Linda M. D'Apolito
Identify traits of an actual fish and determine the lifestyle, behavior, and habitat of that fish based on its physical attributes.

Evolution: Variation, Selection, and Time (Bio)
(Middle Level–High School) *Key Ballroom 1, Hilton*
Louisa A. Stark *(louisa.stark@utah.edu),* University of Utah, Salt Lake City
Molecular genetics is shedding light on the process of natural selection. Explore contemporary examples of evolution at work through free activities from *http://learn.genetics.utah.edu.*

Implementing Open Inquiry: Ideas for Engaging Students (Gen)
(General) *Key Ballroom 3, Hilton*
Ronald S. Hermann *(rhermann@towson.edu),* Local Arrangements Coordinator, NSTA Baltimore Area Conference, and Towson University, Towson, Md.
Rommel Miranda *(rmiranda@towson.edu),* Towson University, Towson, Md.
This interactive session explores pedagogical techniques for moving students' thinking toward the development of their own questions and open-inquiry investigations.

Modeling the Spectrum (Gen)
(Middle Level–High School) *Key Ballroom 4, Hilton*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
Explore a complete unit from pre- to post-assessment that looks at different methods for examining the electromagnetic spectrum.

Folding for Understanding: Using 3-D Graphic Organizers in the Science Classroom (Gen)
(General) *Key Ballroom 8, Hilton*
Robert Stremme, NBCT, Eastern University, St. Davids, Pa.
Discover new ways to enhance student understanding of complex material using evidence-based, kinesthetic, and integrative Foldables®. Leave with practical ideas ready to use on Monday.

Radiation Storm *vs.* the Magnetic Shield: Superheroes of Magnetism and Space Weather Education (Earth)
(Informal Education) *Key Ballroom 9, Hilton*
Randy M. Russell and **Becca Hatheway,** University Corporation for Atmospheric Research, Boulder, Colo.
Roberta M. Johnson, National Earth Science Teachers Association, Boulder, Colo.
Explore the basics of magnetism, Earth's magnetic field and poles, and space weather with these tested hands-on activities and resources. Handouts provided.

3:30–4:30 PM Exhibitor Workshop

There's More to Project-based Science Than Just a Project (Bio)
(Grades 6–8) *337, Convention Center*
Sponsor: It's About Time
Mary Starr, The University of Michigan, Ann Arbor
In Project-Based Inquiry Science (PBIS), projects drive the learning from beginning to end. Learning by Design™ guides students in the engineering design cycle in which they become student scientists engaged in sustained projects. Watch what happens when students get a chance to flex their creative muscles on projects they care about—the excitement is contagious…and the learning is sustained. Also see how Fourier probeware enhances project-based activities.

4:00–5:15 PM Exhibitor Workshops

Energize Your Chemistry Students' Inquiry Skills with Carolina's Inquiries in Science™ Chemistry Series (Chem)

(Grades 9–12) *336, Convention Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Learn how our new hands-on kit series improves student performance and makes teaching challenging topics effortless. Experience our five-step learning cycle and guided inquiry approach as you perform activities from our Exploring Voltaic and Electrolytic Cells Kit. Free teacher materials and door prizes.

SEPUP High School Biology: Science and Global Issues (Bio)

(Grades 9–12) *338, Convention Center*

Sponsor: LAB-AIDS, Inc.

Laura Lenz, Lawrence Hall of Science, University of California, Berkeley

Conduct activities that you can use to teach about ecosystem stability and change. Activities focus on sustainability issues such as fisheries management and invasive species.

Use Activity Blocks to Make Great Teaching Easier (Earth)

(Grades K–12) *339, Convention Center*

Sponsor: Edufy LLC

Philip Cooke *(phil@edufy.org; ben@edufy.org),* Washington-Lee High School, Arlington, Va.

Stop creating differentiated, individualized 5E lessons from scratch when published lessons don't meet your style/pacing/curriculum. Join other trail-blazing teachers who use this free website to synthesize and rate their greatest demos, hands-on activities, and enrichment ideas. Choose the blocks you need to build learning experiences that challenge every student.

Untamed Science! How to Make Your Own Science Videos from Scratch (Gen)

(Grades K–12) *340, Convention Center*

Sponsor: Pearson

Untamed Science

Join the fun and engaging Untamed Science video crew on a science video adventure! Passionate about education, this team of young scientists develops exciting videos that address the Big Questions of Science and bring real-world applications to the classroom. They will show you how to best implement video in the classroom and even how you and your students can create your own videos on a shoestring budget. Handouts and free lesson activities will be provided so you can use them in your classroom next week.

Inquiry Investigations™ Biotechnology Activities with E-Gels® (Gen)

(Grades 7–10) *341, Convention Center*

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Wassau County Public Schools, 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.

Explore the Blue Near You: Bring Critical Aquatic Issues to Life with New Resources! (Gen)

(Grades K–5) *347, Convention Center*

Sponsor: Discovery Education

Lance Rougeux *(lance_rougeux@discovery.com),* Discovery Education, Silver Spring, Md.

With the recent tragedy in the Gulf, this session will help bring critical aquatic issues to life for your students through a combination of hands-on and digital activities that you can take back to your classroom. The Take Me Fishing™ campaign and Discovery Education launched Explore the Blue, a new resource empowering teachers and parents to engage students in a dialogue about the importance of outdoor recreational activities, such as boating and fishing, and the value of clean and healthy natural resources. Come see a demo of the resources available, including elementary standards-aligned lesson plans, a unique virtual fishing game, and instructions on creating an aquarium terrarium. Don't miss out on the opportunity to win prizes, too!

New Ways to Prepare Your Students Using 21st-Century STEM Initiatives—GO DIGITAL! (Bio)

(Grades 7–College) *348, Convention 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. Learn how to integrate digital technology and assessment into your current teaching.

Transform Assessment with Page Keeley Science Probes **(Gen)**

(Grades K–12) *349/350, Convention Center*

Sponsor: McGraw-Hill School Education Group

Page Keeley, 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta

CANCELED

Learn how to make formative assessment more powerful and easier to integrate into your inquiry-based lessons than ever before with Page Keeley science probes. Presented by 2009–2010 NSTA President Page Keeley, you'll learn how to find out what your students know and how to use that information to transform your instruction with these practical tools.

4:00–5:30 PM Exhibitor Workshop

Gas Laws Kit: Chemistry and the Data Collector—Charles' and Boyle's Laws Uncovered **(Gen)**

(Grades 5–12) *345/346, Convention Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton and **Patsy Eldridge,** 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.

7:00–11:00 PM Social

Desserts with Jellies, Dolphins, and 4-D Fun!

National Aquarium in Baltimore

(M-2 Ticket Required; $45)

—*National Aquarium*

Don't miss out—join your colleagues for a fun-filled, sensational evening at the National Aquarium in Baltimore. This world-class aquatic institution is dedicated to environmental education and stewardship and its living collection includes more than 16,000 animals from approximately 660 different species. Home to a breathtaking rain forest exhibit, the aquarium also features an Australian exhibit of the Northern Territory that includes a 35-foot waterfall and many native animals.

Treat yourself to the new exhibits, "Jellies Invasion: Oceans Out of Balance" and 4-D Immersion Theater experience, *Planet Earth: From Pole to Pole* along with "Our Ocean Planet: A New Dolphin Show."

Price is all-inclusive for all exhibits and shows with a sumptuous array of desserts, coffee, tea, and soft drinks/bottled water. Cash bar.

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 12 Noon on Thursday.

Experience "ah-ha" moments with NSTA's *Uncovering Student Ideas in Science* Series

"Finally a down-to-earth, research-based source that teachers can read today and begin using tomorrow."
— K–12 Science Supervisor

- Ideal for K–12 science teachers, preservice teachers, professional developers, and college science and methods professors.
- 4 bestsellers packed with lesson plans and teaching strategies that dispel students' preconceptions about science
- 100 easy-to-administer questionnaires or "probes" that focus on fundamental ideas in science
- Probes serve as formative assessment tools, with accompanying teacher materials that explain science content and link to national standards
- Explanations on content are specific but brief, and connect important ideas for students and teachers
- Topics explored include physical, life, Earth and space science, and the nature of science.

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Call 1-800-277-5300 to order by phone.

NSTA National Science Teachers Association

—*Visit Baltimore*

8:00–9:00 AM Featured Presentation

Visualizing the Possible: Science Teaching and Learning in the Age of Web 2.0 (Gen)

(General) *Holiday Ballroom 4/5, Hilton*

Lynne Schrum *(lschrum@gmu.edu),* Professor and Director of Teacher Education, George Mason University, Fairfax, Va.

Presider: Deborah Batzer, Howard County Public School System, Ellicott City, Md.

This session will offer an educational overview of Web 2.0 tools and purposes, how they are used educationally, and challenges to implementation in school settings, specifically as it relates to science teaching and learning. Overarching questions include (1) What are the pedagogical strengths of these tools? and (2) How are educators around the world using these tools to enhance their science curriculum?

Lynne Schrum is a professor and coordinator of elementary and secondary education in the College of Education and Human Development at George Mason University. Her research and teaching focus on appropriate uses of information technology, online and distance learning, and preparing teachers for the 21st century. She has written five books and numerous articles on these subjects, the most recent two are New Tools, New Schools: Getting Started with Web 2.0 *and* Leading a 21st-Century School: Harnessing Technology for Engagement and Achievement. *Lynne is currently on AERA's Council, editor of the* Journal of Research on Technology in Education *(JRTE) (2002–2011), and a past president of the International Society for Technology in Education (ISTE). Visit* http://mason.gmu.edu/~lschrum *for more information.*

8:00–9:00 AM Presentations

SESSION 1

Reengaging Stakeholders (Bio)

(General) *321, Convention Center*

Chauntia C. Bego *(chauntia.bego@pgcps.org),* **Sheryl Lewing-Gary** *(sheryl.lewinggary@pgcps.org),* and **Hameed S. Sharif** *(hsharif@pgcps.org),* Charles Herbert Flowers High School, Springdale, Md.

Design workshops and activities that empower parents to take an active collaborative role in education, leading to student success and redefining parent-teacher relationships.

SESSION 2

EPA Tools for Teachers for Air Quality and Climate Change Education (Env)

(Middle Level–High School/Inf. Ed.) *323, Convention Center*

Karen Scott *(scott.karen@epa.gov)* and **Donna Rogers** *(rogers.donna@epa.gov),* U.S. Environmental Protection Agency, Washington, D.C.

Presider: Ruth McCully *(mccully.ruth@epa.gov),* U.S. Environmental Protection Agency, Washington, D.C.

Put your students in the control seat with EPA's online resources. We'll share seven online tools for teachers, including Air Pollution: What's the Solution? and the Climate Change, Wildlife, and Wildlands Toolkit.

SESSION 3

Before and After Retirement: Practicalities and Possibilities (Gen)

(General) *324, Convention Center*

Robin W. Curtis *(robinwcurtis@hotmail.com),* Independent Consultant, Deltaville, Va.

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

SESSION 4

Fly Me to the Moon: The Best in Books (Gen)

(General) *325, Convention Center*

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

Lauren Jonas *(ljonas@nsta.org),* Manager, NSTA Recommends, NSTA, Arlington, Va.

Emily Brady *(ebrady@nsta.org),* Database Coordinator, NSTA Recommends, NSTA, Arlington, Va.

Reader? Teacher? Student? Author? Publisher? Join representatives of two NSTA publication committees to explore the criteria through which the best in science literature is identified. Please join us for the official announcement of the 2011 winners of the NSTA/CBC Outstanding Science Trade Books for Students K–12 annual award.

SESSION 5

Food Chemistry (Chem)

(Elementary) *329, Convention Center*

Laura Saxton *(lsaxton@jhu.edu),* Johns Hopkins University Center for Talented Youth, Baltimore, Md.

The Center for Talented Youth uses everyday food and nutrition to teach elementary students topics in chemistry. Challenge your students with fun and affordable food experiments.

SESSION 6

Medical Mysteries: A Free Online Adventure Game That Emphasizes the Scientific Method and Encourages Health and Science Careers (Bio)

(Middle Level) *Holiday 3, Hilton*

Kristi G. Bowling and **Leslie M. Miller** *(lmm@rice.edu),* Rice University, Houston, Tex.

Lynn Lauterbach *(lynnlauterbach@gmail.com)*, Loveland, Colo.

Need a fun way to reinforce the scientific method? Come experience a free website where students use the scientific method to investigate a disease outbreak.

SESSION 7

AAPT Session: Time, Einstein, and the Coolest Stuff in the Universe (Phys)

(General) *Key Ballroom 10, Hilton*

William D. Phillips *(william.phillips@nist.gov),* National Institute of Standards and Technology, Gaithersburg, Md.

Join Dr. Phillips, 1997 Nobel Laureate in Physics, for a lively multimedia presentation that includes experimental demonstrations and down-to-earth explanations about some of today's most exciting science.

SESSION 8

Empowering the Teaching Professional Through Project Management Planning (Gen)

(General) *Latrobe, Hilton*

Jennifer A. Carter *(jcarter@societyforscience.org),* Society for Science & the Public, Washington, D.C.

Learn about project management and the importance of developing a comprehensive project management plan (PMP) for your research programs.

SESSION 9

Problem Solving with the Peace Corps: Science and Service Around the Globe (Gen)

(Elementary–High School) *Ruth, Hilton*

Emily Hestness *(ehestness@peacecorps.gov),* Coverdell World Wise Schools, Washington, D.C.

Explore the ways that today's Peace Corps volunteers are working to solve real-world problems related to science and global society.

8:00–9:00 AM Workshops

Environmental Experiences for Early Childhood (Gen)

(Preschool) *326, Convention Center*

Sarah Haines *(shaines@towson.edu)* and **Cindy Ghent** *(cghent@towson.edu),* Towson University, Towson, Md.

See how music and movement can enhance the learning experience for early childhood learners. Take home a copy of Project Learning Tree's Environmental Experiences for Early Childhood curriculum.

Tackling the Global Warming Challenge in a Rapidly Changing World (Env)

(Middle Level–High School) *327, Convention Center*

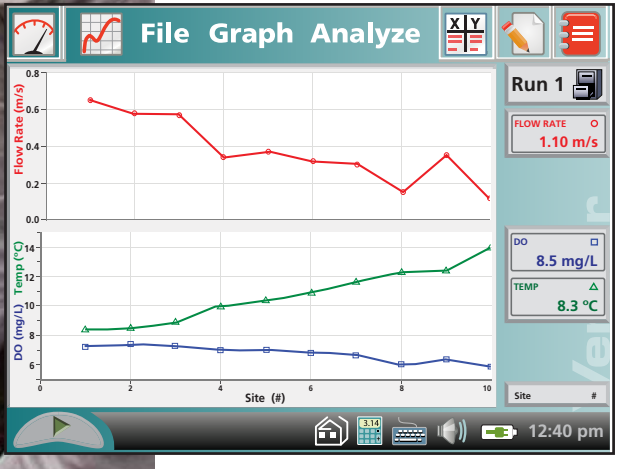
Roberta M. Johnson, National Earth Science Teachers Association, Boulder, Colo.

How is Earth changing as the climate warms? Can we stop it? Can we adapt? Help students develop critical-thinking skills, science understanding, and global warming solutions. Handouts provided.

Remember the first time you fell in love with science?

We do. It is the reason we believe in hands-on scientific technology. It engages students in a meaningful way, develops keen analytical skills, and awakens a love for discovery.

Stop by **booth 608**, or attend one of our FREE hands-on workshops. Enter the drawing to Win a FREE Vernier LabQuest.



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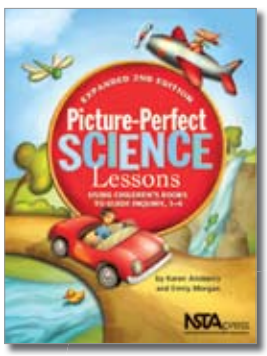
Conference Sneak

Picture-Perfect Science Lessons, Expanded 2nd Edition

Using Children's Books to Guide Inquiry, 3–6

Grades 3–6



Time-pressed teachers will love the revised edition of the original award-winning resource that perfectly combines the appeal of children's picture books with Standards-based science content. The authors offer hands-on, inquiry activities coupled with diverse children's trade books to engage struggling and reluctant readers and promote scientific discovery. This edition offers five brand-new, classroom-tested lessons.

Members: $27.96
Non-Members: $34.95

Predict, Observe, Explain

Activities Enhancing Scientific Understanding

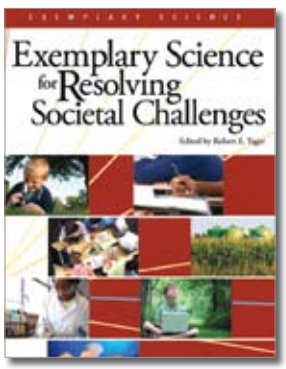
Grades 7–12

This research-based, field-tested book provides middle and high school science teachers with more than 100 student activities designed to foster student inquiry and challenge existing conceptions through the use of Predict, Observe, Explain sequences (POEs). Each activity is accompanied by worksheets, scientific explanations of the phenomenon being studied, a summary of student responses, research findings, and a list of required materials.

Members: $23.96
Non-Members: $29.95

Exemplary Science for Resolving Societal Challenges

Grades PreK–College



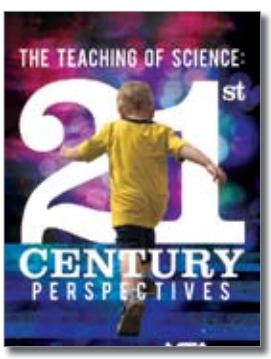
As with all of the *Exemplary Science* titles, this book provides resources, ideas, and case studies to stimulate science education faculties across the country to begin substantive discussions that will drive them to re-embrace curiosity, invention, inquiry, and societal connection in the classroom and move them toward *exemplary* science instruction.

Members: $20.76
Non-Members: 25.95

The Teaching of Science

21st-Century Perspectives

Grades K–12



Renowned educator Rodger Bybee provides the perfect opportunity for science teachers, administrators, curriculum developers, and science teacher educators to reflect on the basic issues in science education today and in the coming years. He addresses topics such as contemporary need for reform, curriculum and instruction, teaching science as inquiry, and developing 21st-century skills.

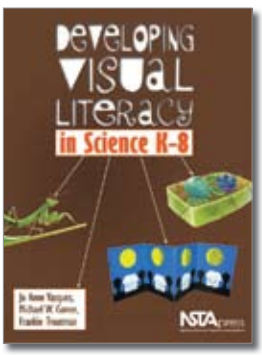
Members: $22.36
Non-Members: $27.95

Preview free chapters before you buy or

Attendee Preview

Developing Visual Literacy in Science, K–8

Grades K–8



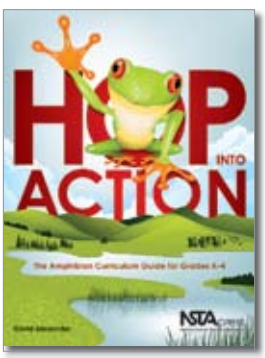
More than 50% of science lessons in today's elementary textbooks use visual information to help demonstrate concepts. This book assists students in developing visual literacy in science—for example, interpreting photographs, charts, diagrams, figures, labels, and graphic symbols. This practical resource enhances classroom instruction and is especially relevant for students who pursue careers in science, technology, engineering, and math.

Members: $19.96
Non-Members: $24.95

Hop Into Action

The Amphibian Curriculum Guide for Grades K-4

Grades K–4



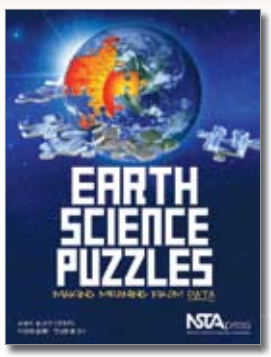
K–4 teachers, homeschoolers, camp leaders, and naturalists will find the standards-based lessons in this volume the perfect introduction to environmental science for young learners. Developed in response to a global amphibian extinction crisis, this book will equip children with the necessary tools to appreciate and protect amphibians and their environments through 20 hands-on investigations that involve scientific inquiry and knowledge building.

Members: $18.36
Non-Members: $22.95

Earth Science Puzzles

Making Meaning From Data

Grades 8–12



Available November 2010

Teachers of Earth and environmental sciences will embrace this activity book centered on six "data puzzles" that foster critical-thinking skills and support science and math standards. Featuring professionally gathered Earth science data—including graphs, maps, tables, images, and narratives—this book helps students step into scientists' shoes using temporal, spatial, and quantitative reasoning. Each puzzle is supported by extensive background information, required skills, common misconceptions, answers to student questions, and a bank of resources to further examine topics.

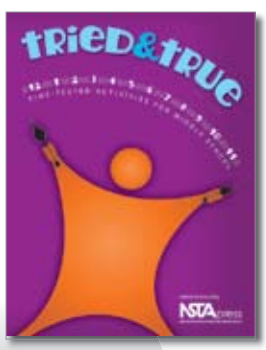
Members: $20.76
Non-Members: $25.95

Tried and True

Time-Tested Activities for Middle School

Grades 5–8

Available November 2010



A compilation of popular columns originally published in the award-winning journal *Science Scope*, this new book is filled with teachers' best classroom activities—time-tested and perfected. Organized by topic, including physical science, life science, Earth and space science, and instructional strategies, these favorites will pique students' interest and demonstrate important science concepts.

Members: $20.76
Non-Members: $25.95

place your order at *www.ntsa.org/store.*

NSTA National Science Teachers Association

ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic Theory of Matter (Chem)
(Middle Level) *331, Convention Center*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore solids, liquids, and gases on the molecular level to discover how heating and cooling affect matter.

ACS Session One: What's Matter Made Of? (Chem)
(High School) *332, Convention Center*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Visualizing the constituents of matter and their properties is sometimes difficult for students. Putting the concepts in textbooks to work explaining observations from activities and extending the activities as an assessment reinforces and deepens understanding. Bring your USB flash drive and take away the presentation and activities to use in your classes.

Epigenetics: Beyond the Central Dogma (Bio)
(High School) *Key Ballroom 1, Hilton*
Louisa Stark *(louisa.stark@utah.edu),* University of Utah, Salt Lake City
The environment interacts with the epigenome to control gene expression. These interactive activities explore epigenetics and how it confounds conventional notions of inheritance. Free activities at *http://learn.genetics.utah.edu.*

Environmental Science in a World of Seven Billion (Env)
(Middle Level–High School) *Key Ballroom 2, Hilton*
Pamela B. Wasserman *(pam@popconnect.org),* Population Connection, Washington, D.C.
These timely, interdisciplinary hands-on activities help students understand the connections between human population growth and a host of environmental challenges. Receive curriculum on CD-ROM.

