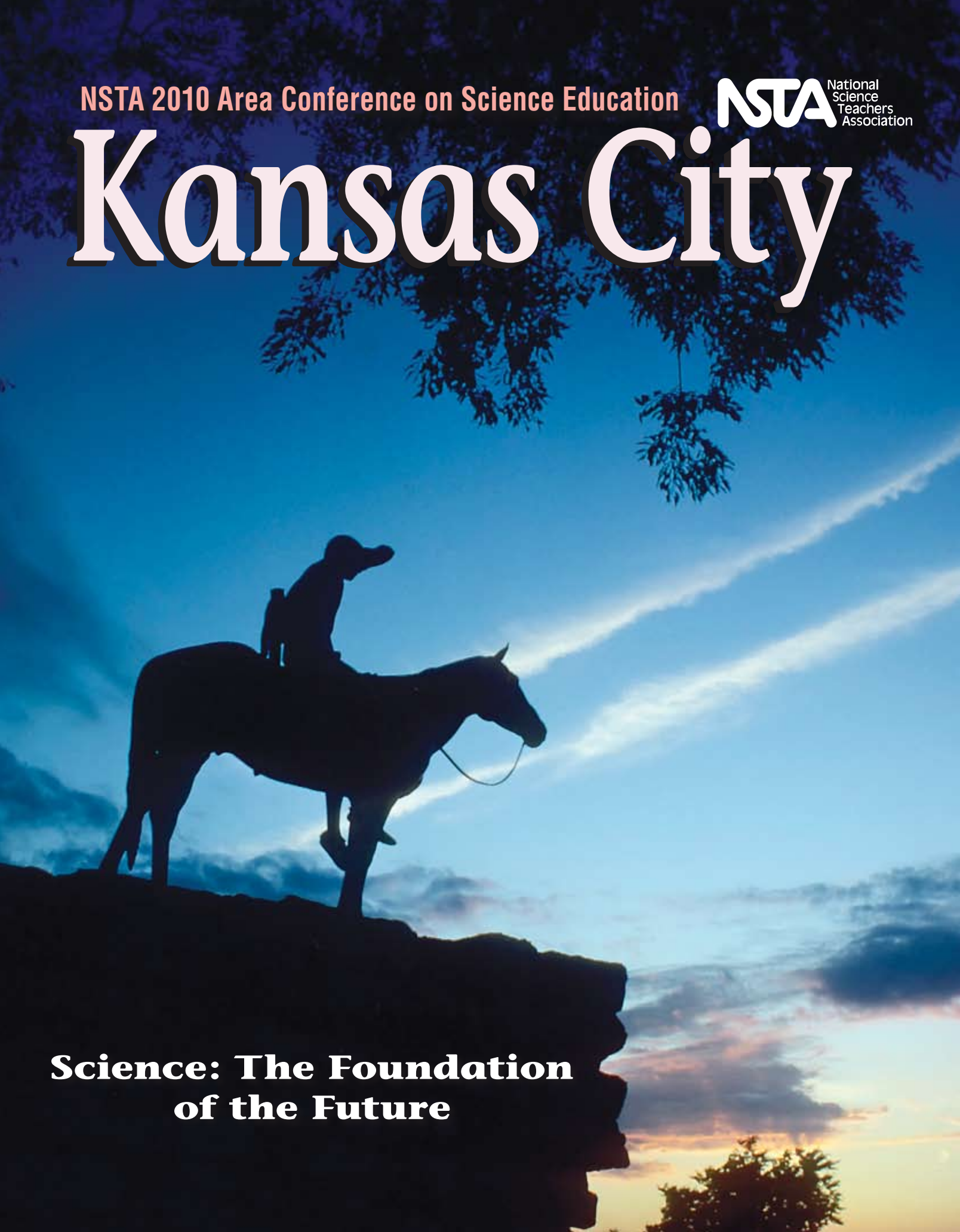
NSTA 2010 Area Conference on Science Education

NSTA National Science Teachers Association

Kansas City



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10:00 – 11:30 A.M.	TRANSFORMING THE SCIENCE LAB WITH VERNIER TECHNOLOGY
12:00 – 1:30 P.M.	TRANSFORMING THE SCIENCE LAB WITH VERNIER TECHNOLOGY
2:00 – 3:30 P.M.	TRANSFORMING THE SCIENCE LAB WITH VERNIER TECHNOLOGY