Scaffolded Inquiry in the 21st-Century Classroom (Gen)
(General) *Key Ballroom 3, Hilton*
Karen L. Ostlund *(klostlund@mail.utexas.edu),* Retired Professor, Austin, Tex.
Scaffolded inquiry provides essential support for students, allowing them to construct the knowledge and skills needed to build science literacy in the 21st century.

ELLs in the Secondary Science Classroom (Gen)
(Middle Level–High School) *Key Ballroom 4, Hilton*
Joan Kang Shin *(jshin2@umbc.edu)* and **Lori M. Edmonds** *(le1@umbc.edu),* University of Maryland, Baltimore County, Baltimore
Christopher Browder *(christopher_browder@hcpss.org),* Wilde Lake High School, Columbia, Md.
Experience a variety of professional development activities that can build your repertoire of strategies for teaching English language learners (ELLs).

NSTA Press Session: Stop Faking It! Finally Understand MATH So You Can Teach It (Gen)
(Elementary–Middle Level) *Key Ballroom 7, Hilton*
Bill Robertson *(wrobert9@ix.netcom.com),* NSTA Press Author, Woodland Park, Colo.
Why do you have to have a common denominator to add fractions? Where do formulas for area and volume come from? What's behind the distributive property? We all know the rules for math, but we often don't know the reasoning behind the rules. Join the author of the *Stop Faking It!* books for sample activities from the math book that address why the rules make sense. Take home leftover vegetable oil if you want!

Extra! Extra! Read All About the Universe! (Earth)
(Middle Level–High School) *Key Ballroom 9, Hilton*
James Lochner *(james.c.lochner@nasa.gov),* Universities Space Research Association and NASA Goddard Space Flight Center, Greenbelt, Md.
Barbara Mattson *(barb.mattson@nasa.gov),* ADNET Systems, Inc., and NASA Goddard Space Flight Center, Greenbelt, Md.
Science, history, and journalism blend as students explore our changing understanding of the universe with NASA's Cosmic Times.

Bringing Literacy and Science Together (B.L.A.S.T.) for Grades 2–4: Linking Home and School (Gen)
(Preschool–Elementary) *Key Ballroom 12, Hilton*
Margaret "Peggy" Dee *(drpeggydee@verizon.net)* and **Renee G. O'Leary,** Caravel Academy, Bear, Del.
B.L.A.S.T. © provides multisensory, hands-on, process-oriented science by creatively linking science and literature. Each child has a science lesson bag with safe, inexpensive materials. Take home two lesson bags and teaching materials.

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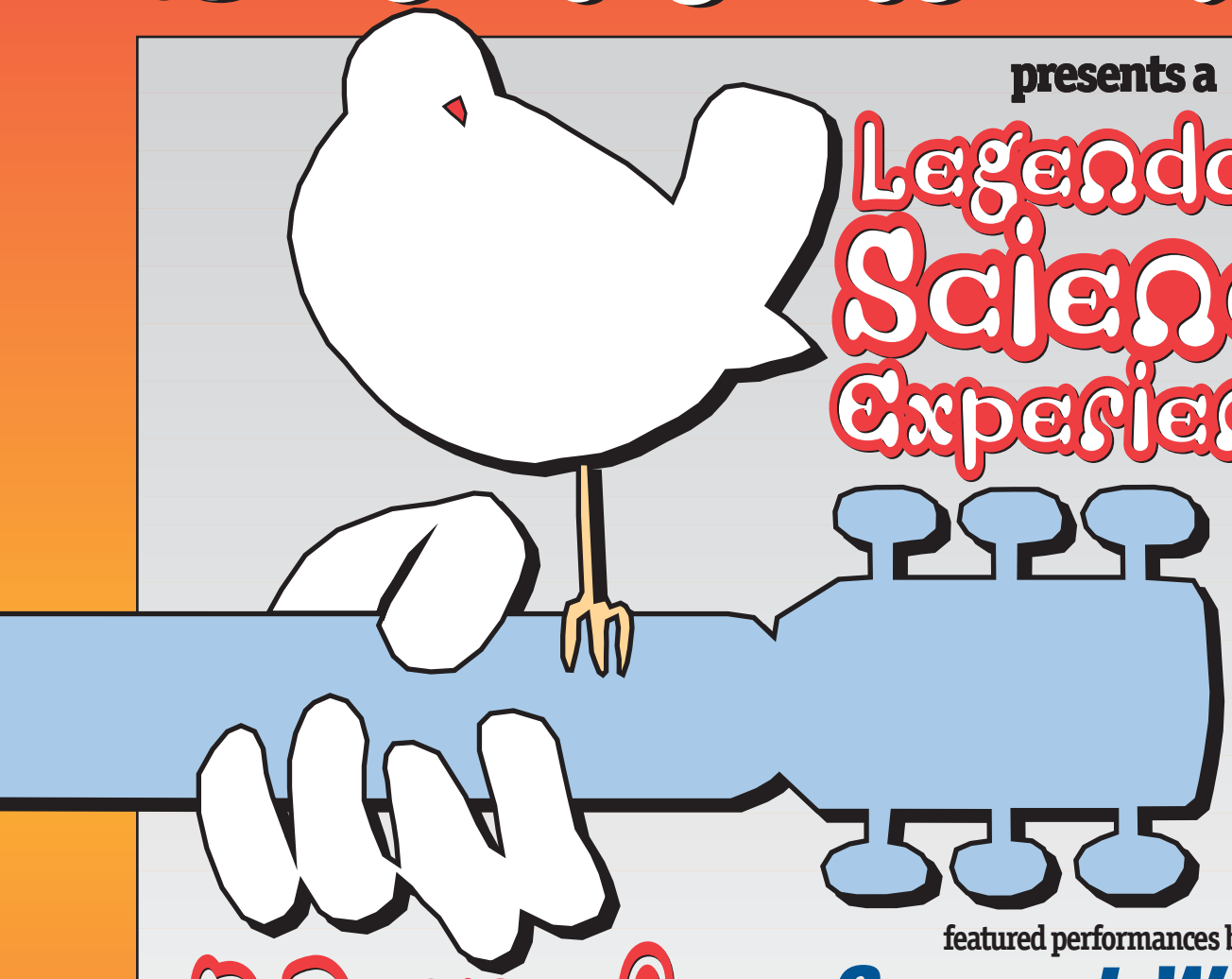

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8:00–9:00 AM Exhibitor Workshops

Discovery-based Physics with SPARKscience: Harmonic Motion (Phys)
(Grades 6–12) *341, Convention Center*
Sponsor: PASCO Scientific
Presenter to be announced
This session explores motion—one of the toughest aspects of high school physics investigations—using PASCO's state-of-the-art science teaching solutions. In this hands-on workshop you will participate in standards-based probeware lab activities from PASCO's new physics curriculum. Be one of the first to experience how the SPARK Science Learning System can enhance your teaching practice and improve student understanding of core topics.

How to Start a Biotech Program (Bio)
(Grades 7–College) *342, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Stan Hitomi, San Ramon Valley Unified School District, Danville, Calif.
Kirk Brown, Tracy High School, Tracy, 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 what building blocks will allow you to continue to address the world's rapidly changing scientific landscape.

8:00–9:15 AM Exhibitor Workshops

AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (Bio)
(Grades 9–12) *336, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Are you ready for a cutting-edge forensic dissection activity? Engage students and revitalize your instruction of mammalian structure and function with a "real" classroom autopsy! Participants, working in pairs, dissect a pig by modeling the autopsy protocols of a forensic pathologist.

Innovating Science Chemistry Demonstrations That Will Really Get a Reaction! (Chem)
(Grades 7–12) *337, Convention Center*
Sponsor: Fisher Science Education
Alex Molinich, Aldon Corp., Avon, N.Y.
Learn how to incorporate exciting, engaging chemical demonstrations into your chemistry curriculum. These demos are guaranteed to grab your students' attention and enhance their learning experience while teaching fundamental concepts. These dynamic chemistry demonstrations can get your students to ask questions and better help you complete inquiry-based labs.

Use Activity Blocks to Make Great Teaching Easier (Earth)
(Grades K–12) *339, Convention Center*
Sponsor: Edufy LLC
Philip Cooke *(phil@edufy.org; ben@edufy.org),* Washington-Lee High School, Arlington, Va.
Stop creating differentiated, individualized 5E lessons from scratch when published lessons don't meet your style/pacing/curriculum. Join other trail-blazing teachers who use this free website to synthesize and rate their greatest demos, hands-on activities, and enrichment ideas. Choose the blocks you need to build learning experiences that challenge every student.

What's at the Heart of Science Teaching? Inquiry, Evidence, and Thinking (Gen)
(Grades 5–8) *340, Convention 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. This session will develop an understanding of inquiry and evidence and outline teaching strategies that you can use to develop these important ideas.

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Friday	7:00 AM–5:00 PM
Saturday	7:30 AM–Noon

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NSTA National Science Teachers Association

Put Some Spark into Science Investigations (Gen)
(Grades 2–8) *343, Convention Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
Using the science topics of magnetism and electricity, learn how to turn guided investigations into challenge investigations and open inquiries. These strategies can help your students become independent thinkers and inquirers. Participants will receive a complimentary resource packet and related Delta products.

Foolproof Immunology Labs for the Biotechnology Classroom (Bio)
(Grades 6–College) *347, Convention Center*
Sponsor: EDVOTEK
Jack Chirikjian *(info@edvotek.com)* and **Tom Cynkar** *(info@edvotek.com),* EDVOTEK, Bethesda, Md.
The Enzyme Linked Immunosorbent Assay (ELISA) enables you to integrate immunology into the classroom. Students learn the ELISA "sandwich" effect by applying antigens, antibodies, and substrate to Microtiter wells. This simple and foolproof exercise can be completed in 30 minutes and analyzed qualitatively by visual inspection or quantitatively with microplate readers.

The Sky Through the Ages (Earth)
(Grades 5–12) *348, Convention Center*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(smeyers@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.

Help Students Flourish with New Digital Learning Tools (Gen)
(Grades K–12) *349/350, Convention Center*
Sponsor: Kendall Hunt Publishing Co.
Jerilyn Hilse, Kendall Hunt Publishing Co., Dubuque, Iowa
Bring inquiry-based science to life in your classroom through digital learning! *Flourish,* Kendall Hunt's new online learning network for grades K–12, engages teachers, students, and parents with interactive curricula and educational tools that make every aspect of teaching, learning, and communication accessible within the classroom and at home.

8:00–9:30 AM Exhibitor Workshops

K–8 Science with Vernier (Gen)
(Grades K–8) *338, Convention Center*
Sponsor: Vernier Software & Technology
Dan Holmquist *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
In this hands-on workshop, you will learn how easy it is for your students to collect temperature data, heart rates, magnetic field data, and more using Vernier probeware. Try experiments from our popular *Elementary Science with Vernier* and *Middle School Science with Vernier* lab books using LabQuest or our low-cost line of Go! products on a computer.

Genetics: Crazy Traits and Adaptation Survivor (Gen)
(Grades 5–12) *345/346, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton and **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.

8:00–10:00 AM CESI Breakfast

Get Ready for Robotics! (M-3)
(Tickets Required; $37) *322, Convention Center*

Leshia Hoot, Marketing Project Manager, LEGO® Education, Pittsburg, Kans.

Join our keynote speaker Leshia Hoot and members of CESI for this breakfast. Leshia Hoot is marketing project manager for LEGO Education and she is focused on elementary marketing. Learn how elementary classrooms across the nation are using LEGO Education WeDo™ Robotics to engage and teach students about science, technology, engineering, and mathematics. Hear examples of how adding WeDo Robotics and the LEGO 4C approach to learning to elementary academics inspires students to become the learners of tomorrow.

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 12 Noon on Thursday.

8:00–10:30 AM Exhibitor Workshop

Using Middle School Science Notebooks to Assess Learning with FOSS (For Experienced Users) (Gen)
(Grades 5–8) *344, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Jessica Penchos, Lawrence Hall of Science, University of California, Berkeley
Virginia Reid, Consultant, Olympia, Wash.
Now that you're using student science notebooks, what more can you do with them? Student work samples and the FOSS Middle School Curriculum can be used to engage students in assessment practices and strategies that advance student learning. Sample FOSS materials will be distributed.

8:00–11:00 AM Short Course

Home and School Science Activities (SC-3)
(Grades 4–9) *Tubman, Hilton*
Tickets Required: $54
Bernie Horvath *(bgrizwald@aol.com),* Jeffersonville, Ind.
For description, see page 35.

8:00 AM–12 Noon Short Course

Building a Well-informed Workforce for Our Future (SC-4)
(Grades 4–9) *Peale, Hilton*
Tickets Required: $43
Arloa Woolford *(wimef@womeninmining.org),* Women in Mining Education Foundation, Winnemucca, Nev.
For description, see page 36.

8:00 AM–12:30 PM NSTA Symposium

FDA/NSTA Symposium: Teaching Nutrition Science and the Food Label (SYM-1)

(Grades 5–12) *330, Convention Center*

Tickets Required: $54

Crystal Rasnake and **Blakeley Denkinger,** U.S. Food and Drug Administration, College Park, Md.

Mimi Cooper *(mimicooper@verizon.net),* Consultant, Green Cove Springs, Fla.

For description, see page 34.

9:00 AM–12 Noon Meeting

Grades 6–12 Secondary Institute

(By Invitation Only) *Harborview I/II, Sheraton*

9:00 AM–5:00 PM Exhibits

Hall E, Convention Center

Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

9:00 AM–5:00 PM Short Courses

Bioscience Boot Camp for Middle School (SC-7)

(Middle Level) *Off-site (Columbus Center)*

Tickets Required: $35

Mary Stapleton *(mkstapleton@gmail.com),* Towson University Center for STEM Excellence, Baltimore, Md.

Lisa McDonald *(mcdonald@jcvi.org)*, J. Craig Venter Institute, Rockville, Md.

Jennifer Colvin *(jcolvin@mdbiolab.org),* MdBio Foundation and MdBioLab, Tech Council of Maryland, Rockville

For description, see page 36.

Bioscience Boot Camp for High School (SC-8)

(High School) *Off-site (Columbus Center)*

Tickets Required: $35

Mary Stapleton *(mkstapleton@gmail.com),* Towson University Center for STEM Excellence, Baltimore, Md.

Lisa McDonald *(mcdonald@jcvi.org)*, J. Craig Venter Institute, Rockville, Md.

Jennifer Colvin *(jcolvin@mdbiolab.org),* MdBio Foundation and MdBioLab, Tech Council of Maryland, Rockville

For description, see page 37.

9:30–10:00 AM Presentation

SESSION 1

ASTE Session: Teaching Principles of Ecology and Environmental Science in High School Biology (Bio)

(Middle Level) *326, Convention Center*

Janice Koch *(janice.koch@hofstra.edu),* Professor Emerita, Hofstra University, Hempstead, N.Y.

Yael Wyner *(ywyner@ccny.cuny.edu),* City College of New York, City University of New York, N.Y.

We integrate ecological principles and environmental science in middle and high school biology using authentic scientific data based on media from the American Museum of Natural History.

9:30–10:30 AM Presentations

SESSION 1

NSTA Avenue Session: Toshiba/NSTA ExploraVision Awards (Gen)

(General) *321, Convention Center*

Brian P. Short *(exploravision@nsta.org),* Assistant Director, Science Education Competitions, NSTA, Arlington, Va.

ExploraVision is a K–12 competition that motivates students and challenges them to think creatively about scientific innovation 20 years into the future. Discover how students can win up to $240,000 in savings bonds for envisioning new technologies. Learn how ExploraVision supports classroom goals; illustrates connections between science and technology; and offers recognition, computers, and other prizes for schools, students, teachers, and mentors. Session participants have a chance to win a Toshiba product!

SESSION 2

Educational Gaming: New Teaching Strategies (Env)

(Informal Education) *323, Convention Center*

Peggy L. Steffen *(peg.steffen@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.

Educational gaming has huge potential in the science education realm and is a rapidly growing tool for educators to use to engage digital students.

SESSION 3

NARST Session: Global Climate Change 101 for Teachers (Env)

(General) *324, Convention Center*

Julie L. Lambert *(julielambert@att.net)* and **Joan Lindgren** *(jlindgre@fau.edu),* Florida Atlantic University, Boca Raton

We'll present successful instructional strategies, demonstrate inquiry-based activities, and share assessments used in a study of elementary preservice teachers' misconceptions about global climate change.

SESSION 4

Creating a Powerful Synergy in the K–6 Classroom with Hands-On Investigations, Science Literacy Skills, and Science Content (Gen)

(Preschool–Middle Level) *325, Convention Center*

Donna L. Knoell *(dknoell@sbcglobal.net),* Educational Consultant, Shawnee Mission, Kans.

See what happens when investigative processes, science knowledge, and science literacy skills are developed side by side in the K–6 classroom. I'll share top-quality books, related print and technology resources, and investigative opportunities, as well as strategies for developing literacy skills.

SESSION 5

Cross-Age Mentoring Through a Science Exposition Model (Gen)

(Elementary–High School) *328, Convention Center*

Tom Archer *(tom.archer@evergreenps.org),* Evergreen Public Schools, Vancouver, Wash.

We have developed a cross-mentoring model pairing high school students with elementary students in our high-needs schools.

SESSION 6

STEM: It's Elementary! (Gen)

(Elementary) *329, Convention Center*

Carl C. Bilotta *(carl.bilotta@fcps.org),* Deer Crossing Elementary School, New Market, Md.

Learn how to put together an effective schoolwide STEM Night in an elementary school setting and how to get the community excited, interested, and supportive.

SESSION 7

Connecting Drug Education, Environmental Science, and Technology: The Game Is On! (Env)

(Middle Level) *Holiday 2, Hilton*

Yvonne Klisch *(yvonne.klisch@rice.edu),* Rice University, Houston, Tex.

Lynn Lauterbach *(lynnlauterbach@gmail.com),* Loveland, Colo.

Engage your students with a popular free web adventure that teaches how inhalants pollute the body.

SESSION 8

Hot Warm-Ups (Gen)

(Elementary–Middle Level) *Holiday 3, Hilton*

Meshelle Smith *(meshellesmith@cebridge.net),* Woodland Hills Elementary School, Kingwood, Tex.

There's no need to waste those first few minutes of class! Capture your students' attention using music, visuals, and games that focus their attention, review concepts, and challenge their thinking. Kids love these warm-ups…you'll have them from "hello." Take home a CD with everything you'll need.

SESSION 9

Using Computer Simulations to Promote Inquiry (Gen)

(Middle Level–College) *Key Ballroom 3, Hilton*

Charlotte M. Trout *(troutcha@wcboe.k12.md.us),* Washington County Board of Education, Hagerstown, Md.

Engage students in inquiry activities using computer models and simulations. Sample lessons from multiple content areas and levels will be provided.

SESSION 10

Using Real-World Science Investigations to Enhance Existing Science Curricula (Gen)

(Middle Level–High School/Supervision) *Key Ballroom 9, Hilton*

Gina C. Felter, Francis Scott Key High School, Union Bridge, Md.

Estela Vargas, Student, Francis Scott Key High School, Union Bridge, Md.

Learn how to integrate an innovative science research class into your school in which students don't just learn science… they do it every day!

SESSION 11

AAPT Session: Fun with Physics Demos (Phys)

(General) *Key Ballroom 10, Hilton*

David S. Wright *(dwright@tcc.edu),* Tidewater Community College, Virginia Beach, Va.

Join me for a fun-with-physics demonstration show that will give you plenty of ideas for getting students excited about physics.

SESSION 12

NABT Session: Are Your Students Reading Their Biology Textbooks? (Bio)

(High School) *Key Ballroom 11, Hilton*

Patricia L. Waller, F&P Consulting, Allentown, Pa.

High school biology students have difficulty reading textbooks. Learn how to use reading to promote your students' understanding of biology concepts.

SESSION 13

Give Science a Voice! Digital Storytelling in the Science Classroom (Env)

(Elementary–High School) *Latrobe, Hilton*

Roger D. Pence *(rogpence@yahoo.com),* Benicia Middle School, Benicia, Calif.

Creation of multimedia digital stories about science concepts fosters engagement, literacy, content knowledge, and final product ownership. We'll investigate techniques, tips, and copyright-friendly resources.

SESSION 14

Science Professional Learning Communities: A Staff Development Tool (Gen)

(Elementary–High School) *Ruth, Hilton*

Brad Yohe *(beyohe@carrollk12.org)* and **William Piercy** *(wjpierc@carrollk12.org),* Carroll County Public Schools, Westminster, Md.

Professional Learning Communities (PLC) provide a framework for professional development that results in science teachers participating in active research. We'll share models for student learning.

9:30–10:30 AM Workshops

American Chestnuts in and out of the Classroom (Bio)

(Middle Level) *327, Convention Center*

Lauren D. Moore *(lddukeh@carrollk12.org),* Carroll County Outdoor School, Westminster, Md.

Cheryl A. Horichs *(cahoric@carrollk12.org),* East Middle School, Westminster, Md.

April Sexton *(amsexto@k12.carr.org),* Shiloh Middle School, Hampstead, Md.

This curriculum from the American Chestnut Foundation focuses on the ecological and historical significance of the tree, offering an in-depth look at the blight and ending with genetic backcrossing. The final result of this unit is the creation of a chestnut orchard on the school grounds.

ACS Middle Level Session: Heat Transfer and Changes of State (Chem)

(Middle Level) *331, Convention Center*

James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.

Explore heat transfer by conduction and apply these ideas to evaporation and condensation.

ACS Session Two: What Holds Molecules Together? (Chem)
(High School) *332, Convention Center*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Discussions of electron wave properties often get bogged down in the complexities of the wave descriptions and lose sight of the fundamental basis for bonding: attraction of positive and negative charges. Simple models help to focus attention on this attraction and complement other descriptions. Bring your USB flash drive and take away the presentation and the activities to use in your classes.

Hands-On Learning Activities for AP Biology (Bio)
(High School) *Key Ballroom 1, Hilton*
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.

The Physics of Supernovae (Phys)
(High School–College) *Key Ballroom 4, Hilton*
Pamela Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine
Margaret Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
Use analysis software, graphs, and basic physics gravitation and centripetal acceleration equations to determine if an object is a white dwarf or a neutron star.

PolyWhat? Polymer 101: Understanding What a Polymer Is (Chem)
(Middle Level–High School) *Key Ballroom 5, Hilton*
Sherri C. Rukes *(luvchem@gmail.com),* Libertyville High School, Libertyville, Ill.
Explore different methods for introducing polymers in a way that you and your students can understand. I'll share examples and handouts.

NSTA Press Session: Stop Faking It! Finally Understand ENERGY So You Can Teach It (Phys)
(Elementary–Middle Level) *Key Ballroom 7, Hilton*
Bill Robertson *(wrobert9@ix.netcom.com),* NSTA Press Author, Woodland Park, Colo.
Do you know that it's wrong to equate potential energy with stored energy? Would you like to know how to make the formulas for potential and kinetic energy make sense for you and your students? These questions and more addressed by the author of the *Stop Faking It!* book series. Lame jokes a definite possibility.

3-D Interactive Notebooking with Dinah Zike's Foldables® (Gen)
(General) *Key Ballroom 8, Hilton*
Robert Stremme, NBCT, Eastern University, St. Davids, Pa.
Transform basic classroom materials and mini composition books into memorable and useful 3-D graphic organizers called Notebook Foldables. Leave this workshop with practical, immediately usable ideas.

Ramps and Pathways: An Inquiry-based Approach to Physical Science in Early Childhood (Phys)
(Preschool–Elementary) *Key Ballroom 12, Hilton*
Betty Zan *(betty.zan@uni.edu)* and **Sonia Yoshizawa,** University of Northern Iowa, Cedar Falls
Experiment with ramps and pathways and learn how to support young children's learning about force and motion and inquiry.

9:30–10:30 AM Exhibitor Workshop

Discovery-based Biology with SPARKscience: Measuring Reaction Time to a Visual Stimulus (Bio)
(Grades 6–12) *341, Convention Center*
Sponsor: PASCO Scientific
Presenter to be announced
Try one of the new Carolina™ Biology SPARKlabs, made possible through a partnership between PASCO and Carolina Biological Supply Company. Participate in a guided inquiry activity measuring reaction time to a visual stimulus. Created for general-level high school students, this state-of-the-art science teaching solution can enhance your teaching practice.

9:30 AM–12 Noon Exhibitor Workshop

Bio-Rad Crime Scene Investigator PCR Basics Kit (Bio)
(Grades 9–College) *342, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Stan Hitomi, San Ramon Valley Unified School District, Danville, Calif.
Kirk Brown, Tracy High School, Tracy, Calif.
Which human DNA sequences are used in crime scene investigations, and why? In this hands-on workshop, you will learn to use polymerase chain reaction (PCR) and gel electrophoresis to identify which suspects can be exonerated—based on DNA evidence. Learn how the statistics of chance are integral to modern DNA fingerprinting.

10:00–11:15 AM Exhibitor Workshops

Hands-On Science with Classroom Critters (Bio)
(Grades K–12) *336, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Here's a surefire boost to your class—live organisms. Whether you use hands-on curriculum (e.g., STC®, FOSS®) or develop your own lessons, animals broaden students' inquiry-based explorations and increase their interest in science. Participate in fun, simple hands-on activities and receive free product samples and literature, including care and handling information.

Discover the Solar System and Beyond (Earth)
(Grades 3–8) *337, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
The universe is as vast and wide as the topics a teacher needs to teach space science. However, meeting space science educational standards with the classroom time allotted can be challenging. GEMS® Space Science Sequences allow you to teach exactly what you need to cover in a timely manner.

Dynamic Demonstrations from Flinn Scientific (Chem)

(Grades 7–12) *339, Convention Center*

Sponsor: Flinn Scientific, Inc.

Scott Stahler and **Lori Kessler,** Flinn Scientific, Inc., Batavia, Ill.

Seeing is believing! Flinn Scientific presents a variety of easy-to-perform and exciting chemistry and physical science demonstrations. Come see Flinn's new demonstrations and some of your old favorites—all guaranteed to make your science classroom come alive. Handouts provided for all demonstrations.

Real Issues, Real Data, Real Choices: Teaching Environmental Science in Today's High School (Env)

(Grades 9–12) *340, Convention Center*

Sponsor: Pearson

Karlie Termotto, Pearson Curriculum Group, Manalapan, N.J.

Discover new ways to engage and empower students of differing abilities in your high school environmental science classroom. Learn how to integrate real-world case studies, up-to-date data and maps, outstanding digital technology, and hands-on activities into your curriculum, with a focus on actionable content through the case study approach.

Integrating Science and Literacy, Grades 1–6 (Gen)

(Grades 1–6) *343, Convention Center*

Sponsor: Delta Education/School Specialty Science

Johanna Strange, Consultant, Richmond, Ky.

Tom Graika, Consultant, Lemont, Ill.

Join us as we share various strategies and Delta products that you can use to integrate reading and language arts into your science programs. Learn how your students can experience the enjoyment of learning science with Delta Science Modules and make the literacy connection. Receive a workshop packet and related Delta materials.

Siemens STEM Academy: Top 10 STEM Resources (Gen)

(Grades K–12) *347, Convention Center*

Sponsor: Discovery Education/The Siemens Foundation

Patti Duncan, Wallenpaupack Area School District, Hawley, Pa.

How can you better integrate STEM in your curriculum? Explore 10 great websites that will help you get started in making STEM a part of your classroom every day. You'll walk away with all of the tools and resources needed to spark your students' interest in science, technology, engineering, and math.

eCYBERMISSION: Free STEM Competition for Middle School Students Rewards Up to $8,000 (Gen)

(Grades 6–9) *348, Convention Center*

Sponsor: eCYBERMISSION

Rachael Lighty *(missioncontrol@ecybermission.com)* and **Deanna Figiel** *(missioncontrol@ecybermission.com),* eCYBERMISSION, Belcamp, Md.

eCYBERMISSION is a free STEM competition for students in grades 6–9. Sponsored by the U.S. Army, eCYBERMISSION gives students the opportunity to work in small teams and compete for regional and national awards using the scientific method to solve problems in their communities.

Get Charged Up with Educational Innovations! (Phys)

(Grades 5–9) *349/350, Convention Center*

Sponsor: Educational Innovations, Inc.

Ken Byrne *(info@teachersource.com),* Educational Innovations, Inc., Norwalk, Conn.

Join us for fun activities with static electricity. Make your own Franklin electrostatic motor and discover a plethora of activities to get your class charged up. Make and take and door prizes!

10:00–11:30 AM Exhibitor Workshops

Transforming the Science Lab with Vernier Technology (Gen)

(Grades 7–College) *338, Convention Center*

Sponsor: Vernier Software & Technology

Dan Holmquist *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Discover how technology can transform your classroom into a 21st-century laboratory. Explore state-of-the-art probeware solutions that teach core science topics in physics, chemistry, biology, Earth science, and environmental science. Learn tips and tricks from master teachers and technology experts and receive hands-on training with both Logger *Pro* software and the Vernier LabQuest handheld.

Light and Optics: A Series of EnLIGHTening Experiments! (Gen)

(Grades 5–12) *345/346, Convention Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton and **Patsy Eldridge,** CPO Science/School Specialty Science, Nashua, N.H.

Experience the Optics with Light and Color kit, with LED flashlights, filters, a laser, and more. Try color mixing, relate it to human vision, and see different spectra of light with diffraction glasses. See the phenomenon of internal reflection by shining a laser through a prism and tracing incident and refracted rays.

11:00 AM–12 Noon Featured Presentation

Where Dreams Really Do Become Reality: DARPA and the Future Workplace (Gen)

(General) *Holiday Ballroom 4/5, Hilton*

Kent Pankratz, Program Management Support, Defense Sciences Office, Defense Advanced Research Projects Agency, Arlington, Va.

Presider: Frank Cardo, Cecil County Public Schools, Elkton, Md.

The Defense Advanced Research Projects Agency's (DARPA) mission is to maintain the technological superiority of the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research bridging the gap between fundamental discoveries and their military use.

Kent Pankratz provides program management support for the Revolutionizing Prosthetics program at the Defense Advanced Research Projects Agency (DARPA), a Department of Defense agency. The goal of the program is to create a fully functional (motor and sensory) upper limb that responds to neural control. He also assists in support for the Preventing Violent Explosive Neurologic Trauma (PREVENT) program, whose mission is to protect those in combat from traumatic brain injury resulting from explosive blasts. His past efforts have included leading cost and benefit teams performing economic analyses for defense acquisition programs.

Pankratz currently serves in the U.S. Army Reserve. He was commissioned at the U.S. Military Academy at West Point. In 2003 during the Iraq and Afghanistan conflicts (Operations Enduring Freedom and Iraqi Freedom), Pankratz served in a support role at the United States Central Command headquarters.

11:00 AM–12 Noon Meeting

Informal Science Education Networking Meeting

334, Convention Center

11:00 AM–12 Noon Presentations

SESSION 1

NSTA Avenue Session: Siemens We Can Change the World Challenge: 21st-Century Tools for Project Based Learning (Gen)

(General) *321, Convention Center*

Lance Rougeux, Discovery Education, Silver Spring, Md.

Project Based Learning (PBL) enables students to explore and develop solutions to real-world problems and challenges. Empower your students to make a difference in their schools, communities, and around the world through the Siemens We Can Change the World Challenge *(http://wecanchange.com),* the premier national K–12 student sustainability competition. In this session we'll highlight a dozen free tools, from blogs to wikis to Google Earth, to help you and your class make an impact.

SESSION 2

STEM Learning Studios: A Way to Create 21st-Century Schools and Workforce (Earth)

(Middle Level–High School/Supervision) *323, Convention Center*

Kathleen Fulton *(kfulton@nctaf.org),* National Commission on Teaching and America's Future, Washington, D.C.

Presider: Rick Marquart, Howard County Public School System, Ellicott City, Md.

The National Commission on Teaching and America's Future's STEM Learning Studios transform schools through sustained teamwork. STEM teachers, advisors, and students join forces to create curriculum content, instruction, and learning experiences.

SESSION 3

NARST Session: Virtual Laboratories in Your Classroom: What Does Research Tell Us? (Bio)

(High School–College) *324, Convention Center*

Eva E. Toth *(eva.toth@mail.wvu.edu),* West Virginia University, Morgantown

This session is formulated for high school science (biology, chemistry) teachers to assist them in developing research-based instructional practices for their classroom inquiry teaching with the use of virtual laboratories.

SESSION 4

International Studies: A Panel Discussion (Gen)

(General) *326, Convention Center*

Sandy Doss, Holbrook Global Field Expeditions, Gainesville, Fla.

Susan Lessner *(slessner@tfd215.org),* Thornton Fractional North High School, Calumet City, Ill.

Alicia Pressel, Creekside High School, St. Johns, Fla.

Elizabeth Spector, University School, Chardon, Ohio

Join in a lively discussion as we reflect on the values, behaviors, and outcomes of the NSTA 2010 Costa Rica Delegation for Professional Development. See some activities and learn some tried-and-tested methods of differentiation to reach different levels of learners in middle school classrooms.

SESSION 5

Meeting the Climate Challenges Ahead (Env)

(General) *327, Convention Center*

Peggy L. Steffen *(peg.steffen@noaa.gov)* and **Bruce Moravchik** *(bruce.moravchik@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.

Help your students understand climate change and its impacts with NOAA's comprehensive web resources and programs. Learn about active learning and stewardship activities for the classroom.

SESSION 6

Successful Blogging in the Physics Classroom (Gen)

(High School) *328, Convention Center*

Katie M. Nefflen *(kmnefflf@carrollk12.org),* Westminster High School, Westminster, Md.

Learn the main reasons to use blogs and ways to successfully integrate them into your classroom.

SESSION 7

Physical Science on a Shoestring (Phys)

(Elementary–Middle Level) *Holiday 2, Hilton*

Antonio M. Niro, Jr. *(tonyniro@comcast.net),* Retired Educator, Milford, Mass.

These high-interest, hands-on physical science activities/demonstrations were designed for use by middle level grades. The emphasis is on low-cost materials and how to get them.

SESSION 8

Using Energy Data in the Classroom (Gen)

(Elementary–Middle Level) *Holiday 3, Hilton*

Mary Spruill *(info@need.org),* The NEED Project, Manassas, Va.

Analyze real-time energy data. Use these sources to teach students important math and graphing skills as they learn about renewable energy and energy efficiency.

SESSION 9

Square Pegs: Science for Those "Other Kids" (Gen)

(Middle Level–High School) *Key Ballroom 2, Hilton*

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

Alternative education is becoming a more common path to achievement all over the country. Bright kids in special programs often have very unique learning styles—and almost no one is creating curricula for them.

SESSION 10

Fission and Fusion: The Critical Role of Nuclear Chemistry in High School (Chem)

(High School) *Key Ballroom 5, Hilton*

Karen L. Belciglio *(kabelciglio@charlottecatholic.com)* and **Terrance D. Jordan** *(tdjordan@charlottecatholic.com),* Charlotte Catholic High School, Charlotte, N.C.

Nuclear and radio chemists in research and the workforce are rapidly disappearing. We'll look at causes and preventive measures in high school chemistry.

SESSION 11

NSTA High School Committee Share Session (Gen)

(High School) *Key Ballroom 9, Hilton*

Michael Lowry, NSTA Director, High School Science Teaching, and The McCallie School, Chattanooga, Tenn.

The NSTA High School Committee highlights excellent presenters sharing inquiry and assessment through best practices, teaching tips, labs, and activities. Join us for some GREAT ideas!

SESSION 12

AAPT Session: Is God a Mathematician? (Phys)

(General) *Key Ballroom 10, Hilton*

Mario Livio, Space Telescope Science Institute, Baltimore, Md.

What gives mathematics the power to describe and predict the physical world? Is mathematics ultimately invented or discovered? We'll look at some answers.

SESSION 13

NABT Session: Writing for *The American Biology Teacher* (Bio)

(General) *Key Ballroom 11, Hilton*

William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.

Learn techniques for writing a successful article for *The American Biology Teacher.* I'll share author guidelines and sample articles.

SESSION 14

How Cold Is Ice? Uncovering Issues in the Material We Cover (Chem)

(Elementary–High School) *Latrobe, Hilton*

Louis B. Rosenblatt, Consultant, Baltimore, Md.

Using experiements, we will collectively unravel issues about the nature of heat as an example of planning and executing inquiry-based science.

SESSION 15

Turn Your Students On! Develop an Innovative Project Based Learning Curriculum Model (Gen)

(Elementary–High School) *Ruth, Hilton*

Rochelle L. Slutskin *(rslutskin@aacps.org),* **Valerie Wesner** *(vwesner@aacps.org),* **Laura L. Espinosa,** and **Terri T. Showers** *(tshowers@aacps.org),* Anne Arundel County Public Schools, Annapolis, Md.

We'll share strategies and examples of the Anne Arundel County Public School System's Project Based Learning (PBL) model, a research-based, student-centered curriculum that enables students to participate in inquiry-based instruction. Develop your own PBL unit using this model.

11:00 AM–12 Noon Workshops

Fight Bac! Integrating Food Safety into Your Elementary Classroom (Gen)
(Elementary) *325, Convention Center*
Laurie A. Hayes *(lhayes@cart.org),* Center for Advanced Research and Technology, Clovis, Calif.
Susan E. Hartley *(susan.mumford.hartley@hotmail.com),* Navarro High School, Geronimo, Tex.
These hands-on and ready-to-use activities integrate science and health standards while teaching students about the importance of hand washing and food safety. Free teaching materials from the FDA and door prizes!

ACS Middle Level Session: Density (Chem)
(Middle Level) *331, Convention Center*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Measure mass and volume of objects made of different materials and learn how their densities can be explained on the molecular level.

ACS Session Three: Why Is Water Different? (Chem)
(High School) *332, Convention Center*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
An immediate response is, "hydrogen bonding." What is a hydrogen bond and what are its properties? Other simple molecules form strong hydrogen bonds, but do not show the same properties as water. Why? Models that incorporate hydrogen bonding provide the insight to answer these questions. Bring your USB flash drive and take away the presentation and the activities to use in your classes.

Whale of a Share-a-Thon (Bio)
(General) *Holiday 6, Hilton*
David M. Christopher, National Aquarium, Baltimore, Md.
Join the Mid-Atlantic Marine Education Association to sample activities, programs, and curricula from marine science providers from around the region.

Standards-based Active Learning: Protein Structure and Function (Bio)
(High School–College) *Key Ballroom 1, Hilton*
Tim Herman *(herman@msoe.edu)* and **Karen DeBoer** *(deboerk@kmsd.edu),* Center for BioMolecular Modeling, 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.

Forensic Spectroscopy (Gen)
(High School–College) *Key Ballroom 3, Hilton*
Nusret Hisim *(nhisim@gmail.com),* Walkersville High School, Walkersville, Md.
Use a handheld digital spectrometer to analyze visible emission and absorbance spectra to identify the components of evidence collected at a crime scene.

Forensics Science in Your Physics Classroom (Phys)
(High School) *Key Ballroom 4, Hilton*
Jacklyn Bonneau *(bonneau@wpi.edu),* Massachusetts Academy of Math & Science, Worcester
Integrate forensics into the physics classroom and make topics interesting. Use these hands-on experiences with students of all levels.

NSTA Press Session: Stop Faking It! Finally Understand FORCE AND MOTION So You Can Teach It (Phys)
(Elementary–Middle Level) *Key Ballroom 7, Hilton*
Bill Robertson *(wrobert9@ix.netcom.com),* NSTA Press Author, Woodland Park, Colo.
Tired of teaching a subject you don't fully understand yourself? Join the author of the *Stop Faking It!* books for sample activities designed to help you gain a deep understanding of force and motion concepts. No tuxedos, please.

Great Science for Girls (Gen)
(General) *Key Ballroom 8, Hilton*
Maryann Stimmer *(mstimmer@aed.org)* and **Ben Dworken** *(bdworken@aed.org),* The Educational Equity Center at The Academy for Educational Development, New York, N.Y.
Rebekah Lin *(rlin1@gmail.com),* Carson Scholars, Baltimore, Md.
Great Science for Girls is an NSF-funded extension service that supports programming to broaden and sustain the interest of underrepresented groups in STEM careers.

STEM for Early Leaners **(Gen)**
(Preschool–Elementary) *Key Ballroom 12, Hilton*
Karen L.S. Donovan *(karen.donovan@pgcps.org),* Kenilworth Elementary School, Bowie, Md.
Valerie M. Leahey-Leonard *(valerie.leonard@pgcps.org),* Gaywood Elementary School, Lanham, Md.
Try a hands-on activity that incorporates early learning and STEM fairs. We will integrate developmentally appropriate practices with the process of inquiry.

11:00 AM–12 Noon Exhibitor Workshop

Discovery-based Chemistry with SPARKscience: States of Matter **(Chem)**
(Grades 6–12) *341, Convention Center*
Sponsor: PASCO Scientific
Presenter to be announced
This session discovers states of matter—one of the most challenging high school chemistry topics to teach—using PASCO's state-of-the-art science teaching solutions. In this hands-on workshop, you will participate in standards-based probeware lab activities from PASCO's new chemistry curriculum. Be one of the first to experience how SPARKscience can enhance your teaching practice and improve student understanding of core topics.

11:30 AM–1:30 PM Exhibitor Workshop

Taking Science Outdoors with FOSS K–8 **(Gen)**
(Grades K–8) *344, Convention Center*
Sponsor: Delta Education/School Specialty Science–FOSS
Joanna Snyder and **Erica Beck Spencer,** Lawrence Hall of Science, University of California, Berkeley
Learn about the groundbreaking work done by the Boston Schoolyard Initiative (BSI) and about new Lawrence Hall of Science environmental education initiatives. Explore how to use effective strategies to engage children in powerful science learning experiences in their own school yards and local outdoor environments. Participants will go outside, so dress accordingly.

12 Noon–1:15 PM Exhibitor Workshops

Introduction to Electrophoresis **(Bio)**
(Grades 9–12) *336, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Join us and explore the basics of electrophoresis. We'll separate brightly colored dyes on agarose gels to determine which dyes are present in an unknown mix. Gels are run using economical, sturdy gel boxes that can be powered by inexpensive power supplies or batteries. Participants will load their own gels and perform electrophoresis.

Energy Works! **(Phys)**
(Grades 3–5) *337, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Build an electric circuit, connect a solar cell, light a bulb, get a buzzer buzzing, and set a motor spinning. Participants work like scientists to trace the flow of energy through a circuit, then investigate alternative, potential, and kinetic energy in systems powered by wind, Sun, and water.

The Digital Path and New Media Literacies (Gen)
(Grades K–8) *340, Convention Center*
Sponsor: Pearson
Don Buckley, The School at Columbia University, New York, N.Y.
Learn how Pearson's digital path that accompanies the "write-in student edition" can aid teaching and learning essential new media literacies. The new media literacies involve social skills developed through collaboration and networking. Literacies such as appropriation, multitasking, collective intelligence, and more will be discussed as well as how they can be applied through teaching science using the digital path.

Fast and Furious: Force and Motion for Middle School! (Chem)
(Grades 6–8) *347, Convention Center*
Sponsor: LAB-AIDS, Inc.
Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.
This engaging middle level unit from SEPUP's Issues and Physical Science course lets students study core force and motion concepts using a scenario of a family who has just survived a serious car accident and is in the market for a safer car. Students learn about Newton's laws, balanced and unbalanced forces, speed and acceleration, friction, and collisions. They then apply this knowledge in practical terms to understand braking distance, safe driving, and SUV-type rollovers. Join us for a hands-on look at measuring speed, motion graphs, and circular motion.

Introduction to Blood Typing and Blood Spatter (Bio)
(Grades 6–12) *348, Convention Center*
Sponsor: WARD's Natural Science
Mark Meszaros, Sargent-Welch, Rochester, N.Y.
By using simulated blood, participants will learn to conduct blood typing tests as well as learn to interpret and understand blood spatter. This experience is a great introduction into the forensic sciences.

Bringing Biology to Life (Bio)
(Grades 9–12) *349/350, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Lory Heron, Houghton Mifflin Harcourt, Austin, Tex.
Engage and motivate students by connecting biology to their daily lives. Experience ways to teach biology using tools for today's learners and identify "cool connections" and construct meaningful bridges to make biology matter to your students. Come prepared to interact and engage as you explore ways to bring biology to life!