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NSTA 2010 Area Conference on Science Education

Kansas City, Missouri • October 28–30, 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

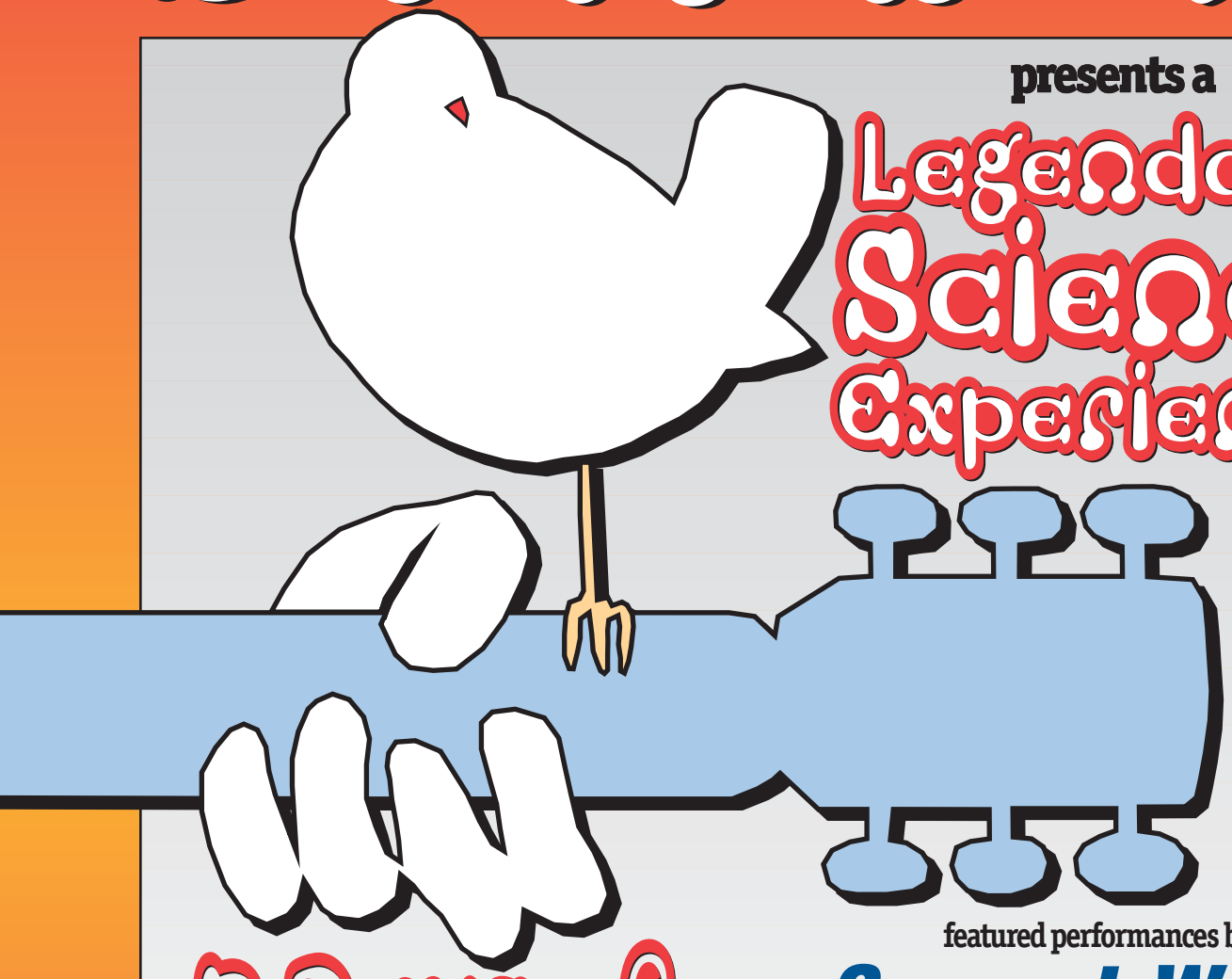
Cover Photo

The Kansas City Scout statue is a famous icon in Kansas City, Missouri.
Photo by *markgibsonphoto.com*

NSTA Affiliates

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

Sai-a-Palooza



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Welcome to Kansas City

Charlotte McDonald, Carol Williamson, and Linda Lacy.