12 Noon–1:30 PM Exhibitor Workshops

Transforming the Science Lab with Vernier Technology (Gen)
(Grades 7–College) *338, Convention Center*
Sponsor: Vernier Software & Technology
Dan Holmquist *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Discover how technology can transform your classroom into a 21st-century laboratory. Explore state-of-the-art probeware solutions that teach core science topics in physics, chemistry, biology, Earth science, and environmental science. Learn tips and tricks from master teachers and technology experts and receive hands-on training with both Logger *Pro* software and the Vernier LabQuest handheld.

Gas Laws Kit: Chemistry and the Data Collector—Charles' and Boyle's Laws Uncovered (Gen)
(Grades 5–12) *345/346, Convention Center*
Sponsor: CPO Science/School Specialty Science
Erik Benton and **Patsy Eldridge,** 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.

12 Noon–2:00 PM Luncheon

Maryland Association of Science Teachers/Maryland Science Supervisors Association Luncheon
Key Ballroom 6, Hilton
The Maryland Association of Science Teachers (MAST), the Maryland Science Supervisors Association (MSSA), and It's About Time are pleased to host a luncheon at NSTA. Arthur Eisenkraft, 2000–2001 NSTA President, will deliver a presentation focused on science education for *all* students. MAST will also present the award winners for the Excellence in Teaching Awards. For details, please visit *www.emast.org.*

12:15–4:15 PM Short Course

Growing Greener Schools with the Maryland Green Schools Program (SC-5)

(Grades K–12) *Off-site (ENVIRO Center)*

Tickets Required: $40

Bronwyn Mitchell *(greenschools@maeoe.org),* Maryland Association of Environmental and Outdoor Education (MAEOE), Jessup

For description, see page 36.

12:30–1:30 PM Presentations

SESSION 1

NSTA Avenue Session: Toyota TAPESTRY Grants for Science Teachers = $$$ for Your School! (Gen)

(Elementary–High School) *321, Convention Center*

Eric V. Crossley *(ecrossley@nsta.org),* Director, Science Education Competitions, NSTA, Arlington, Va.

Find out how to increase your chances of winning one of 50 Toyota TAPESTRY $10,000 large grants! This year the focus for Toyota TAPESTRY grants will be the environment. We will share keys to success and review ways to increase your chances of funding your innovative, community-based environmental science project. Open to middle or high school science teachers and elementary teachers who teach some science in the classroom.

SESSION 2

Reaching and Teaching the Reluctant Science Student (Chem)

(General) *323, Convention Center*

Judith Ann Pauley *(jfpauley1@earthlink.net),* California State University, San Marcos

Use the concepts of process communication to reach, motivate, and teach every student—especially the hard-to-reach science student.

SESSION 3

NASA Explorer Schools: Preparing the Next Generation of Explorers (Gen)

(General) *324, Convention Center*

Rob LaSalvia, NASA Glenn Research Center, Cleveland, Ohio

Presider: Jodie Rozzell, Director, NASA Explorer Schools Program, NSTA, Arlington, Va.

Learn how NASA Explorer Schools transform STEM education and how NASA uses its innovative mission content and technology to excite and engage students.

SESSION 4

CATALYST: A Comprehensive STEM Education Model (Gen)

(General) *326, Convention Center*

Susan Palisano *(spalisano@ccat.us)* and **Nicholas Balisciano** *(nbalisciano@ccat.us),* Connecticut Center for Advanced Technology, Inc., East Hartford

Learn how the innovative CATALYST model improves achievement in science and math and generates increased interest in STEM careers.

SESSION 5

Using Real-Time Data to Teach About Chesapeake Bay (Env)

(Middle Level–High School) *327, Convention Center*

Elena S. Takaki *(etakaki@dnr.state.md.us),* Maryland Dept. of Natural Resources, Annapolis

Sarah Haines *(shaines@towson.edu),* Towson University, Towson, Md.

Use real-time water quality data to teach your students about Chesapeake Bay. Eyes on the Bay can help your middle and elementary school students access local water quality data.

SESSION 6

School Inquiry Conference (Gen)

(Elementary) *328, Convention Center*

Paula G. Odans *(paula_odans@mcpsmd.org)* and **Beth Deigan** *(elizabeth_m_deigan@mcpsmd.org),* Sequoyah Elementary School, Derwood, Md.

We devoted a school day to the celebration of science inquiry, incorporating STEM, members of the STEM community, parents, students, and teachers.

SESSION 7

Beyond the Science Fair: A Science Research Program for Gifted Middle School Students (Gen)

(Middle Level) *329, Convention Center*

Alicia Oelfke *(alicia_oelfke@hcpss.org),* Howard County Public School System, Ellicott City, Md.

Nan Miller *(nancy_miller@hcpss.org),* **Sara Wallick** *(sara_wallick@hcpss.org),* and **Meredith Long,** Ellicott Mills Middle School, Ellicott City, Md.

Learn about a three-year research program for gifted middle school students that teaches necessary thinking and research skills such as hypothesizing, graphing, and data analysis.

SESSION 8

Teaching Toward a More Scientifically Literate Society (Gen)

(Middle Level) *Holiday 3, Hilton*

Fred B. Ende *(frende@ccsd.ws)* and **Ray LoGiudici** *(ralogiudici@ccsd.ws),* Seven Bridges Middle School, Chappaqua, N.Y.

Learn about a yearlong, multi-part project designed to further students' scientific literacy skills. Pseudoscience, current events, literature, and observation all play key roles.

SESSION 9

Virtual Science: Overcoming Barriers to Experiential Learning in Distance Education (Bio)

(Middle Level–College) *Key Ballroom 3, Hilton*

Debra F. McLaughlin *(dmclaughlin@umuc.edu),* **Kathleen B. Warner** *(kwarner@umuc.edu),* **Robin Searles-Adenegan,** and **Sharon Goodall,** University of Maryland University College, Adelphi

Distance education provides significant opportunities to engage students in science. We will discuss approaches to create online learning environments conducive to high engagement and interactivity.

SESSION 10

Combining the Arts and Digital Media to Reach More Students (Chem)

(Middle Level–College) *Key Ballroom 5, Hilton*

Kathleen D. Chesmel *(chesmelk@newegypt.us),* **Patricia Wunsch** *(wunschp@newegypt.us),* and **Kodi Sohl,** New Egypt High School, New Egypt, N.J.

Provide a multiple learning styles/intelligences approach toward chemistry using the arts in combination with digital media.

SESSION 11

Leading Beyond the Classroom: Tips from the NSTA High School Committee (Gen)

(High School) *Key Ballroom 9, Hilton*

Michael Lowry, NSTA Director, High School Science Teaching, and The McCallie School, Chattanooga, Tenn.

Many science teachers look for opportunities to expand their leadership outside the classroom. Hear some strategies for being an effective leader in your school. Additionally, we will look at leadership opportunities with NSTA.

SESSION 12

AAPT Session: Making Sport of Physics (Phys)

(High School–College) *Key Ballroom 10, Hilton*

John Eric Goff *(goff@lynchburg.edu),* Lynchburg College, Lynchburg, Va.

Sports topics can help make a challenging subject fun. Learn how to incorporate the physics of sports into the classroom.

SESSION 13

NABT Session: Intuitive Software for Biology Students (Bio)

(High School–College) *Key Ballroom 11, Hilton*

Robert K. Kuzoff *(kuzoffr@uww.edu),* University of Wisconsin–Whitewater

Jeffrey S. McKinnon *(mckinnonj@ecu.edu),* East Carolina State University, Greenville, N.C.

Here are easy-to-follow computer exercises that introduce problem-solving strategies for bioinformatics to high school or college biology students.

SESSION 14

AquaPartners: An Urban Watershed Education Program (Env)

(General) *Latrobe, Hilton*

David M. Christopher, National Aquarium, Baltimore, Md.

The National Aquarium partnered with Baltimore City Schools to increase student knowledge and interest in the environment and science. We'll look at the structure of the program and evaluation results.

SESSION 15

Universal Design for Learning: Effective Instructional Strategies for Diverse Learners (Gen)

(General) *Ruth, Hilton*

Viv Wayne *(viv_wayne@mcpsmd.org),* Montgomery County Public Schools, Rockville, Md.

Explore learning styles, analyze a lesson for student barriers, and apply Universal Design for Learning principles.

12:30–1:30 PM Workshops

ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (Chem)

(Middle Level) *331, Convention Center*

James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.

Do an activity to explore the first 20 elements of the periodic table and take a fresh look at covalent and ionic bonding.

ACS Session Four: Bond Connections in More Complex Molecules (Chem)

(High School) *332, Convention Center*

Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.

Molecules are three dimensional and physical molecular models can help bring them to life. Models can demonstrate alternative bond connections and structural differences that are difficult to visualize in a two-dimensional drawing, but have important consequences for observable properties of the compounds that can be readily demonstrated. Bring your USB flash drive and take away the presentation and activities to use in your classes.

Scale the Universe (Phys)

(Middle Level) *Holiday 2, Hilton*

Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.

How big is big? How small is small? Let's "scale the universe" as we investigate the powers of 10.

CESI Session: Council for Elementary Science International Share-a-Thon (Gen)
(Preschool–Middle Level) *Holiday 6, Hilton*
Presenter to be announced
Join CESI as we share a wealth of ready-to-use, classroom-tested, hands-on activities created just for the elementary teacher. Handouts and website links.

Standards-based Active Learning: DNA, RNA, and Protein (Bio)
(High School–College) *Key Ballroom 1, Hilton*
Tim Herman *(herman@msoe.edu)* and **Karen DeBoer** *(deboerk@kmsd.edu),* Center for BioMolecular Modeling, Milwaukee School of Engineering, Milwaukee, Wis.
Use a series of innovative physical models of DNA, RNA, and proteins to teach your students about the flow of genetic information.

Hands-On Learning Activities for AP Environmental Science (Env)
(High School) *Key Ballroom 2, Hilton*
Kristen R. Dotti *(kristen.dotti@catalystlearningcurricula.com),* Christ School, Arden, N.C.
Solar intensity simulations, sun-tracking devices, the 10% Rule Game—could this be AP science? Come see hands-on learning with rigorous AP content.

Engaging Students in Science Content Through Global Issues and Sustainability (Gen)
(Middle Level–High School) *Key Ballroom 4, Hilton*
Rebecca Bell *(rbell153@gmail.com),* Facing the Future, Ligonier, Pa.
Bring global issues to your classroom using ecological footprint, renewable resources, and sustainability audits. Try some standards-based, engaging hands-on lessons that bring science content to life. Free curriculum!

NSTA Press Session: Outdoor Science: A Practical Guide (Env)
(Elementary–Middle Level) *Key Ballroom 7, Hilton*
Steve A. Rich *(bflywriter@comcast.net),* Georgia Dept. of Education, Atlanta
No teacher left inside! Insects, seeds, and sundials can help you integrate all subjects in outdoor lessons with practical ideas and inexpensive materials. Free seeds!

It's a Matter of Choice! (Gen)
(General) *Key Ballroom 12, Hilton*
Deborah M. Batzer *(deborah_batzer@hcpss.org),* Howard County Public School System, Ellicott City, Md.
These hands-on, technology-based experiences are designed to increase interest and bring learning alive. Take home manipulatives and resources.

12:30–2:30 PM NSTA ESP Symposium I

NSTA Exemplary Science Programs (ESP)…Meeting the Reform Features from the National Science Education Standards (Gen)
(General) *Holiday Ballroom 1, Hilton*
ESP: Unique Features of Programs That Meet "More Emphasis" Features 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 Susan Blunck* (blunck@umbc.edu), *University of Maryland, Baltimore County, Baltimore*

This session 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. Participants in this symposium will include the following authors from specific monographs in the series.

Sing and Dance Your Way to Science Success (from ESP #3)

Cindy Moss *(cindy.moss@cms.k12.nc.us),* Charlotte-Mecklenburg Schools, Charlotte, N.C.

Bringing School Science to College (from ESP #4)

Sondra Akins *(akinss@wpunj.edu),* William Patterson University, Wayne, N.J.

Knowledge and Wonder (from ESP #5)

Stephen M. Pompea *(spompea@noao.edu),* National Optical Astronomy Observatory, Tucson, Ariz.

Inquiry: A Challenge for Changing the Teaching of Science (from ESP #6)

Holly Harrick *(hharrick@ctsciencecenter.org),* Connecticut Science Center, Hartford

1:00–2:00 PM Exhibitor Workshop

Discovery-based Middle School Science with Sally Ride Science and SPARKscience (Earth)
(Grades 6–8) *341, Convention Center*
Sponsor: PASCO Scientific
Presenter to be announced
This session explores "Our Changing Climate" using a hands-on SPARKlab activity from Sally Ride Science and PASCO's state-of-the-art SPARK Science Learning System. See for yourself how these 21st-century standards-based activities can deepen students' knowledge of fundamental concepts and increase their understanding of the world around them.

1:00–2:15 PM Exhibitor Workshop

Working as One with Hands and Minds (Gen)
(Grades K–8) *343, Convention Center*
Sponsor: Delta Education/School Specialty Science
Johanna Strange, Consultant, Richmond, Ky.
Tom Graika, Consultant, Lemont, Ill.
Students learn best when both their minds and their hands are engaged in classroom activities. A problem-solving approach to teaching promotes this kind of student learning. Delta Science Modules and technological activities will illustrate a variety of problem-solving strategies that lead to real learning. Take home a resource packet.

1:00–2:30 PM Exhibitor Workshop

Bio-Rad: Enzymes and Biofuels—Go from Grass to Gas! (AP Lab 2) (Bio)
(Grades 9–College) *342, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Kirk Brown, Tracy High School, Tracy, Calif.
Stan Hitomi, San Ramon Valley Unified School District, Danville, Calif.
Need energy? Reveal the power of enzyme kinetics by illustrating the theory through a real-world application to biofuels. In this workshop, you will determine the rate of reaction for the enzyme cellobiase, a key enzyme in the production of cellulosic ethanol (a highly researched biofuel). Can biofuels solve global warming? Let your students decide if this is possible!

1:00–4:30 PM Short Course

Marriage of Science and Interactive Boards (SC-6)
(Grades 6–8) *Tubman, Hilton*
Tickets Required: $20
SOLD OUT
Charity Lawson *(charity.lawson@pgcps.org),* **Linda Armwood** *(linda.armwood@pgcps.org),* and **Michelle A. Carter** *(michelle.carter@pgcps.org),* Prince George's County Public Schools, Landover, Md.
For description, see page 36.

2:00–3:00 PM Meeting

Maryland STEM Portfolio Project Meeting
(By Invitation Only) *Johnson, Hilton*
The Maryland STEM Portfolio Project (MSPP) incorporates learning teams of school-based educators comprised of a cross-representation of grade levels (grades 4–8), STEM content disciplines, library media specialists, teachers of English language learners, and special education teachers. These teams are collaborating to develop models for project-based STEM learning across curricula and classrooms. The MSPP grant includes units of study, a strong interdisciplinary research project, and production of e-portfolios. Learning team members and school system representatives will meet to update progress on the project.

2:00–3:00 PM Featured Presentation

No Child Left Inside: Systemic Boost for Hands-On Science (Gen)
(General) *Holiday Ballroom 4/5, Hilton*

Don Baugh, Vice President, Environmental Education, Chesapeake Bay Foundation, Annapolis, Md.

Presider: Patricia Ghinger, Baltimore County Public Schools, Baltimore, Md.

The No Child Left Inside Coalition has spearheaded the effort to provide systemic support for environmental education. President Obama and Congress have provided leadership that will encourage state departments of education to embed environmental education into the curriculum, and provide professional development and supporting resources. In addition, the now popular movement to get children outside and reconnected with nature has educators and families supporting what environmental educators have always known—involving students in hands-on environmental education gets students excited about science and other STEM subjects, increases student achievement, promotes a healthy lifestyle, and is a cornerstone of the new green economy. You will learn about this movement, how you can help promote it, and how you may benefit as a science educator or an environmental educator.

As vice president of education at the Chesapeake Bay Foundation (CBF), Don Baugh brings his passion for working with students, enthusiasm for the bay, and steadfast addiction to being on the water to thousands of CBF field participants. He walks the talk, often commuting to work by kayak up to 14 miles each day. He left the classroom as a physics teacher 31 years ago to follow his passion for working outside with students and teachers, and has been true to his adage that "his land life is his life support system for his water life."

For more than 34 years, he has directed the education program at CBF. During this time, more than 800,000 students and teachers have participated in "on the water" field experiences. In 2007, Baugh founded the No Child Left Inside (NCLI) Coalition, and has since served as its executive director. The NCLI Coalition is one of the largest coalitions in our nation's history, with more than 1,600 organizational members representing approximately 50 million people. The coalition was largely responsible for the No Child Left Inside Act, which passed the U.S. House of Representatives, the only K–12 education bill to do so in the 110th Congress.

2:00–3:00 PM Presentations

SESSION 1

NSTA Avenue Session: SciLinks: Using the Online Assignment Tool (Gen)
(Elementary–High School) *321, Convention Center*
Virginie L. Chokouanga, Customer Service/Database Coordinator, SciLinks, NSTA, Arlington, Va.
Tyson Brown *(tbrown@nsta.org),* Director, SciLinks, NSTA, Arlington, Va.
The SciLinks assignment tool allows students to show what they have learned from the web resources SciLinks provides. Learn to create and distribute assignments.

SESSION 2

Creating K–6 Classrooms That Embrace Science Inquiry: Helping Students Think and Work Like Scientists (Gen)
(General) *323, Convention Center*
Donna L. Knoell *(dknoell@sbcglobal.net),* Educational Consultant, Shawnee Mission, Kans.
We'll look at what inquiry encompasses, the benefits of teaching science as inquiry, and how to create a classroom environment that embraces it.

SESSION 3

NSELA Session: Tools and Ideas for Leaders (Gen)
(General) *324, Convention Center*
Janey Kaufmann, NSELA President, Scottsdale, Ariz.
Meet with National Science Education Leadership Association leaders as we trade tips, tools, and tactics that enhance the work of science leaders.

SESSION 4

Creating and Sustaining School Yard Habitat Learning Environments (Env)
(General) *327, Convention Center*
Stacey J. Adamiak, Frederick County Public Schools, Frederick, Md.
April J. Wells *(april.wells@fcps.org),* Catoctin High School, Thurmont, Md.
Learn how NOAA B-WET grant funds support a systemic school yard habitat program that integrates K–12 professional development, student stewardship, outreach, and authentic partnerships.

SESSION 5

STEM Academy (Chem)
(High School) *329, Convention Center*
Alison M. Hapka *(ahapka@ccps.org),* Elkton High School, Elkton, Md.
Frank Cardo *(fcardo@ccps.org),* Cecil County Public Schools, Elkton, Md.
Students tackle classes enhanced through technological innovations and practical applications. We'll look at the challenges of working with these students and share examples of senior projects.

SESSION 6

The Reflective Assessment Technique: Fifteen Minutes to Improved Instruction (Gen)
(Elementary–Middle Level) *Holiday 3, Hilton*
Cathleen Kennedy *(cathy@kacgroup.com),* Educational Consultant, San Mateo, Calif.
Kathy Long *(klong@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Arthur H. Camins *(arthurcamins@gmail.com),* Jefferson County Public Schools, Louisville, Ky.
Learn a quick assessment technique that pinpoints what students need to learn next—without giving a quiz. See how it improved student performance and teacher practice in a national study.

SESSION 7

Stand and Deliver: How to Present at an NSTA Conference! (Gen)
(General) *Key Ballroom 1, Hilton*
Melvina Jones, NSTA Director, Preschool/Elementary, and John Burroughs Education Campus, Washington, D.C.
Cathy L. Jamison *(cjamison@wcpss.net),* Hunter Elementary School, Raleigh, N.C.
Mary Stein *(stein@oakland.edu),* Oakland University, Rochester, Mich.
The Preschool/Elementary Committee will share how to prepare and submit a proposal for presentation at an NSTA conference.

SESSION 8

NASA-, NOAA- and NSF-sponsored GLOBE Program: U.S. Regional GLOBE Networking Session (Env)

(General) *Key Ballroom 2, Hilton*

Teresa J. Kennedy and **Nandini McClurg,** The GLOBE Program, Tyler, Tex.

GLOBE facilitates student learning with a hands-on/minds-on environment and enables students to learn science through international networks of their peers and scientists around the world.

SESSION 9

NSTA Press Session: Get the FACTs (Formative Assessment Classroom Techniques) (Gen)

(General) *Key Ballroom 7, Hilton*

Page Keeley *(pkeeley@mmsa.org),* 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta

Experience a "strategy harvest" of formative assessment classroom techniques from NSTA's best-selling books on formative assessment.

SESSION 10

How Is Your Higher Education Institution Engaging in STEM/Project Based Learning? (Gen)

(College) *Key Ballroom 10, Hilton*

Beth Carnate *(carnateb@ohiodominican.edu),* Ohio Dominican University, Columbus

Please come share what you are doing on your campus in the STEM/Project Based Learning (PBL) arena for faculty and undergrads, with K–12 partners, and/or with teacher/administrator preparation and professional learning.

SESSION 11

NABT Session: Exploring Biodiversity: The Search for New Medicines and Treatments—Free Teaching Resources from the Howard Hughes Medical Institute (Bio)

(Middle Level–College) *Key Ballroom 11, Hilton*

Anthony Bertino *(abertino@nycap.rr.com),* Retired Educator, Scotia, N.Y.

Patricia Nolan Bertino *(nolanp@nycap.rr.com),* Scotia, N.Y.

Learn how biodiversity among venomous snails and bacterial communication has led to new medical discoveries. Receive FREE Howard Hughes Medical Institute (HHMI) DVDs, virtual lab CDs, and materials developed by teacher-presenters.

SESSION 12

MY NASA DATA: Your Students Can Be Earth Scientists! (Earth)

(Middle Level–High School) *Key Ballroom 12, Hilton*

Preston M. Lewis, Science Systems and Applications, Inc./NASA Langley Research Center, Hampton, Va.

Engage your students in learning about our planet Earth. Use MY NASA DATA to access Earth systems satellite data and imaging. Plenty of handouts!

SESSION 13

Teaching About Corals: Using NOAA Resources (Env)

(General) *Latrobe, Hilton*

Lindsay Knippenberg *(robert.c.hansen@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.

Coral reefs are a barometer of our planet's health. Learn about NOAA resources that allow you to bring corals to life in your classroom.

SESSION 14

Differentiation in Middle School Science (Gen)

(General) *Ruth, Hilton*

Lori J. Hrinko and **Amy Jo Smith,** North East Middle School, North East, Md.

Presider: Amy Jo Smith

See some activities and learn some tried-and-tested methods of differentiation to reach different levels of learners in middle school classrooms.

2:00–3:00 PM Workshops

Saving Energy at Home and School (Env)
(Elementary–High School) *328, Convention Center*
Mary Spruill *(info@need.org),* The NEED Project, Manassas, Va.
Lessons teach energy efficiency and conservation at home and school. Receive sample materials and innovative ideas to implement an energy management program in your classroom.

ACS Middle Level Session: Polarity of the Water Molecule and Dissolving (Chem)
(Middle Level) *331, Convention Center*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore why water is a polar molecule and perform dissolving activities that can be explained on the molecular level.

ACS Session Five: Chemistry of Aqueous Solutions of Gases (Chem)
(High School) *332, Convention Center*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
The electrical conductivity and pH of aqueous solutions of N_2, O_2, HCl, CO_2, and NH_3 are very different. The characteristics of the chemical bonding in these molecules provide the information necessary to understand and explain their behavior when dissolved in water. Bring your USB flash drive and take away the presentation and activities to use in your classes.

STEMtastic Family Fun Nights (Gen)
(Preschool–Middle Level) *Holiday 2, Hilton*
Kim Day, Walkersville Elementary School, Walkersville, Md.
Chris Horne *(chris.horne@fcps.org),* Frederick County Public Schools, Frederick, Md.
Try some STEM-related hands-on activities and learn how to plan a STEMtastic family night for your school that will get everyone excited. Handouts.

National Earth Science Teachers Association Earth Science Share-a-Thon (Earth)
(Elementary–High School) *Holiday 6, Hilton*
Michelle C. Harris *(michelle_harris@apsva.us)* and **Kimberly Warschaw** *(kimberly_warschaw@apsva.us),* Wakefield High School, Arlington, Va.
Roberta M. Johnson, National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, Grosse Pointe North High School, Grosse Pointe Woods, Mich.
Margaret Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
Teresa J. Kennedy and **Nandini McClurg,** The GLOBE Program, Tyler, Tex.
H. Michael Mogil *(hmmogil@weatherworks.com),* How the Weatherworks/Howard University, Naples, Fla.
Join NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

Hands-On Performance Assessment for K–12 Students: The Impetus for Inquiry in Our Classrooms (Gen)
(Supervision/Administration) *Key Ballroom 3, Hilton*
Deborah L. Tucker *(deborahlt@aol.com),* Science Education Consultant, Napa, Calif.
Grant M. Gardner *(grantmgardner@msn.com),* Assessment Services, Inc., Pepperell, Mass.
Engage in a hands-on performance task and explore the uses and advantages of this form of assessment.

Fueling the Future: Energy Interconnections and Sustainable Choices (Gen)
(Middle Level–High School) *Key Ballroom 4, Hilton*
Rebecca Bell *(rbell153@gmail.com),* Facing the Future, Ligonier, Pa.
Experience hands-on lessons that demonstrate the interconnections between energy sources, human choices, economic challenges, and environmental impacts. Free curriculum!

Formative Assessment and Data Collection with the TI-Nspire Navigator **(Phys)**
(High School) *Key Ballroom 5, Hilton*
Sean M. Bird, Covenant Christian High School, Indianapolis, Ind.
Explore the latest in wireless, handheld technology that easily integrates probes and sensors—the TI-NspireCAS. Get instant feedback, track responses for assessment, and distribute activities.

GreenSchools! **(Env)**
(General) *Key Ballroom 8, Hilton*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Sarah Haines *(shaines@towson.edu),* Towson University, Towson, Md.
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.

AAPT Session: Physics Explorations Using Inquiry in a Box **(Phys)**
(High School–College) *Key Ballroom 9, Hilton*
Deborah Roudebush *(dmroudebush@fcps.edu),* Oakton High School, Vienna, Va.
Practice open-ended inquiry using everyday items to explore basic concepts. Leave with an inquiry box.

2:00–3:15 PM Exhibitor Workshops

Where Have All the Salmon Gone? (Gen)
(Grades 3–College) *326, Convention Center*
Sponsor: WGBH Teachers' Domain
Carolyn W. Jacobs *(carolyn_jacobs@wgbh.org),* WGBH Teachers' Domain, Boston, Mass.
NASA, WGBH public television, and tribal communities collaborate to illustrate the impact of climate change on indigenous cultures through free digital media resources available at Teachers' Domain *(www.teachersdomain.org). NOVA* DVDs and a four-DVD set of the WGBH American Experience production *We Shall Remain* will be given away.

Amplify Your Genetics Teaching Skills with Carolina's Inquiries in Science™ Biology Units (Bio)
(Grades 9–12) *336, Convention 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 teacher materials and door prizes!

Do They Get It? Assessment Strategies for an Inquiry Classroom (Gen)
(Grades K–5) *337, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Learn to develop effective assessment strategies for your inquiry classroom. Using the STC Program™ and STC® assessment guides, participants devise a complete assessment program (including both pencil-and-paper tests and less traditional tools) that allows students to apply and restate their understandings about the world.

EdSteps: Discussion and Practice on Student Performance Continua (Gen)
(General) *339, Convention Center*
Sponsor: Council of Chief State School Officers
Kirsten Taylor *(kirstent@ccsso.org)* and **Margaret Millar** *(margaretm@ccsso.org),* Council of Chief State School Officers, Washington, D.C.
An initiative led by the Council of Chief State School Officers, EdSteps aims to improve the teaching and assessment of key skills in learners of all ages by creating continua of student work samples. EdSteps seeks examples of student work from science classrooms to publish and make freely available to educators. We will discuss the EdSteps methodology and allow interactive participation in our process.

The Science Behind Climate Change: What Every Student (and Teacher) Should Know (Earth)
(Grades K–8) *340, Convention Center*
Sponsor: Pearson
Michael E. Wysession, Washington University in St. Louis
Teaching about climate change at a K–8 level is very challenging. The subject is very important, yet very complicated. In fact, climate and climate change are some of the most complex subjects in all of Earth science. Renowned geosciences professor and Pearson author Michael Wysession will explain the fundamentals and latest discoveries about climate change in a way that everyone can understand, with tips on how to talk about it in the classroom.

Master of Science in Geosciences via Distance Learning from Mississippi State University (Earth)
(Grades K–12) *347, Convention Center*
Sponsor: Mississippi State University
Doug Gillham *(dmg3@msstate.edu),* Mississippi State University, Mississippi State, Miss.
Gail Ruga *(sciencelady_22@yahoo.com),* Paducah, Ky.
Discover how you can earn an MS degree in geosciences via distance learning through the Teachers in Geosciences program. Our 12-course, 36-credit hour graduate program includes courses in meteorology, geology, planetary science, oceanography, hydrology, and environmental geosciences. We have alumni in all 50 states and all students qualify for in-state tuition rates.

ScholAR Chemistry In-the-Bag Inquiry (Chem)
(Grades 6–12) *348, Convention Center*
Sponsor: Sargent-Welch
Mark Meszaros, Sargent-Welch, Rochester, N.Y.
These easy-to-perform demonstrations are designed to engage students and incorporate guided inquiry exercises so students can further explore and understand the concept. Participants will learn how to perform four different In-the-Bag inquiry demonstrations and two In-the-Bag learning activities.

Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science **(Gen)**

(Grades K–8) *349/350, Convention Center*

Sponsor: Houghton Mifflin Harcourt

Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.

Join Houghton Mifflin Harcourt author Michael DiSpezio for an entertaining and eye-opening survey of common misconceptions in science. Participants will expand their awareness of common science myths through game show–style interactions and engage in a variety of easy-to-repeat and inexpensive activities that effectively correct students' misunderstandings.

2:00–3:30 PM Exhibitor Workshops

Transforming the Science Lab with Vernier Technology **(Gen)**

(Grades 7–College) *338, Convention Center*

Sponsor: Vernier Software & Technology

Dan Holmquist *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Discover how technology can transform your classroom into a 21st-century laboratory. Explore state-of-the-art probeware solutions that teach core science topics in physics, chemistry, biology, Earth science, and environmental science. Learn tips and tricks from master teachers and technology experts and receive hands-on training with both Logger *Pro* software and the Vernier LabQuest handheld.

Chemistry and the Atom: Fun with Atom Building Games! **(Gen)**

(Grades 5–12) *345/346, Convention Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton and **Patsy Eldridge,** 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. In this workshop, you will experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

2:00–4:30 PM Exhibitor Workshop

Using Elementary Science Notebooks for Formative Assessment with FOSS (For Experienced Users) **(Gen)**

(Grades K–6) *344, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Brian Campbell, Lawrence Hall of Science, University of California, Berkeley

Ellen Mintz, Charleston County Schools, Charleston, S.C.

Jeri Calhoun, Science Associate, Isle of Palms, S.C.

Through a hands-on FOSS investigation, we'll expand on the essential components of student-centered science notebooks for K–6, look for evidence of learning to inform practice, and explore ways to provide effective feedback. Discover how to use notebooks to guide instruction through embedded assessments and next-step strategies. Sample FOSS materials will be distributed.

2:30–4:00 PM Exhibitor Workshop

Renewable Energy Exploration—Solar, Wind, and Hydrogen Fuel Cells **(Env)**

(Grades 6–12) *341, Convention Center*

Sponsor: PASCO Scientific

Presenter to be announced

This session highlights the state-of-the-art science teaching solutions created through a partnership between Horizon Fuel Cell Technologies and PASCO Scientific. In this hands-on workshop, you will investigate the energy output from various renewable energy sources. Participate in a standards-based Earth science SPARKlab and experience how SPARKscience™ can enhance your teaching practice and improve student understanding of relevant topics in alternative energy.

2:30–4:30 PM Meeting

Council for Elementary Science International Presidents' Roundtable (CESI)

Marshall, Hilton

Join fellow past presidents of the Council for Elementary Science International so that we can share our history and knowledge of this fascinating organization and its contribution to elementary science.

3:30–4:30 PM NSTA ESP Symposium II

NSTA Exemplary Science Programs (ESP)…Meeting the Reform Features from the National Science Education Standards (Gen)

(General) *Holiday Ballroom 1, Hilton*

ESP: Realizing Goals Two and Three of 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 Patricia Simmons* (patricia_simmons@ncsu.edu), *NSTA President-Elect and North Carolina State University, Raleigh*

This session 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. Participants in this symposium will include the following authors from specific monographs in the series.

Sing and Dance Your Way to Science Success (from ESP #3)

Cindy Moss *(cindy.moss@cms.k12.nc.us),* Charlotte-Mecklenburg Schools, Charlotte, N.C.

Developing Inquiry Skills (from ESP #6)

Kelly McConnaughay *(kdm@bradley.edu),* Bradley University, Peoria, Ill.

Project-based After-School Science in New York City (from ESP #7)

Kabba E. Colley *(kcolley@pace.edu),* Pace University, New York, N.Y.

Wesley B. Pitts *(wesley.pitts@lehman.cuny.edu),* Lehman College, Bronx, N.Y.

3:30–4:30 PM Presentations

SESSION 1

NSTA Avenue Session: The NSTA Learning Center: Free Professional Development Resources and Opportunities for Educators (Gen)

(Supervision/Administration) *321, Convention Center*

Flavio Méndez *(fmendez@nsta.org),* Senior Director, NSTA Learning Center, NSTA, Arlington, Va.

Al S. Byers, Assistant Executive Director of Government Partnerships and e-Learning, NSTA, Arlington, Va.

Lost when it comes to finding online professional development resources to enhance your content knowledge and skills? With over 4,400 resources (25% of which are free) and quality professional development opportunities to assist educators with core subject content, the NSTA Learning Center has the answers! Attend this session and receive free access to some of the fee-based resources. Refreshments provided.

SESSION 2

Electrify Your Elementary Science Lessons (Phys)

(Elementary) *323, Convention Center*

Steven M. Bernhisel *(steveb@linfield.edu),* Linfield College, McMinnville, Ore.

Investigate electricity and learn some engaging, inexpensive, and safe ways to help elementary children learn about energy as they develop their inquiry and science process skills.

SESSION 3

NSELA Session: NSELA Working Groups—Network with Science Education Leaders (Gen)

(General) *324, Convention Center*

Janey Kaufmann, NSELA President, Scottsdale, Ariz.

NSELA's Working Groups provide members with an avenue to pursue an area of interest in science education.

SESSION 4

Student Energy Audit Teams (Env)

(High School) *327, Convention Center*

Susan D. Lower *(susan_lower@hcpss.org),* River Hill High School, Clarksville, Md.

Train high school students to become student energy auditors in their communities. They'll learn about energy use and become advocates for energy stewardship.

SESSION 5

Moving Toward STEM Literacy: A Model for Middle School (Gen)

(Middle Level) *329, Convention Center*

Anita O'Neill and **Jamie Jenkins** *(jamie_l_jenkins@mcpsmd.org),* Montgomery County Public Schools, Rockville, Md.

Mark Craemer *(mark_craemer@mcpsmd.org),* Lakelands Park Middle School, Gaithersburg, Md.

Kit Damonte *(kathleen_b_damonte@mcpsmd.org),* Julius West Middle School, Rockville, Md.

Presider: Anita O'Neill

Hear about one district's vision for full STEM literacy for all students and the curriculum development and implementation that supports the vision. We'll share specific examples from grades 6, 7, and 8.

SESSION 6

FDA Follow-Up Session: Food Irradiation Science (Gen)

(Informal Education) *330, Convention Center*

Lane A. Highbarger *(lane.highbarger@fda.hhs.gov),* U.S. Food and Drug Administration, College Park, Md.

Come learn cutting-edge information from an FDA expert.

SESSION 7

Building Teacher Leadership Through a Science and Literacy Project (Gen)

(Elementary–Middle Level) *Holiday 3, Hilton*

Bill Badders *(baddersw@cmsdnet.net),* Cleveland (Ohio) Metropolitan School District

The Cleveland Metropolitan School District, with funding from the National Science Foundation, has developed a teacher leadership project that uses middle grades science teachers to coach and mentor elementary teachers in the implementation of a science and literacy project. Come hear how the project was designed and its impact on teacher leaders, teachers, and students.

SESSION 8

Twenty Science Questions Teenagers Frequently Ask (Gen)

(Middle Level–High School) *Key Ballroom 2, Hilton*

William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.

A survey of U.S. teenagers reveals some surprising science questions. What does this suggest to science teachers?

SESSION 9

Leading Watershed Investigations of Your Local Stream Site Using Geospatial Technologies (Env)

(Informal Education) *Key Ballroom 4, Hilton*

Cassie F. Doty *(cdoty@umces.edu),* University of Maryland Center for Environmental Science, Frostburg

Learn how to use geospatial technologies and local maps to enhance students' understanding of human impacts on stream ecosystems. Maryland, Pennsylvania, and West Virginia resources provided!

SESSION 10

Concrete Ideas for Outdoor Experiences off the Concrete: Grades K–5 (Env)

(General) *Latrobe, Hilton*

Laurie C. Jenkins *(laurie_c_jenkins@mcpsmd.org)* and **William Kraegel** *(william_kraegel@mcpsmd.org),* Montgomery County Public Schools, Rockville, Md.

Explore best practices for managing outdoor learning experiences in the elementary years. We'll share some effective lessons.

SESSION 11

An "Insider's Guide" to High-Stakes Assessment Creation: High School (Gen)

(General) *Ruth, Hilton*

Sharon Bowen *(sd_bowen@msn.com)* and **Katherine Porter,** Words and Numbers, Inc., Baltimore, Md.

Gain insight into the complex process of creating high-stakes assessment items and prep materials from those who play a role in writing them.

3:30–4:30 PM Workshops

Engaging Energetic Engineers **(Gen)**
(Elementary) *325, Convention Center*
Sharon Carter *(sjcarter@wsfcs.k12.nc.us),* Konnoak Elementary School, Winston-Salem, N.C.
Capture the imagination of today's digital learners with classroom activities designed by your future scientists and engineers. Learn how to cultivate an environment for creativity and invention.

iCan Digitize Science **(Gen)**
(Elementary–High School) *328, Convention Center*
William J. Donahue *(donahwil@wcboe.k12.md.us),* **Stephanie Hannah** *(hannaste@wcboe.k12.md.us),* and **Jeanne M. Ecton** *(ectonjea@wcboe.k12.md.us),* Washington County Public Schools, Hagerstown, Md.
Create a podcast using the iPod nano, Flip™ cameras, digital recorders, digital cameras, and laptops while conducting a scientific investigation.

ACS Middle Level Session: Chemical Change and Energy **(Chem)**
(Middle Level) *331, Convention Center*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore the energy changes caused by the breaking and making of bonds in an endothermic and exothermic chemical reaction.

ACS Session Six: Coupled Reactions, Energetics, and Chemical Bonds **(Chem)**
(High School) *332, Convention Center*
Jerry A. Bell *(j_bell@acs.org),* American Chemical Society, Washington, D.C.
Chemical reactions always involve breaking and making chemical bonds—processes that require energy and give off energy, respectively. Relatively simple reactions where the net energy production of one process is coupled to the net energy requirement of another provide insight into the chemistry of life. Bring your USB flash drive and take away the presentation and activities to use in your classes.

Exploring Energy: Hands-On Activities for Informal and Formal Education Settings **(Gen)**
(Elementary–Middle Level/Informal Ed.) *Holiday 2, Hilton*
Catherine Vrentas *(cevrentas@gmail.com),* University of Pennsylvania, Philadelphia
Explore the world of renewable energy with these activities from nationally available curricula on biofuels and wind energy.

National Earth Science Teachers Association Rock and Mineral Raffle **(Earth)**
(General) *Holiday 6, Hilton*
Kimberly Warschaw *(kimberly_warschaw@apsva.us),* Wakefield High School, Arlington, Va.
Parker Pennington *(parkiv@umich.edu),* Retired Educator, Ann Arbor, Mich.
Roberta M. Johnson, National Earth Science Teachers Association, Boulder, Colo.
Here's a chance to win display-quality specimens of rocks, minerals, fossils, and other Earth science–related materials while learning about Earth materials from areas other than your own.

Teaching Science Outdoors and Making Local Connections **(Env)**
(Elementary–Middle Level/Informal Ed.) *Key Ballroom 1, Hilton*
Joanna Snyder *(joanna_snyder@berkeley.edu)* and **Terry Shaw** *(terryshaw@aol.com),* Lawrence Hall of Science, University of California, Berkeley
Experience meaningful outdoor activities that connect easily to classroom learning and discover effective strategies for managing students and embedding local outdoor experiences. We'll share teaching resources and an interactive website for support and dialogue. *Note:* Half of this workshop will occur outdoors!

Stellar Life Cycles **(Earth)**
(Middle Level–High School) *Key Ballroom 3, Hilton*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
Discover how different stars progress through their life cycle using actual NASA images and artist renderings in a card set.

Newton and NASA **(Phys)**
(Middle Level–College) *Key Ballroom 5, Hilton*
Daryl L. Taylor *(daryl@darylscience.com),* Greenwich High School, Greenwich, Conn.
Come see 20 demonstrations of Newton's laws using common materials. Loads of fun and NASA freebies!

NSTA Press Session: So You Want New Science Facilities (Science Facilities 101) (Gen)
(General) *Key Ballroom 7, Hilton*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Oakland County Schools, Waterford, Mich.
Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos
James T. Biehle *(biehlej@sbcglobal.net),* Inside/Out Architecture, Inc., Kirkwood, Mo.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Presider: LaMoine L. Motz
Do your science facilities define your curriculum or the other way around? In over 15 years of conducting visits around the country to new and newly renovated school science facilities, we have discovered that the best facilities can not only define but can restrict the curriculum. Join the authors of *NSTA Guide to Planning School Science Facilities* (2nd Edition) and learn the basics of science facility planning, design, and budgeting so you can guide your school/district toward improvements in functionality, safety, and sustainability.

Helping Students Understand Shadows (Earth)
(Elementary–Middle Level) *Key Ballroom 8, Hilton*
Lloyd H. Barrow *(barrowl@missouri.edu),* University of Missouri, Columbia
A shadow unit needs to include students' prior knowledge, factual and conceptual knowledge, and metacognition. Handout of activities provided.

AAPT Session: From Thales to Volta—Twenty-Six Centuries of a Fundamental Force (Phys)
(Middle Level–College) *Key Ballroom 9, Hilton*
Robert A. Morse *(rmorse@cathedral.org),* St. Albans School, Washington, D.C.
Presider: David S. Wright, Tidewater Community College, Virginia Beach, Va.
Carry out a sampling of important experiments in the history of electricity and take home a CD with more experiments.

NABT Session: Teacher-generated Materials, Demos, and FREE Resources from the Howard Hughes Medical Institute to Enrich Your Lessons on AIDS/HIV (Bio)
(Middle Level–College) *Key Ballroom 11, Hilton*
Anthony Bertino *(abertino@nycap.rr.com),* Retired Educator, Scotia, N.Y.
Patricia Nolan Bertino *(nolanp@nycap.rr.com),* Scotia, N.Y.
Free resources on HIV—its evolution, life cycle, effects on the immune system, drugs, and vaccines. We'll share teacher-generated demos and free Howard Hughes Medical Institute (HHMI) DVDs and CD-ROMs.

The American Meteorological Society Education Program: Fostering Scientific Literacy of Precollege Educators and Students (Earth)
(Elementary–Middle Level) *Key Ballroom 12, Hilton*
James A. Brey *(brey@ametsoc.org),* American Meteorological Society, Washington, D.C.
The American Meteorological Society (AMS) Education Program offers a suite of teacher development courses and training programs about the atmosphere, ocean, and climate.

3:30–4:45 PM Exhibitor Workshop

Bio-Rad: Light Up Your Classroom with pGLO™ Transformation (Bio)
(Grades 7–College) *342, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Kirk Brown, Tracy High School, Tracy, Calif.
Stan Hitomi, San Ramon Valley Unified School District, Danville, Calif.
What happens when you cross a jellyfish with *E. coli?* You can create your own pGLO green glowing bacteria! By the end of this workshop, you'll become an actual genetic engineer—modifying genes and transforming bacteria with the Green Fluorescent Protein (GFP) (AP Biology Lab 6). Take home a free UV pen light and lab prep DVD!