Welcome to Kansas City and the NSTA Area Conference on Science Education. Our theme, *Science: The Foundation of the Future,* invites science educators into a conversation. Together we will imagine our students' future and invent learning opportunities in which science is a foundation of their personal and professional lives. The conference strands focus on Data-driven Learning, Developing and Communicating Conceptual Understanding for All Students, and Scientific Innovation: Applying Science in the Real World.

Maximizing your time is key. The program committee has put together a compelling program and the local arrangements committee has prepared to make your visit enjoyable and productive. We hope you will get a flavor of Kansas City—dine in the Power and Light District or stroll through the solar system model with our keynote speaker, Jeff Goldstein—and that your time here will re-energize your role in science education.

We could have stayed home. There are papers to grade, lesson plans to ponder, and a million of life's details to manage. But we're here. Thank you for prioritizing science education professional involvement by participating in the conference…we look forward to the conversation.

2010 Kansas City Conference Committee Leaders
Carol Williamson, Linda Lacy, and Charlotte McDonald

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

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Kansas City Conference Committee

Program Committee

Strand Leader: Scientific Innovation: Applying Science in the Real World
David P. Beier
The Barstow School
Kansas City, MO

Strand Leader: Data-driven Learning
Kelly Kenney
Ruskin High School
Kansas City, MO

Strand Leader: Developing and Communicating Conceptual Understanding for All Students
Patricia Lucido
Rockhurst University
Kansas City, MO

District XI Representative
Jim Puckett
Grandview Senior High School
Grandview, MO

Local Arrangements Committee

Exhibits Liaison
Rosemary Camp
Liberty High School
Liberty, MO

Local Arrangements Committee

Field Trips Manager
Cheryl Turlin
Lighthouse Education
Independence, MO

Guides Manager
Mary Coogan
Liberty North High School
Liberty, MO

Manager of Services for People with Disabilities
Homer Ritter
Shawnee Mission North High School
Overland Park, KS

Publicity Manager
Christie Purdon
Blue Valley Schools
Overland Park, KS

Volunteers Manager
Georgia Smith
Johnson County Community College
Overland Park, KS

NSTA Membership

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- 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 Kansas City 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.

Our overall conference theme—*Science: The Foundation of the Future*—reflects our focus on how science can positively prepare for a seemingly scary and ominous tomorrow. Science provides the motivation, activating attitudes, 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.

Our theme is bolstered by strands of highly engaging sessions:

- *Data-driven Learning.* Find new ways to use assessment to improve student learning. Check out our featured presentation by Aminata Umoja, "Unleashing the Power of Data to Improve Science Teaching and Learning."
- *Developing and Communicating Conceptual Understanding for All Students.* Learn to avoid the too-common pitfall—shallow and superficial "learning" of science concepts. You especially need to attend Jeff Goldstein's general session: "Science Education: Conceptual Understanding at an Emotional Level."
- *Scientific Innovation: Applying Science in the Real World.* Innovation is not just for inventors—everyone needs to innovate in many ways to cope with life's everyday problems. Be sure to catch Lisa Freeman's featured presentation: "Science Education Partnerships: Lessons from the K-State Olathe Innovation Campus."

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 Kansas City Conference

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

American Association of Physics Teachers and Arkansas–Oklahoma–Kansas Section of AAPT

American Chemical Society

American Chemical Society, Education Division

Carolina Biological Supply Co.

CPO Science ~ Delta Education ~ Frey Scientific

Kansas Association of Teachers of Science (KATS)

Ken-A-Vision

Kendall Hunt Publishing Co.

National Association of Biology Teachers (NABT)

Sargent-Welch ~ Science Kit ~ WARD'S Natural Science

Science Teachers of Missouri (STOM)

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

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

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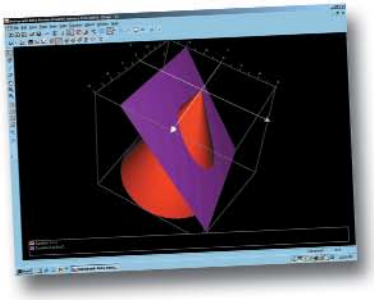
Inquiry



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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.