3:30–5:00 PM Social

NMLSTA Ice Cream Social
322, Convention Center
An invitation to all middle level educators interested in promoting innovative science education. Come meet, network, share ideas, get involved! Best of all, enjoy the ice cream!

4:00–5:15 PM Exhibitor Workshops

The Moon, Minerals, and Magnetism, Oh My! Space Missions from APL to Your Classroom (Earth)
(Grades 4–9) *326, Convention Center*
Sponsor: Johns Hopkins University Applied Physics Laboratory
Alexandra Matiella Novak *(alexandra.matiella.novak@jhuapl.edu),* Johns Hopkins University Applied Physics Laboratory, Laurel, Md.
Participants will learn about space science missions being led by the Johns Hopkins University Applied Physics Laboratory (APL), located in Maryland. APL's Education and Outreach staff will lead several hands-on activities as well as provide take-away lesson ideas and handouts for teachers to use in class.

Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (Bio)
(Grades 6–12) *336, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Hands-on, inquiry-based cooperative learning with dissection has been proven the most effective method to teach comparative anatomy. Participants use this scientific inquiry to observe, describe, and discover characteristics of vertebrates. Experience superior quality with Carolina's Perfect Solution specimens, which offer a safe alternative to formaldehyde and require no special ventilation or disposal.

Introduction to Inquiry in the Middle School Classroom (Gen)
(Grades 6–8) *337, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
This workshop will introduce you to the inquiry method for teaching science and math. Learn how student-guided hands-on lessons, conceptual development, and literacy supplements combine to make inquiry a proven alternative to textbook programs.

From Science to Engineering (Gen)
(Grades 6–8) *340, Convention 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.

Living by Chemistry: What Shape Is That Smell? (Chem)
(Grades 9–12) *347, Convention Center*
Sponsor: Key Curriculum Press
Jeffrey Dowling *(jdowling@keypress.com),* Key Curriculum Press, Emeryville, Calif.
Teach rigorous chemistry with guided inquiry. Let's explore activities that help students understand molecular structure and other core chemistry concepts through a smell context. Sample lessons from the Living by Chemistry curriculum will be provided.

Detecting Radiation in Our Radioactive World (Gen)
(Grades 5–12) *348, Convention Center*
Sponsor: American Nuclear Society
Toni Bishop *(outreach@ans.org),* American Nuclear Society, La Grange Park, Ill.
Discover how to use Geiger counters to detect radioactivity and teach principles of nuclear science. Expand your knowledge of ways nuclear technology is applied in the everyday life of our society.

STEM Adventures: Motivating Students Through Project Based Learning (Gen)

(Grades K–8) *349/350, Convention Center*

Sponsor: Houghton Mifflin Harcourt

Michael Heithaus, Florida International University, North Miami

Do you want to get your students out in the field doing science but can't take a field trip? Join Houghton Mifflin Harcourt author Mike Heithaus to learn how you can use new video-based lessons to transport your students into the field on scientific adventures! Using high-paced video and exciting research, students are challenged to develop their own hypotheses, join research teams as they collect data, and then conduct their own data collection and analysis.

4:00–5:30 PM Exhibitor Workshop

CPO SmartTrack with Velocity Sensor and Energy Car (Gen)

(Grades 5–12) *345/346, Convention Center*

Sponsor: CPO Science/School Specialty Science

Erik Benton and **Patsy Eldridge,** CPO Science/School Specialty Science, Nashua, N.H.

Our new Velocity Sensor uses sound waves to measure and display position, velocity, and acceleration data of moving objects. We'll 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.

8:00–9:00 AM Presentations

SESSION 1 (two presentations)
(High School–College) *323, Convention Center*
SCST Session: NSF Funding Opportunities and the Evolving Face of STEM Education (Gen)
Donald P. French, Oklahoma State University, Stillwater
Explore effective STEM education strategies and get an overview of funding opportunities in NSF's education and human resources directorate.

SCST Session: Less Effort, More Success: A Toolkit for Building a Gender-inclusive STEM Classroom (Gen)
Elizabeth T. Cady *(ecady@nae.edu),* **Norman L. Fortenberry** *(nfortenb@nae.edu),* and **Catherine J. Didion** *(cdidion@nae.edu),* National Academy of Engineering, Washington, D.C.
Combine gender studies and education research to enhance awareness of STEM careers, retention in STEM programs, and academic advancement by precollege and undergraduate young women.

SESSION 2
Looking into Lactase: A Medical Biotechnology Lab (Bio)
(High School) *324, Convention Center*
Mary Stapleton *(mkstapleton@towson.edu),* Towson University Center for STEM Excellence, Baltimore, Md.
Explore the science behind the medical condition lactose intolerance while investigating the effects of pH and temperature on the enzyme lactase.

SESSION 3
GIS for Biology and Environmental Science (Env)
(Middle Level–High School) *327, Convention Center*
Martin F. Schmidt, Jr., McDonogh School, Owings Mills, Md.
Use easy, inexpensive geospatial technology such as the web, virtual globes, and GIS to study biomes, land use, watersheds, species, maps, and more, at all scales.

SESSION 4
Ocean, Coasts, and Climate Education for Teachers: NOAA/NSTA Professional Development Tools (Env)
(General) *329, Convention Center*
Bruce Moravchik *(bruce.moravchik@noaa.gov)* and **Peggy L. Steffen** *(peg.steffen@noaa.gov),* NOAA National Ocean Service, Silver Spring, Md.
Integrate cutting-edge science into your classroom with these resources from NOAA and NSTA experts on corals, estuaries, and the ocean and climate.

SESSION 5
The NIST Summer Institute for Middle School Science Teachers: Translating NIST Research into Activities for the Middle School Classroom (Gen)
(Middle Level/Supervision) *Holiday 3, Hilton*
Mary B. Satterfield *(mary.satterfield@nist.gov),* National Institute of Standards and Technology, Gaithersburg, Md.
The National Institute of Standards and Technology (NIST), a federal government research laboratory, annually hosts a two-week workshop for middle school science teachers in Gaithersburg, Maryland.

SESSION 6
Investigating Radio Frequency Interference (Gen)
(High School) *Key Ballroom 1, Hilton*
Steve Rapp *(srapp@hgs.k12.va.us),* A. Linwood Holton Governor's School, Abingdon, Va.
Students investigate radio frequency interference in their communities and submit data to the National Radio Astronomy Observatory in Green Bank, West Virginia.

SESSION 7
More Than Just Kangaroos (Bio)
(High School–College) *Key Ballroom 4, Hilton*
Sharon Gusky *(sgusky@nwcc.commnet.edu),* Northwestern Connecticut Community College, Winsted
Use Australia's biodiversity to further understanding of biogeography and evolution. Handouts and photos provided.

8:00–9:00 AM Workshops

Full-Inclusion Strategies Used in Science in Three High Schools (Bio)
(High School) *328, Convention Center*
Katherine E. Prammer *(a1kep@me.com),* West Chester University of Pennsylvania, West Chester
We will look at research-based, student-centric strategies observed in 10 inclusive, high-performing science classes at three high schools. Included students had GIEPs, IEPs, and 504 classifications.

Effective Outdoor Biology Instructional Strategies for Your Classroom (Env)
(Elementary–Middle Level/Informal Ed.) *331, Conv. Center*
Joanna Snyder *(joanna_snyder@berkeley.edu)* and **Terry Shaw** *(terryshaw@aol.com),* Lawrence Hall of Science, University of California, Berkeley, Calif.
Experience meaningful outdoor activities that connect easily to classroom learning. Learn effective strategies for managing students, embedding local outdoor experiences, and connecting to local organizations. We'll share teaching resources and an interactive website for support and dialogue. We will be going outdoors!

Climate Change: Classroom Tools to Explore the Past, Present, and Future (Env)
(Middle Level–High School/Informal Ed.) *Key Blrm. 2, Hilton*
Roberta M. Johnson, National Earth Science Teachers Association, Boulder, Colo.
Explore the scientific foundations of what we know about climate change through hands-on, data-rich classroom activities. Handouts provided.

Using the Hardy-Weinberg Equilibrium to Illustrate Evolutionary Change (Bio)
(High School–College) *Key Ballroom 3, Hilton*
William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.
Engage in a mathematical and calculator population genetics activity using a single trait among participants that shows evolutionary change through founder effect and natural selection.

Introducing Nanotechnology in the Chemistry Classroom (Chem)
(Middle Level–High School) *Key Ballroom 5, Hilton*
Sherri C. Rukes *(luvchem@gmail.com),* Libertyville High School, Libertyville, Ill.
Learn what nanotechnology is and about its applications from ancient times to the present day. I'll share activities and ideas for the classroom. Handouts.

NSTA Press Session: The Architects Have Started Without Me: What Do I Do Now? (Science Facilities 102) (Gen)
(General) *Key Ballroom 7, Hilton*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Oakland County Schools, Waterford, Mich.
Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos
James T. Biehle *(biehlej@sbcglobal.net),* Inside/Out Architecture, Inc., Kirkwood, Mo.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Presider: LaMoine L. Motz
Is your district designing new science facilities but you are NOT involved? You need to get involved before it is TOO late! In an advanced course on science facility planning and design, the authors of *NSTA Guide to Planning School Science Facilities* (2nd Edition) will present detailed information and examples of functional and flexible science facilities for inquiry, project-based science. Budgeting, working with an architect, space requirements, technology, flexibility, safety, new types of spaces, and special adjacencies will be discussed.

Global Connections: Forests of the World (Env)
(Informal Education) *Key Ballroom 8, Hilton*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Sarah Haines, Towson University, Towson, Md.
Project Learning Tree's new secondary module Global Connections: Forests of the World explores this vital component of Earth's natural systems. Receive the activity module and poster sets.

Ice Core Records—From Volcanoes to Stars (Earth)
(High School) *Key Ballroom 9, Hilton*
Pamela Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine
Use absolute and relative dating techniques with high-resolution ice core data and historic volcanic eruptions to correlate and date supernovae events from nitrate anomalies.

8:00–9:00 AM Exhibitor Workshop

Bio-Rad Genes in a Bottle™ Kit (Bio)
(Grades 7–College) *342, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Kirk Brown, Tracy High School, Tracy, Calif.
Stan Hitomi, San Ramon Valley Unified School District, Danville, Calif.
How do you fit a person in a bottle? Your DNA contains all of the information that makes you who you are. Isolate your own DNA and capture your unique essence in a stylish glass necklace!

8:00–9:15 AM Exhibitor Workshops

SGI Biology: Putting the Life Back in Life Science! (Bio)
(Grades 9–12) *347, Convention Center*
Sponsor: LAB-AIDS, Inc.
Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.
SGI Biology is the new high school biology program from SEPUP. Developed with support from the National Science Foundation, this course uses an issues-based, inquiry-oriented approach to content from cell biology, ecology, genetics, and evolution. Join us for a hands-on look at activities dealing with photosynthesis and gene expression and take home materials to use in class next week.

Sparking Interest and Learning with Chemistry (Chem)
(Grades 9–12) *349/350, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Jerry Sarquis and **Mickey Sarquis,** Miami University, Middletown, Ohio
Modern Chemistry authors Jerry and Mickey Sarquis show you how to spark imagination and interest in chemistry with simple but powerful tricks and tips! The Sarquis' are recognized leaders in chemistry education initiatives.

8:30–11:00 AM Special Event

Science Matters Community Event
(Elementary) *Hall E, Convention Center*

Back by popular demand! NSTA is pleased to announce that it will again host a FREE community science event for elementary teachers, parents, school officials, and other community members. Engage in exciting hands-on activities and discover new ways to bring science to life for your students and children. And learn about NSTA's newest initiative, Science Matters, designed to rekindle a national sense of urgency and action among schools and families about the importance of science education. Local WJZ-TV meteorologist Bernadette Woods will give the keynote address. Free Science Matters tote bags filled with cool giveaways* will be distributed to the first 150 people who attend.

**One Science Matters bag per person. You must be at least 18 years old to receive a bag. Bags are for participants only.*

9:00 AM–12 Noon Exhibits

Hall E, Convention Center
Come see the most up-to-date science textbooks, software, equipment, and other teaching materials. Some exhibitors will offer materials for sale.

9:30–10:00 AM Presentation

SESSION 1
Examining Student Perceptions Related to Extra-Credit Assignments (Gen)
(College) *321, Convention Center*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
Students often ask college professors for extra credit assignments, which can lead to a dependence on bonus points. This session will present the results of research on student perceptions of extra credit assignments and their purpose.

9:30–10:30 AM Presentations

SESSION 1 (three presentations)
(High School–College/Supervision) *323, Convention Center*

SCST Session: Preparing Tomorrow's Workforce: Assessment of Quantitative and Scientific Reasoning (Gen)

Donna L. Sundre *(sundredl@jmu.edu)* and **Chris Orem** *(oremcd@jmu.edu),* James Madison University, Harrisonburg, Va.

We'll look at James Madison University's award-winning quantitative and scientific reasoning assessment, focusing on instrument development and its use for 21st-century workforce development.

SCST Session: University Science Faculty Benefit from K–12 Outreach (Bio)

Michael J. Dougherty *(mdougherty@ashg.org),* American Society of Human Genetics, Bethesda, Md.

K–12 outreach is generally not encouraged by college science departments. An NSF partnership project demonstrates that everyone wins when genetics is taught by two experts.

SCST Session: A Collaborative Process to Create Simulations Demonstrating Mathematics and Science Concepts (Gen)

Jennifer A. Zalk, Sita M. Damaraju *(sita85@gmail.com),* **Robert Friedman** *(friedman@njit.edu),* and **Bruce Bukiet** *(bukiet@njit.edu),* New Jersey Institute of Technology, Newark

We will describe the development of mathematics and science simulations by a collaboration of teachers, NSF graduate fellows, and students.

SESSION 2

Become a NOAA Teacher at Sea (Gen)
(General) *324, Convention Center*

Lindsay Knippenberg *(robert.c.hansen@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.

NOAA's Teacher at Sea Program provides all teachers with an opportunity to work with scientists on board a NOAA research ship. Come learn how to apply and participate.

SESSION 3

Using a Virtual Learning Environment for High School Science Education (Env)
(General) *328, Convention Center*

George Newberry *(gnewberry@bcps.org)* and **John Quinn** *(jquinn3@bcps.org),* Baltimore County Public Schools, Baltimore, Md.

David C. Peloff *(peloff@jhu.edu),* Johns Hopkins University Center for Technology in Education, Columbia, Md.

Maria Lowry *(mlowry@bcps.org),* Chesapeake High School, Baltimore, Md.

Presider: John Quinn

The Virtual Learning Environment (VLE) lab uses state-of-the-art technology as a tool by which students learn, apply, and extend science concepts to solve real-world problems.

SESSION 4

Model My Watershed: A "Backyard" Cyber-learning Experience (Env)
(High School) *329, Convention Center*

Nanette Marcum-Dietrich *(nanette.dietrich@millersville.edu),* Millersville University of Pennsylvania, Millersville

Susan Gill *(sgill@stroudcenter.org),* Stroud Water Research Center, Avondale, Pa.

Model My Watershed is a free online gaming technology that uses GIS data and Google Earth technologies to explore, investigate, and model your own backyard.

SESSION 5

Student-designed Investigation: Dye Tests in an Integrated Science/Social Studies Unit (Gen)
(Elementary–Middle Level) *Holiday 3, Hilton*

Carol Schwartz *(carols@burgundyfarm.org),* Burgundy Farm Country Day School, Alexandria, Va.

Design lessons in which students develop their own investigations while teachers provide parameters and facilitate inquiry. Apply the scientific method to life in Colonial America.

SESSION 6

Implementing Marine Science in a High School Classroom (Gen)

(High School) *Key Ballroom 1, Hilton*

Judy Plaskowitz *(japlask@k12.carr.org),* South Carroll High School, Sykesville, Md.

J. Adam Frederick *(frederic@mdsg.umd.edu),* University of Maryland Center of Marine Biotechnology, Baltimore

Tim Pennell, Winters Mill High School, Westminster, Md.

Presider: Jim Peters, Carroll County Public Schools, Westminster, Md.

Maryland Sea Grant and Carroll County Public Schools developed marine denitrification and anammox aquaculture systems designed to engage students in scientific research that is both practical and affordable.

SESSION 7

Oh, No! I Have to Do Four FRQ (Free-Response Questions) in 90 Minutes…How Do I Succeed? (Env)

(High School) *Key Ballroom 2, Hilton*

Kimberly Warschaw *(kimberly_warschaw@apsva.us)* and **Michelle C. Harris** *(michelle_harris@apsva.us),* Wakefield High School, Arlington, Va.

Come see what teachers working with a diverse population have done to prepare students for the free response section of the AP Environmental Science Exam.

SESSION 8

Learning Communities as a Way to Promote STEM Disciplines (Bio)

(College) *Key Ballroom 4, Hilton*

Rachele Arrigoni-Restrepo *(rarrigoni-restrepo@citytech.cuny.edu),* New York City College of Technology, Brooklyn, N.Y.

Learn how the establishment of a biology-mathematics learning community can increase student proficiency in both disciplines.

SESSION 9

NSTA Press Session: Take a Walk on the Safe Side (Gen)

(General) *Key Ballroom 7, Hilton*

Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.

Take a virtual tour through typical schools, including your own, to identify safety hazards. Then brainstorm some effective and often quite inexpensive fixes.

9:30–10:30 AM Workshops

Developing Problem-solving Skills in Today's Students to Meet Tomorrow's Challenges (Gen)

(Elementary) *325, Convention Center*

Kristi A. Zenchak *(zenchak@oakton.edu),* Oakton Community College, Des Plaines, Ill.

Chris M. Culen *(cculen@district95.org),* Brook Park School, LaGrange Park, Ill.

These inquiry-based activities develop the problem-solving skills students need for careers that design solutions for future challenges.

They Do Learn Differently, Don't They? (Earth)

(Elementary–High School) *331, Convention Center*

Barry Fried *(bfried@schools.nyc.gov)* and **Honora Dash** *(hdash@schools.nyc.gov),* John Dewey High School, Brooklyn, N.Y.

Learn how to differentiate instruction and engage all students in the learning process through technology and inquiry-based projects and investigations.

Airplane Models (Phys)

(General) *Key Ballroom 3, Hilton*

Theresa M. Holt *(weluvourson4evr@gmail.com)* and **Tina Myers** *(tinamyers06@gmail.com),* Marshall University Research Corp., Huntington, W.Va.

Katie A. McDilda *(katie.mcdilda@marshall.edu),* Marshall University, Huntington, W.Va.

Presider: Tina J. Cartwright, Marshall University, Huntington, W.Va.

Explore the science process of airplane design. Make assorted airplane models and learn different ways of collecting data.

Biotechnology and Environmental Risk: Project Learning Tree's New Secondary Program (Env)

(High School–College/Informal Ed.) *Key Ballroom 8, Hilton*

Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.

Sarah Haines *(shaines@towson.edu),* Towson University, Towson, Md.

Explore biotechnology from an environmental and societal perspective using these new activities and case studies. Take home the Project Learning Tree (PLT) Exploring Environmental Issues: Focus on Risk module and biotechnology supplement.

From Pixels to Images: Decoding Starlight (Earth)
(Middle Level–High School) *Key Ballroom 9, Hilton*
Margaret Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
Pamela Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Lewiston, Maine
Come use the steps of a problem-based task to convert invisible X-ray energy into images of spectacular space objects.

9:30–11:00 AM Exhibitor Workshop

Bio-Rad: Finding Funds for Biotechnology Studies: A Grant-writing Workshop (Bio)
(Grades 7–College) *342, Convention Center*
Sponsor: Bio-Rad Laboratories
Sherri Andrews *(sherri_andrews@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Kirk Brown, Tracy High School, Tracy, Calif.
Stan Hitomi, San Ramon Valley Unified School District, Danville, Calif.
Whether you want to introduce hands-on laboratory coursework or build an entire biotechnology program at your school, this workshop will help you get started turning your dreams into reality. You'll receive grant-writing tools, including samples of proposals, letters of support, budgets, and justifications. For a practical application of the new tools, participants are encouraged to submit proposals for a competitive grant from Bio-Rad for $500 in materials.

11:00–11:30 AM Presentation

SESSION 1
Teaching Science in a Web 2.0 World (Gen)
(Elementary–High School) *328, Convention Center*
Oliver Dreon *(oliver.dreon@millersville.edu)* and **Nanette Marcum-Dietrich** *(nanette.dietrich@millersville.edu),* Millersville University of Pennsylvania, Millersville
Learn how Web 2.0 applications can be used to promote student learning in the science classroom.

11:00 AM–12 Noon Presentations

SESSION 1
Spectacular Middle School Science! What's in Your School Yard? (Gen)
(General) *323, Convention Center*
David M. Murduck *(dave.murduck@neomin.org),* Champion Middle School, Warren, Ohio
By incorporating demonstrations, outstanding picture books, and engaging outdoor activities, it doesn't matter if your school yard is grass or concrete. I can show you how to excite and motivate your visual, kinesthetic, and auditory learners.

SESSION 2
Hooked On Science (Gen)
(General) *324, Convention Center*
Judith Ann Bazler and **Letitia Graybill** *(lgraybil@monmouth.edu),* Monmouth University, West Long Branch, N.J.
Most of our candidates either fear or dislike science. Learn about the strategies we use, including the use of technology and other resources, to motivate our students to want to teach science. Bring your "best" strategies for motivating students and win a PRIZE! Of course, food and fun will be a priority.

SESSION 3 (two presentations)
(General) *329, Convention Center*
The Environmental Science Summer Research Experience for Young Women (Env)
David L. Brock *(brockda@rpcs.org),* Roland Park Country School, Baltimore, Md.
Learn about an exciting way to address gender equity in your school and engage ALL your students in more authentic learning.

Mars Education Student Data Teams: Students Explore the Red Planet (Earth)
Dawn Turney *(dawn.turney@jhuapl.edu),* The Johns Hopkins Applied Physics Laboratory, Laurel, Md.
Students work alongside scientists to analyze Mars data via online tools. STEM skills are honed and students are inspired to pursue STEM careers through innovative programming.

SESSION 4

Integrating Nonfiction Reading and Writing While Teaching About Energy (Gen)

(Preschool–Elementary) *Holiday 3, Hilton*

Mary Spruill *(info@need.org),* The NEED Project, Manassas, Va.

Integrate reading and writing into your elementary science curriculum using science notebooks.

SESSION 5

Computer-based Modeling for Teaching and Learning (Gen)

(Middle Level–College) *Key Ballroom 1, Hilton*

Max Crain *(max.crain@gmail.com),* Northwestern University, Evanston, Ill.

Computer-based modeling presents opportunities to conduct engaging experiments in the natural and social sciences. I'll share models from biology, physics, and chemistry.

SESSION 6

Find It Fast! Reliable Environmental Health Web Resources to Reinforce Your Lessons (Env)

(Middle Level–High School) *Key Ballroom 2, Hilton*

Karen M. Matzkin *(matzkink@mail.nih.gov),* **Alla Keselman** *(keselmana@mail.nih.gov),* and **Judy Kramer** *(kramerju@mail.nlm.nih.gov),* National Library of Medicine, Bethesda, Md.

Jackie Geer, Cabin John Middle School, Rockville, Md.

Learn about FREE credible toxicology/environmental health education web resources from the National Library of Medicine, an institute of the National Institutes of Health.

SESSION 7

NSTA Press Session: Magnetic Moments, Electrifying Connections, and Analogies for Interactive Teaching (Phys)

(Informal Education) *Key Ballroom 7, Hilton*

Thomas P. O'Brien, Binghamton University, Binghamton, N.Y.

Visual participatory analogies teach the science of electromagnetism and principles of research-informed Curriculum-Instruction-Assessment.

SESSION 8

Environmental Stewardship: Awards, Recognition, and Grants (Env)

(Informal Education) *Key Ballroom 8, Hilton*

Ruth McCully *(mccully.ruth@epa.gov),* U.S. Environmental Protection Agency, Washington, D.C.

Diane W. Wood *(dianewood@neefusa.org),* National Environmental Education Foundation, Washington, D.C.

Christiane Maertens *(christiane.maertens@disney.com),* Walt Disney Co., Burbank, Calif.

Presider: Diane W. Wood

Learn about award, recognition, and grant programs for students engaged in environmental stewardship activities. The President's Environmental Youth Award recognizes young people for protecting our nation's air, water, land, and ecology. The Disney Planet challenge is a project-based environmental competition for grades 4–6 that empowers students to make a difference in school, at home, and in their communities. The National Environmental Education Association offers environmental grants for high school students to support student projects designed to help protect the environment.

SESSION 9

GIS for Earth Science (Earth)

(Middle Level–High School) *Key Ballroom 9, Hilton*

Martin F. Schmidt, Jr., McDonogh School, Owings Mills, Md.

Use easy, inexpensive geospatial technology methods—including the web, virtual globes, and analytical GIS—to study plate tectonics, landforms, geology, climate, glaciers, and more.

11:00 AM–12 Noon Workshops

Rebuilding the Bay's Oyster Population One Ball at a Time (Env)

(Elementary) *327, Convention Center*

Kathryn M. Cobb *(kmc198@hotmail.com),* Vansville Elementary School, Beltsville, Md.

Jhanna Levin *(jhanna.levin@pgcps.org),* Calverton Elementary School, Beltsville, Md.

Experience a fourth-grade performance-based unit that supports both the national and local environmental education standards and preserves our local natural resources.

Igniting Curiosity Through Discrepant Events (Gen)

(General) *331, Convention Center*

David F. Mastie *(mastie@umich.edu),* Retired Educator, Chelsea, Mich.

Roberta M. Johnson, National Earth Science Teachers Association, Boulder, Colo.

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Supernovae in the Classroom (Earth)

(Middle Level–College) *Key Ballroom 5, Hilton*

Daryl L. Taylor *(daryl@darylscience.com),* Greenwich High School, Greenwich, Conn.

Labs, labs, labs! Come learn three teacher-created, NASA-funded lab activities exploring the mysterious Crab Nebula and its resulting pulsar.

11:00 AM–12 Noon Exhibitor Workshop

Bio-Rad Cloning and Sequencing Explorer Series (Bio)

(Grades 9–College) *342, Convention Center*

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Stan Hitomi, San Ramon Valley Unified School District, Danville, Calif.

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Some exhibitors have classified their products by grade level and subject area. Subject areas are abbreviated here as follows:

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A foldout floor plan of the Exhibit Hall is available at Program Pickup.

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Website: *www.kendallhunt.com/k-12*

Kendall Hunt publishes innovative research and inquiry-based curricula offering hands-on learning for preK–12, including the 4th Edition of *BSCS Biology: A Human Approach,* which offers new online components. Our comprehensive programs address the environment, life sciences, forensics, inquiry-based science, chemistry, physics, and astronomy. For more information, call 800-542-6657 or visit *www.kandallhunt.com/k-12.*

Key Curriculum Press **#824**
1150 65th St. Chem
Emeryville, CA 94608 9–12
Phone: 800-995-MATH
E-mail: *customer.support@keypress.com*
Website: *www.keypress.com*

Designed to encourage all students to learn real chemistry, *Living By Chemistry* is a full-year high school curriculum that meets and exceeds state and national standards. Using a standards-based, guided-inquiry approach, students are motivated to ask questions, collect evidence, and think like scientists.

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New York, NY 10010 K–8
Phone: 646-307-5448
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Website: *www.kingfisherbooks.com*

Kingfisher, which has recently become part of Macmillan, is best known for its wide variety of nonfiction series for children, from toddlers up to age 14. Whether about dinosaurs, ancient Rome, space exploration, or anything else under—or beyond—the Sun, a child's interests and questions are taken seriously. The popular Kingfisher series *Basher Science, I Wonder Why, The Best Book of…,* and *Kingfisher Knowledge* explain concepts in a fun-filled, fascinating way that encourages independent and creative thinking and nurtures children's curiosity.

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E-mail: *jweatherby@lab-aids.com*
Website: *www.lab-aids.com*

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Website: *www.mdbiolab.org*

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Exhibitors

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Washington, DC 20005 K–12, College
Phone: 202-393-5725
E-mail: *aspittle@americasblood.org*
Website: *www.mybloodyourblood.org*

My Blood, Your Blood is a low-prep supplemental human body and biology resource with an engaging live-action and animated video, a comprehensive teacher's guide, and a content-rich website full of lesson plans and classroom activities. It's a high-impact, just-right way to cover core science concepts and instill community service values, too. Stop by our booth to find out more about this program and obtain special NSTA pricing!

NASA Explorer Schools **#721**
1840 Wilson Blvd. Bio, Earth, Gen,
Arlington, VA 22201 Phys, Tech
Phone: 703-312-9295 4–12
E-mail: *nasa-explorer-schools@mail.nasa.gov*
Website: *explorerschools.nasa.gov*

NASA Explorer Schools (NES) is NASA's classroom-based gateway for middle and high school classrooms, providing authentic learning experiences inspired by NASA's unique missions. NES provides free resources that promote student engagement in STEM and opportunities for teachers and students to participate in NASA's research and discovery mission through inquiry-based experiences.

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National Geographic Society **#329**
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Washington, DC 20036 6–12, College
Website: *www.nationalgeographic.com*

National Geographic Education Programs will highlight its work in the Chesapeake Bay region, including maps and educational materials on climate change. Also, Chesapeake Bay FieldScope, a web-based GIS tool that engages students in sharing and analyzing data and media about water quality and land use in the Chesapeake Bay watershed.

National Institute of General Medical Sciences **#826**
Gen
45 Center Dr., MCS C200 9–12, College
Bethesda, MD 20892-6200
Phone: 301-496-7301
E-mail: *info@nigms.nih.gov*
Website: *www.nigms.nih.gov*

The National Institute of General Medical Sciences (NIGMS), a component of the National Institutes of Health, supports basic biomedical research. Our free publications cover topics such as cell biology, structural biology, genetics, chemistry, computational biology, and pharmacology. Visit the NIGMS booth to order single or multiple copies of our publications and other educational materials.

National Institutes of Health **#1020**
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and Safety 9–12, College
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Rm 3K04, MSC 5760
Bethesda, MD 20892-5760
Phone: 301-496-2960
E-mail: *kralls@mail.nih.gov*
Website: *www.starlite.nih.gov*

The National Institutes of Health (NIH) Division of Occupational Health and Safety has developed a FREE laboratory safety training tool designed for high school and college students. This tool works similarly to a video game and can be downloaded to any computer for FREE.

National Museum of Crime & Punishment **#1019**
Bio, Chem
575 7th Street, NW 5–12, College
Washington, DC 20004
Phone: 202-621-5553
E-mail: *susan@crimemuseum.org*
Website: *www.crimemuseum.org*

At the museum we have a forensic science curriculum we teach to students. Stop by our booth to see a forensic science demo in various CSI techniques.

National Museum of Health and Medicine **#1027**
Bio
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Bldg. 54, Room G056
Washington, DC 20307
Phone: 202-782-2200
E-mail: *nmhminfo@afip.osd.mil*
Website: *www.nmhm.washingtondc.museum*

The National Museum of Health and Medicine in Washington, D.C., inspires interest in medicine—past, present, and future—with a special emphasis on American military medicine. Our exhibit features forensic identification, human anatomy and pathology, history of military medicine, and more.

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- ***NSTA Membership.*** This is your conference "home base," the place where you can learn all that your NSTA membership provides. Pick up a sample journal and surf around in our newest social and professional networking platform, NSTA Communities, where the conversation in science education takes place—and you're part of it! If you're a student, ask about our student chapters and other ways we support and engage young professionals.

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- ***SciLinks***®***.*** Link to science resources on the internet, using sites recommended by science educators. Find accurate information and effective pedagogy, and the best content available online.

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.
- ***Toyato 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 The Walt Disney World® Resort and the Kennedy Space Center.
- ***Siemens We Can Change the World Challenge.*** Offers 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, meant to empower students to make a difference in their homes, schools, and communities.
- The ***Conrad Foundation*** presents the ***2010 Spirit of Innovation Awards,*** a competition that challenges teams of high school students to create innovative products in four categories: aerospace exploration, space nutrition, renewable energy, and green schools.
- 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 National Science Teachers Association

National Optical & Scientific Instruments, Inc. **#415**
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San Antonio, TX 78233
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National Youth Leadership Forum **#726**
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Website: *www.envisionemi.com*

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Phone: 410-561-1278 — K–12, College
E-mail: *dcgrasso1@yahoo.com*
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Website: *www.education.noaa.gov*

National Oceanic and Atmospheric Administration (NOAA) is a federal science agency providing free information about weather, climate, oceans, coasts, satellite data, solar weather, and fisheries. Every day NOAA's science touches the lives of all Americans. In partnership with NSTA, NOAA supports and develops a suite of products, including SciGuides, Science Objects, and web seminars for the science classroom.

NSTA's Shell Science Lab Challenge **#535**
1840 Wilson Blvd. — All
Arlington, VA 22201 — 6–12
Phone: 703-312-9241
E-mail: *shellsciencelab@nsta.org*

NSTA's Shell Science Lab Challenge is a national competition that challenges middle and high school teachers around the country to illustrate replicable approaches to science lab instruction using limited school and laboratory resources. Awards for top entrants include additional tools, resources, and rich professional development opportunities needed to support high-quality science teaching and strengthen entrants' existing capabilities.

Ohaus Corp. **#717**
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Phone: 973-944-7026
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Website: *www.ohaus.com*

Omega Optical, Inc. **#313**
Delta Campus — Chem, Phys, Tech
21 Omega Dr. — 8–12, College
Brattleboro, VT 05301
Phone: 802-254-2690
E-mail: *dosborn@omegafilters.com*
Website: *www.omegafilters.com*

The Omega Optical Photonics Kit provides science educators with the tools they need to teach photonics, interactions of light and matter, and how to manipulate those interactions. Twelve laboratory activities encourage students to explore the environment around them and discover principles and photonics. Help your students get a head start on the exciting careers of tomorrow by introducing them to light. They can apply principles of photonics in light detection, metrology, telecommunications, medicine, visual art, agriculture, biophotonics, and many other areas.

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Washington, DC 20526 — K–12
Phone: 800-424-8580, x1450
E-mail: *wwwsinfo@peacecorps.gov*
Website: *www.peacecorps.gov/wws*

The World Wise Schools program of the Peace Corps develops free internet-based resources, including publications, stories, lesson plans, and multimedia (webquests, podcasts, videos, interactive games, and slideshows) to help students explore ways that today's Peace Corps volunteers are working to solve real-world problems related to science and global society.

Pearson **#708**
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Project Learning Tree is a nationally award-winning environmental education program designed for preK–12 formal and nonformal educators. The supplementary materials provide hands-on/minds-on multidisciplinary activities.

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Website: *www.renlearn.com*

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Website: *www.smenet.org*

The SME/GEM Minerals Coalition booth is supported by the SME Foundation. The booth is sponsored by local volunteers who provide rock and mineral samples, literature, and CDs as well as answer any questions teachers may have.

Space Camp and Aviation Challenge **#1010**
One Tranquility Base Earth
Huntsville, AL 35805 4–12
Phone: 800-637-7223
E-mail: *kamid@spacecamp.com*
Website: *www.spacecamp.com*

Space Telescope Science Institute **#612**
3700 San Martin Dr. Earth
Baltimore, MD 21218 K–12, College
Phone: 410-338-4857
E-mail: *lalbert@stsci.edu; slivinski@stsci.edu*
Website: *www.stsci.edu*

The Space Telescope Science Institute (STScI) in Baltimore is the science and operations center for the Hubble Space Telescope. STScI scientists work together with experts from various fields to communicate Hubble's meaningful and exciting discoveries to the public.

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Website: *www.exploravision.org*

Now in its 19th year, ExploraVision is a science competition that encourages K–12 students of all interest, skill, and ability levels to create and explore a vision of future technology by combining their imaginations with the tools of science.

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E-mail: *ecrossley@nsta.org*

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Triangle Coalition for Science and Technology Education **#629**
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Website: *www.trianglecoalition.org*

Learn more about the Albert Einstein Distinguished Educator Fellowship Program, managed by the Triangle Coalition, which brings K–12 math and science teachers to Washington, D.C., for a school year. Fellows serve in a Congressional office or within a Federal agency and receive a monthly stipend, moving expenses, and a professional travel allowance.

U.S. EPA SunWise Program **#425**
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Washington, DC 20460 K–8
Phone: 202-343-9591
E-mail: *hall-jordan.luke@epa.gov*
Website: *www.epa.gov/sunwise*

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12:30–1:30 PM	H–C	Key Ballroom 11, Hilton	NABT Session: Intuitive Software for Biology Students (p. 100)
1:00–2:30 PM	9–C	342, Conv. Center	Bio-Rad: Enzymes and Biofuels—Go from Grass to Gas! (AP Lab 2) (p. 103)
2:00–3:00 PM	M–C	Key Ballroom 11, Hilton	NABT Session: Exploring Biodiversity: The Search for New Medicines and Treatments—Free Teaching Resources from the Howard Hughes Medical Institute (p. 105)
2:00–3:15 PM	9–12	336, Conv. Center	Amplify Your Genetics Teaching Skills with Carolina's Inquiries in Science™ Biology Units (p. 108)
3:30–4:30 PM	M–C	Key Ballroom 11, Hilton	NABT Session: Teacher-generated Materials, Demos, and FREE Resources from the Howard Hughes Medical Institute to Enrich Your Lessons on AIDS/HIV (p. 113)
3:30–4:45 PM	7–C	342, Conv. Center	Bio-Rad: Light Up Your Classroom with pGLO™ Transformation (p. 113)
4:00–5:15 PM	6–12	336, Conv. Center	Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (p. 114)

Saturday

8:00–9:00 AM	H	324, Conv. Center	Looking into Lactase: A Medical Biotechnology Lab (p. 117)
8:00–9:00 AM	H	328, Conv. Center	Full-Inclusion Strategies Used in Science in Three High Schools (p. 118)
8:00–9:00 AM	7–C	342, Conv. Center	Bio-Rad Genes in a Bottle™ Kit (p. 119)
8:00–9:00 AM	H–C	Key Ballroom 3, Hilton	Using the Hardy-Weinberg Equilibrium to Illustrate Evolutionary Change (p. 118)
8:00–9:00 AM	H–C	Key Ballroom 4, Hilton	More Than Just Kangaroos (p. 117)
8:00–9:15 AM	9–12	347, Conv. Center	SGI Biology: Putting the Life Back in Life Science! (p. 119)
9:30–10:30 AM	C	Key Ballroom 4, Hilton	Learning Communities as a Way to Promote STEM Disciplines (p. 121)
9:30–11:00 AM	7–C	342, Conv. Center	Bio-Rad: Finding Funds for Biotechnology Studies: A Grant-writing Workshop (p. 122)
9:50–10:10 AM	H–C/S	323, Conv. Center	SCST Session: University Science Faculty Benefit from K–12 Outreach (p. 120)
11:00 AM–12 Noon	9–C	342, Conv. Center	Bio-Rad Cloning and Sequencing Explorer Series (p. 124)

Chemistry/Physical Science

Thursday

8:00–9:00 AM	G	332, Conv. Center	Co-teaching in a Science Classroom (p. 46)
8:00–9:00 AM	6–12	337, Conv. Center	Fourier Probeware and Nova5000 (p. 48)
8:00–9:15 AM	9–12	340, Conv. Center	It's Here! The All-new *Pearson Chemistry* © 2012 (p. 49)
8:00–9:15 AM	6–12	348, Conv. Center	ScholAR Chemistry In-the-Bag Inquiry (p. 49)
10:00–11:15 AM	9–12	338, Conv. Center	What Is the Difference Between Heat and Temperature? (p. 51)
10:00–11:15 AM	9–12	339, Conv. Center	Promote Inquiry Using Chemistry Demonstrations (p. 51)
12:30–1:45 PM	9–12	338, Conv. Center	Real Chemistry for All Students…But How? (p. 59)
12:30–1:45 PM	9–12	347, Conv. Center	Living by Chemistry: Feeling Under Pressure (p. 59)
2:00–3:00 PM	E	324, Conv. Center	Using Online Simulations to Enrich Curricula (p. 60)

2:00–3:00 PM	9–12	337, Conv. Center	Active Chemistry (p. 64)
2:00–3:00 PM	E–M	Holiday 2, Hilton	Inquiry Matters: Incorporating Inquiry into Elementary and Middle School Physical Science (p. 63)
2:15–3:30 PM	9–12	338, Conv. Center	Teach Chemistry with Hydrogen Fuel Cells (p. 64)
2:15–3:30 PM	9–12	340, Conv. Center	If You Teach AP Chemistry, You Gotta Get This! (p. 64)
4:00–5:15 PM	9–12	336, Conv. Center	Energize Your Chemistry Students' Inquiry Skills with Carolina's Inquiries in Science™ Chemistry Series (p. 71)

Friday

8:00–9:00 AM	E	329, Conv. Center	Food Chemistry (p. 76)
8:00–9:00 AM	M	331, Conv. Center	ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic Theory of Matter (p. 80)
8:00–9:00 AM	H	332, Conv. Center	ACS Session One: What's Matter Made Of? (p. 80)
8:00–9:15 AM	7–12	337, Conv. Center	Innovating Science Chemistry Demonstrations That Will Really Get a Reaction! (p. 82)
9:30–10:30 AM	M	331, Conv. Center	ACS Middle Level Session: Heat Transfer and Changes of State (p. 88)
9:30–10:30 AM	H	332, Conv. Center	ACS Session Two: What Holds Molecules Together? (p. 89)
9:30–10:30 AM	M–H	Key Ballroom 5, Hilton	PolyWhat? Polymer 101: Understanding What a Polymer Is (p. 89)
10:00–11:15 AM	7–12	339, Conv. Center	Dynamic Demonstrations from Flinn Scientific (p. 91)
11:00 AM–12 Noon	M	331, Conv. Center	ACS Middle Level Session: Density (p. 95)
11:00 AM–12 Noon	H	332, Conv. Center	ACS Session Three: Why Is Water Different? (p. 95)
11:00 AM–12 Noon	6–12	341, Conv. Center	Discovery-based Chemistry with SPARKscience: States of Matter (p. 96)
11:00 AM–12 Noon	H	Key Ballroom 5, Hilton	Fission and Fusion: The Critical Role of Nuclear Chemistry in High School (p. 94)
11:00 AM–12 Noon	E–H	Latrobe, Hilton	How Cold Is Ice? Uncovering Issues in the Material We Cover (p. 94)
12 Noon–1:15 PM	6–8	347, Conv. Center	Fast and Furious: Force and Motion for Middle School! (p. 97)
12:30–1:30 PM	G	323, Conv. Center	Reaching and Teaching the Reluctant Science Student (p. 99)
12:30–1:30 PM	M	331, Conv. Center	ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (p. 100)
12:30–1:30 PM	H	332, Conv. Center	ACS Session Four: Bond Connections in More Complex Molecules (p. 100)
12:30–1:30 PM	M–C	Key Ballroom 5, Hilton	Combining the Arts and Digital Media to Reach More Students (p. 100)
2:00–3:00 PM	H	329, Conv. Center	STEM Academy (p. 104)
2:00–3:00 PM	M	331, Conv. Center	ACS Middle Level Session: Polarity of the Water Molecule and Dissolving (p. 106)
2:00–3:00 PM	H	332, Conv. Center	ACS Session Five: Chemistry of Aqueous Solutions of Gases (p. 106)
2:00–3:15 PM	6–12	348, Conv. Center	ScholAR Chemistry In-the-Bag Inquiry (p. 108)
3:30–4:30 PM	M	331, Conv. Center	ACS Middle Level Session: Chemical Change and Energy (p. 112)
3:30–4:30 PM	H	332, Conv. Center	ACS Session Six: Coupled Reactions, Energetics, and Chemical Bonds (p. 112)
4:00–5:15 PM	9–12	347, Conv. Center	Living by Chemistry: What Shape Is That Smell? (p. 114)

Saturday

8:00–9:00 AM	M–H	Key Ballroom 5, Hilton	Introducing Nanotechnology in the Chemistry Classroom (p. 118)
8:00–9:15 AM	9–12	349/350, Conv. Center	Sparking Interest and Learning with Chemistry (p. 119)

Earth/Space Science

Thursday

8:00–9:00 AM	E–M/I	Holiday 3, Hilton	Climate Expeditions (p. 47)
8:00–9:00 AM	M–C	Key Ballroom 9, Hilton	Simulations and Interactive Multimedia Across the Earth Sciences (p. 47)
8:00–9:00 AM	M–H	Latrobe, Hilton	TASA and You! Earth and Space Science–based Computer Studies and Virtual Labs (p. 46)
8:00–9:15 AM	6–8	338, Conv. Center	Teaching About the Rock Cycle and Earth Time (p. 48)
10:00–11:15 AM	4–9	348, Conv. Center	The Moon, Minerals, and Magnetism, Oh My! Space Missions from APL to Your Classroom (p. 52)
11:00 AM–1:30 PM	5–8	344, Conv. Center	A Sneak Preview of the New Planetary Science Middle School Course from FOSS (p. 53)
12:30–1:30 PM	G	332, Conv. Center	JetStream: An Online School for Weather (p. 55)
12:30–1:30 PM	9–12	337, Conv. Center	NEW! *Investigating Astronomy* from TERC/*EarthComm* from AGI (p. 58)
12:30–1:30 PM	M	Holiday 3, Hilton	Earth System Model Project (p. 56)
12:30–1:30 PM	I	Key Ballroom 8, Hilton	Stellar Evolution: Cosmic Cycles of Formation and Destruction (p. 57)
12:30–1:30 PM	H	Key Ballroom 9, Hilton	NASA Data, Activities, and Analysis in Your Classroom (p. 57)
12:30–1:30 PM	M–H	Key Ballroom 11, Hilton	Extreme Exploration: Journey to Earth's Radiation Belts (p. 56)
12:30–1:45 PM	5–12	348, Conv. Center	The Layered Earth (p. 59)
2:00–3:00 PM	G	332, Conv. Center	NASA's High-Energy Vision: Chandra and the X-ray Universe (p. 61)
2:00–3:00 PM	I	Key Ballroom 8, Hilton	Celebrate Hubble's 20th Anniversary! (p. 62)
2:30–3:00 PM	M–H	Key Ballroom 10, Hilton	The Migration of "Ocean" the Harbor Seal (p. 65)
3:30–4:30 PM	E–H	329, Conv. Center	NASA CERES S'COOL Project: Be a S'COOL Cloud Observer! (p. 68)
3:30–4:30 PM	E–H	332, Conv. Center	STEM in Action—I'm Ready for the Real World! (p. 70)
3:30–4:30 PM	I	Key Ballroom 9, Hilton	Radiation Storm *vs.* the Magnetic Shield: Superheroes of Magnetism and Space Weather Education (p. 70)
4:00–5:15 PM	K–12	339, Conv. Center	Use Activity Blocks to Make Great Teaching Easier (p. 71)

Friday

8:00–9:00 AM	M–H	Key Ballroom 9, Hilton	Extra! Extra! Read All About the Universe! (p. 80)
8:00–9:15 AM	K–12	339, Conv. Center	Use Activity Blocks to Make Great Teaching Easier (p. 82)
8:00–9:15 AM	5–12	348, Conv. Center	The Sky Through the Ages (p. 84)
10:00–11:15 AM	3–8	337, Conv. Center	Discover the Solar System and Beyond (p. 90)
11:00 AM–12 Noon	M–H/S	323, Conv. Center	STEM Learning Studios: A Way to Create 21st-Century Schools and Workforce (p. 93)
1:00–2:00 PM	6–8	341, Conv. Center	Discovery-based Middle School Science with Sally Ride Science and SPARKscience (p. 102)
2:00–3:00 PM	E–H	Holiday 6, Hilton	National Earth Science Teachers Association Earth Science Share-a-Thon (p. 106)
2:00–3:00 PM	M–H	Key Ballroom 12, Hilton	MY NASA DATA: Your Students Can Be Earth Scientists! (p. 105)
2:00–3:15 PM	K–8	340, Conv. Center	The Science Behind Climate Change: What Every Student (and Teacher) Should Know (p. 108)
2:00–3:15 PM	K–12	347, Conv. Center	Master of Science in Geosciences via Distance Learning from Mississippi State University (p. 108)
3:30–4:30 PM	G	Holiday 6, Hilton	National Earth Science Teachers Association Rock and Mineral Raffle (p. 112)
3:30–4:30 PM	M–H	Key Ballroom 3, Hilton	Stellar Life Cycles (p. 112)
3:30–4:30 PM	E–M	Key Ballroom 8, Hilton	Helping Students Understand Shadows (p. 113)
3:30–4:30 PM	E–M	Key Ballroom 12, Hilton	The American Meteorological Society Education Program: Fostering Scientific Literacy of Precollege Educators and Students (p. 113)
4:00–5:15 PM	4–9	326, Conv. Center	The Moon, Minerals, and Magnetism, Oh My! Space Missions from APL to Your Classroom (p. 114)

Saturday

8:00–9:00 AM	H	Key Ballroom 9, Hilton	Ice Core Records—From Volcanoes to Stars (p. 118)
9:30–10:30 AM	E–H	331, Conv. Center	They Do Learn Differently, Don't They? (p. 121)
9:30–10:30 AM	M–H	Key Ballroom 9, Hilton	From Pixels to Images: Decoding Starlight (p. 122)
11:00 AM–12 Noon	M–C	Key Ballroom 5, Hilton	Supernovae in the Classroom (p. 124)
11:00 AM–12 Noon	M–H	Key Ballroom 9, Hilton	GIS for Earth Science (p. 123)
11:30 AM–12 Noon	H–C	329, Conv. Center	Mars Education Student Data Teams: Students Explore the Red Planet (p. 122)

Environmental Science

Thursday

8:00–9:00 AM	G	327, Conv. Center	Facilitating Early Childhood Education with Project Learning Tree (p. 46)
8:00–9:00 AM	G	Holiday 1, Hilton	How to Assess the Sustainability of Cellulosic Biofuel Production (p. 47)
8:00–9:00 AM	M–H	Key Ballroom 2, Hilton	Ocean Energy (p. 47)
8:00–9:00 AM	E–H	Key Ballroom 10, Hilton	From Mangroves to Maca: Explore Tropical Gardens (p. 47)
10:00–11:15 AM	9–12	336, Conv. Center	Need "Energy" in Your Environmental Classes? Learn About Carolina's Inquiries in Science™ Environmental Series (p. 51)
12:30–1:30 PM	P–E	325, Conv. Center	Discovery Tree: Teaching Preschoolers Ecology by Connecting Literature and Visual Models (p. 56)
12:30–1:30 PM	M–H	327, Conv. Center	Studying Soil Ecology in the Classroom (p. 56)
2:00–3:00 PM	G	323, Conv. Center	An Ocean of Tools: NOAA's Inquiry-based Online Resources for Teaching Earth and Life Sciences in the 21st-Century Classroom (p. 60)
2:00–3:00 PM	E–H	327, Conv. Center	Empowering Youth: Reducing Carbon Dioxide Emissions in Your Community (p. 61)
2:00–3:00 PM	M–C	Key Ballroom 2, Hilton	Summer Ecology Experience (SEE) Across Your State (p. 62)
2:15–4:30 PM	6–12	330, Conv. Center	Stream Assessment: An Active, Integrated Approach to Science Learning (p. 65)
3:30–4:00 PM	E–M	Key Ballroom 10, Hilton	The Environment and Service Learning (p. 66)
3:30–4:30 PM	M–H	326, Conv. Center	Environmental Toxicology: Demystifying the LC_{50} (p. 69)
3:30–4:30 PM	H	Key Ballroom 7, Hilton	Environmental Science as Ninth-Grade Science (p. 68)

Friday

8:00–9:00 AM	M–H/I	323, Conv. Center	EPA Tools for Teachers for Air Quality and Climate Change Education (p. 75)
8:00–9:00 AM	M–H	327, Conv. Center	Tackling the Global Warming Challenge in a Rapidly Changing World (p. 76)
8:00–9:00 AM	M–H	Key Ballroom 2, Hilton	Environmental Science in a World of Seven Billion (p. 80)
9:30–10:30 AM	I	323, Conv. Center	Educational Gaming: New Teaching Strategies (p. 87)
9:30–10:30 AM	G	324, Conv. Center	NARST Session: Global Climate Change 101 for Teachers (p. 87)
9:30–10:30 AM	M	Holiday 2, Hilton	Connecting Drug Education, Environmental Science, and Technology: The Game Is On! (p. 87)
9:30–10:30 AM	E–H	Latrobe, Hilton	Give Science a Voice! Digital Storytelling in the Science Classroom (p. 88)
10:00–11:15 AM	9–12	340, Conv. Center	Real Issues, Real Data, Real Choices: Teaching Environmental Science in Today's High School (p. 91)
11:00 AM–12 Noon	G	327, Conv. Center	Meeting the Climate Challenges Ahead (p. 93)
12:30–1:30 PM	M–H	327, Conv. Center	Using Real-Time Data to Teach About Chesapeake Bay (p. 99)
12:30–1:30 PM	H	Key Ballroom 2, Hilton	Hands-On Learning Activities for AP Environmental Science (p. 101)
12:30–1:30 PM	E–M	Key Ballroom 7, Hilton	NSTA Press Session: Outdoor Science: A Practical Guide (p. 102)
12:30–1:30 PM	G	Latrobe, Hilton	AquaPartners: An Urban Watershed Education Program (p. 100)
2:00–3:00 PM	G	327, Conv. Center	Creating and Sustaining School Yard Habitat Learning Environments (p. 104)
2:00–3:00 PM	E–H	328, Conv. Center	Saving Energy at Home and School (p. 106)

2:00–3:00 PM	G	Key Ballroom 2, Hilton	NASA-, NOAA-, and NSF-sponsored GLOBE Program: U.S. Regional GLOBE Networking Session (p. 105)
2:00–3:00 PM	G	Key Ballroom 8, Hilton	GreenSchools! (p. 107)
2:00–3:00 PM	G	Latrobe, Hilton	Teaching About Corals: Using NOAA Resources (p. 105)
2:30–4:00 PM	6–12	341, Conv. Center	Renewable Energy Exploration—Solar, Wind, and Hydrogen Fuel Cells (p. 109)
3:30–4:30 PM	H	327, Conv. Center	Student Energy Audit Teams (p. 110)
3:30–4:30 PM	E–M/I	Key Ballroom 1, Hilton	Teaching Science Outdoors and Making Local Connections (p. 112)
3:30–4:30 PM	I	Key Ballroom 4, Hilton	Leading Watershed Investigations of YOUR Local Stream Site Using Geospatial Technologies (p. 111)
3:30–4:30 PM	G	Latrobe, Hilton	Concrete Ideas for Outdoor Experiences off the Concrete: Grades K–5 (p. 111)

Saturday

8:00–9:00 AM	M–H	327, Conv. Center	GIS for Biology and Environmental Science (p. 117)
8:00–9:00 AM	G	329, Conv. Center	Ocean, Coasts, and Climate Education for Teachers: NOAA/ NSTA Professional Development Tools (p. 117)
8:00–9:00 AM	E–M/I	331, Conv. Center	Effective Outdoor Biology Instructional Strategies for Your Classroom (p. 118)
8:00–9:00 AM	M–H/I	Key Ballroom 2, Hilton	Climate Change: Classroom Tools to Explore the Past, Present, and Future (p. 118)
8:00–9:00 AM	I	Key Ballroom 8, Hilton	Global Connections: Forests of the World (p. 118)
9:30–10:30 AM	G	328, Conv. Center	Using a Virtual Learning Environment for High School Science Education (p. 120)
9:30–10:30 AM	H	329, Conv. Center	Model My Watershed: A "Backyard" Cyber-learning Experience (p. 120)
9:30–10:30 AM	H	Key Ballroom 2, Hilton	Oh, No! I Have to Do Four FRQ (Free-Response Questions) in 90 Minutes… How Do I Succeed? (p. 121)
9:30–10:30 AM	H–C/I	Key Ballroom 8, Hilton	Biotechnology and Environmental Risk: Project Learning Tree's New Secondary Program (p. 121)
11:00–11:30 AM	G	329, Conv. Center	The Environmental Science Summer Research Experience for Young Women (p. 122)
11:00 AM–12 Noon	E	327, Conv. Center	Rebuilding the Bay's Oyster Population One Ball at a Time (p. 124)
11:00 AM–12 Noon	M–H	Key Ballroom 2, Hilton	Find It Fast! Reliable Environmental Health Web Resources to Reinforce Your Lessons (p. 123)
11:00 AM–12 Noon	I	Key Ballroom 8, Hilton	Environmental Stewardship: Awards, Recognition, and Grants (p. 123)

Integrated/General

Thursday

8:00–9:00 AM	G	321, Conv. Center	Learn How to Use NOAA's Climate Change Resources in Your Classroom (p. 45)
8:00–9:00 AM	G	325, Conv. Center	Learning in 3-D: Building a Bridge to STEM (p. 46)
8:00–9:00 AM	G	326, Conv. Center	Growing the Family STEM (p. 46)
8:00–9:00 AM	M–H	328, Conv. Center	Videos, Podcasts, and Wikis, Oh My! (p. 45)
8:00–9:00 AM	G	329, Conv. Center	Systemic STEM Best Practices in the Middle School Trenches (p. 45)
8:00–9:00 AM	E	331, Conv. Center	An "Insider's Guide" to High-Stakes Assessment Creation: Elementary (p. 45)
8:00–9:00 AM	G	Holiday 6, Hilton	Is This Your First NSTA Conference? (p. 46)
8:00–9:00 AM	M–H	Key Ballroom 4, Hilton	The Mathematics of Human Population Growth (p. 47)
8:00–9:00 AM	G	Key Ballroom 7, Hilton	NSTA Press Session: Science Teaching as a Profession (p. 46)
8:00–9:15 AM	7–10	341, Conv. Center	Introducing Inquiry Investigations™: Hands-On Inquiry Activities Focusing On Technology (p. 49)
8:00–9:15 AM	K–6	343, Conv. Center	Experimental Design (p. 49)

8:00–9:15 AM	K–12	349/350, Conv. Center	Fun, Fabulous Foldables® (p. 49)
8:00–9:30 AM	5–12	345/346, Conv. Center	Chemistry and the Atom: Fun with Atom Building Games! (p. 49)
8:00–10:00 AM	5–8	344, Conv. Center	Using Science Notebooks with FOSS Middle School (p. 49)
9:00–11:00 AM	2–5	342, Conv. Center	Innovative Science and Literacy Integration: Seeds of Science/Roots of Reading® (p. 50)
9:30–10:45 AM	G	Ballroom III/IV, Conv. Center	General Session: Finding Your Way When You're Not Sure Where You're Headed (Speaker: Bill Nye) (p. 50)
10:00–11:15 AM	7–10	341, Conv. Center	Inquiry Investigations™ Forensics Science Curriculum Module and Kits (p. 52)
10:00–11:15 AM	K–8	343, Conv. Center	Introducing the Delta Science Module Program (p. 52)
10:00–11:15 AM	K–12	349/350, Conv. Center	Fun, Fabulous Foldables® (p. 52)
10:00–11:30 AM	5–12	345/346, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 53)
11:30 AM–1:30 PM	2–5	342, Conv. Center	Innovative Science and Literacy Integration: Seeds of Science/Roots of Reading® (p. 54)
12 Noon–1:15 PM	5–C	341, Conv. Center	Educational Science Lab Design and Implementation for the 21st Century Made Easy (p. 54)
12 Noon–1:30 PM	5–12	345/346, Conv. Center	CPO SmartTrack with Velocity Sensor and Energy Car (p. 54)
12:30–1:30 PM	M	321, Conv. Center	An "Insider's Guide" to High-Stakes Assessment Creation: Middle School (p. 54)
12:30–1:30 PM	H	323, Conv. Center	What Is STEM, Really? (p. 54)
12:30–1:30 PM	E	324, Conv. Center	Research Is Elementary (p. 55)
12:30–1:30 PM	I	326, Conv. Center	Teaching Energy Conservation with an Emphasis on Biofuels (p. 56)
12:30–1:30 PM	G	331, Conv. Center	Boot Camp for Professional Development Providers: Learning the Basics (p. 56)
12:30–1:30 PM	M–H	Key Ballroom 3, Hilton	Help! My Students Don't Understand Their Text and Readings (p. 57)
12:30–1:30 PM	E–M	Key Ballroom 7, Hilton	NSTA Press Session: Teaching for Conceptual Change (p. 57)
12:30–1:30 PM	G	Latrobe, Hilton	Science and the Special Educator: A Professional Learning Community Model (p. 56)
12:30–1:30 PM	G	Ruth, Hilton	CSI Baltimore: A Forensic Project Based Learning (PBL) Workshop as a Practical Approach for STEM Education (p. 56)
12:30–1:45 PM	5–12	330, Conv. Center	Explore Google Earth with Discovery Student Adventures (p. 58)
12:30–1:45 PM	9–12	340, Conv. Center	The Next Generation of Science Virtual Labs—No Cleanup Required (p. 59)
12:30–1:45 PM	K–8	349/350, Conv. Center	I See What You Mean! Developing Visual Literacy (p. 59)
1:00–1:30 PM	E–H	Key Ballroom 10, Hilton	Engaging Digital Natives in an Inquiry Science Classroom (p. 60)
1:00–2:30 PM	K–8	343, Conv. Center	What's Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Teachers (p. 60)
2:00–2:30 PM	H	321, Conv. Center	Incorporating Nature of Science in the Classroom (p. 60)
2:00–2:30 PM	G	Latrobe, Hilton	Examining the "Creativity" of Expository Writing in Science (p. 60)
2:00–3:00 PM	P–E/S	325, Conv. Center	Portable Affordable Simple Science (P.A.S.S. ©) for PreK–2: Linking Home and School (p. 62)
2:00–3:00 PM	M–H	326, Conv. Center	Radiation and Health Workshop for Teachers (p. 62)
2:00–3:00 PM	M–H	328, Conv. Center	Paperless Formative and Summative Assessment (p. 63)
2:00–3:00 PM	E–H	331, Conv. Center	Seven Simple Strategies for Cultivating Classroom Inquiry (p. 63)
2:00–3:00 PM	E–H	Holiday 1, Hilton	Help! Why Can't They Pass the Test? (p. 63)
2:00–3:00 PM	M–H	Key Ballroom 4, Hilton	Content Literacy Strategies That Improve Cognition in Science (p. 63)
2:00–3:00 PM	G	Key Ballroom 7, Hilton	NSTA Press Session: A Leader's Guide to Curriculum Topic Study (CTS) (p. 62)
2:00–3:00 PM	G	Ruth, Hilton	Taking the Mystery Out of the T&E in STEM (p. 62)
2:00–3:15 PM	10–12	341, Conv. Center	Bring Your Science Lab into the 21st Century Using iNeo/SCI™ Virtual Science Solutions (p. 64)
2:00–3:30 PM	5–12	345/346, Conv. Center	Springs and Swings: Harmonic Motion and Hooke's Law (p. 64)
2:15–3:30 PM	K–8	347, Conv. Center	Help Students Discover the Science of Everyday Life (p. 65)
2:15–3:30 PM	6–12	349/350, Conv. Center	Teaching Inquiry Science with Toys and Treats (p. 65)
2:30–4:30 PM	K–6	344, Conv. Center	Using Science Notebooks with FOSS K–6 (p. 65)
3:00–4:30 PM	K–8	343, Conv. Center	The Craft of Questioning and Delta Science Modules (p. 66)

3:30–4:30 PM	G	323, Conv. Center	How to Get Published in an NSTA Journal (p. 67)
3:30–4:30 PM	G	324, Conv. Center	Starting an NSTA Student Chapter: Faculty and Student Perspectives (p. 68)
3:30–4:30 PM	E	325, Conv. Center	CESI Session: Fun and Easy Ways to Get Started with Robots (p. 68)
3:30–4:30 PM	M–C	327, Conv. Center	Hollywood BAD Science (p. 68)
3:30–4:30 PM	E–H	331, Conv. Center	Connecting the Dots Between Consumer Protection, Skepticism, and Science (p. 69)
3:30–4:30 PM	G	Holiday 1, Hilton	Measurement with Smiles (p. 70)
3:30–4:30 PM	M–H	Holiday 2, Hilton	The American Chestnut Tree: Spiraling for Instructional Success (p. 68)
3:30–4:30 PM	G	Holiday 4/5, Hilton	Featured Presentation: Wild Patterson Park: Discovering Nature's Treasures in Baltimore's Best Backyard (Speaker: Middleton Evans) (p. 66)
3:30–4:30 PM	G	Key Ballroom 3, Hilton	Implementing Open Inquiry: Ideas for Engaging Students (p. 70)
3:30–4:30 PM	M–H	Key Ballroom 4, Hilton	Modeling the Spectrum (p. 70)
3:30–4:30 PM	M–H	Key Ballroom 5, Hilton	Motivating Students to "Want" to Learn the Scientific Method (p. 68)
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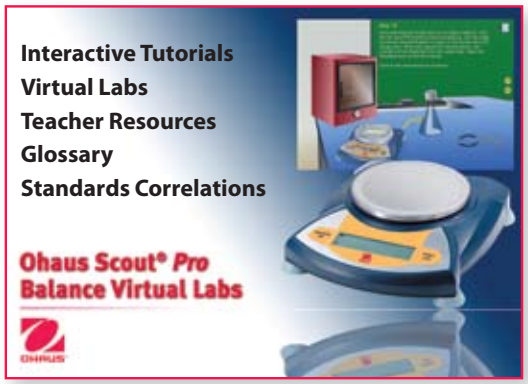

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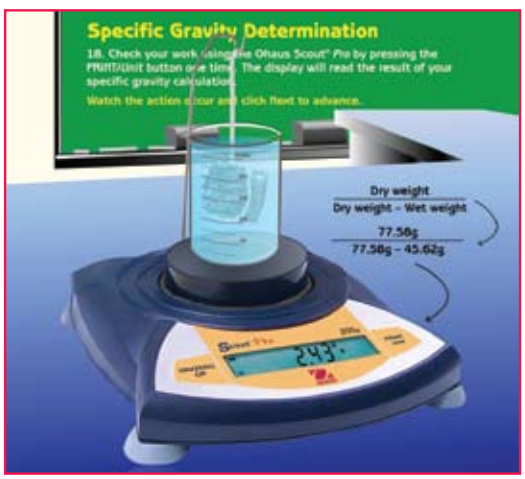

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