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.

Green Initiatives at the Kansas City Convention Center

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

- **Low Environmental Impact Cleaning Policy.** The center creates a healthier indoor environment by using cleaning chemicals that are green seal certified.
- **Waste Reduction/Recycling.** The center has an in-house recycling program for paper and plastic. Recycle containers are placed throughout the building.
- **Green Building Certification.** All remodeling and construction of new facilities at the Convention Center meet the U.S. Green Building Council's Leadership in Energy and Environmental Design™ Silver standards, including the newest Grand Ballroom, which features a controllable natural lighting system and energy-efficient LED lighting effects. The latest addition of the Grand Ballroom to the Convention Center was honored as one of the top 10 green buildings in 2009.

"Go Green" at the Kansas City Conference!

- Recycle your conference programs in the clearly marked recycle bins located throughout the Convention Center.
- Recycle or re-use your plastic badge holders—you can either turn them in at the NSTA Registration Counter or use them at future conferences.
- Use double-side 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.

Visit the New and Improved
Science Bookstore

Enjoy all of these and more:

- Award-winning PD books filled with best practices, science content, teaching tips, and lesson plans.
- New books hot off the press: *Hop Into Action; Predict, Observe, Explain;* and *Developing Visual Literacy in Science, K–8,* to name a few.
- Plus *Picture-Perfect Science Lessons, Expanded 2nd Edition,* along with Class Packs containing all the materials necessary to conduct each lesson.
- T-shirts, polos, totes, mugs, pens, and other science gifts to take back to your classroom.
- One-on-one book signings with your favorite authors.
- 20% off all NSTA Press titles for all attendees.

Pick up the new Fall NSTA catalog!

Store Hours

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

Visit *www.nsta.org/store* to make a purchase today, or call 1-800-277-5300.

NSTA National Science Teachers Association

—Kansas City Convention & Visitors Association

Meeting Location and Times

The conference headquarters hotel is the Kansas City Marriott Downtown. Conference registration, the exhibits, the NSTA Exhibit Booth, the NSTA Science Bookstore, and most sessions will be located at the Kansas City Convention Center. Other events will be held at the Marriott. The conference will begin on Thursday, October 28, at 8:00 AM, and end on Saturday, October 30, 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., short courses, field trips, and social events).

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

Wed., Oct. 27	5:00–7:00 PM
Thu., Oct. 28	7:00 AM–5:00 PM
Fri., Oct. 29	7:00 AM–5:00 PM
Sat., Oct. 30	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 Kansas City 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 24) 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	X45D-908

**For phone reservations only*

Ground Transportation to/from Airport

SuperShuttle provides a discount for groups. Visit *www.kctg.com* or call 800-258-3826 to make reservations prior to arrival. Current SuperShuttle rates to the downtown hotels are $17 one way and $29 round-trip. Taxi service is available at both terminals, and fares average $50 to downtown Kansas City.

Getting Around Town

Hop aboard the MAX bus to see all that Kansas City has to offer. Very simple to use, the MAX bus stops at the majority of tourist destinations. For details, please visit *www.kcata.org*. From the downtown hotels you'll find plenty of restaurants within walking distance.

Parking

Parking is available at Barney Allis Plaza located at the Convention Center. Enter the garage from Wyandotte Street or Central Street between 12th and 13th streets. The maximum daily rate is $14. Additional surface lots at varying prices are available near the Convention Center.

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

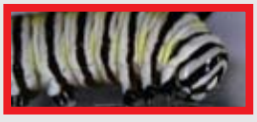
NSTA Hotels

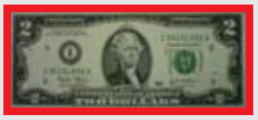
1. **Kansas City Marriott Downtown**
   (Headquarters Hotel)
   200 W. 12th St.
2. **Aladdin Holiday Inn**
   1215 Wyandotte St.

Convention Center

1. **H. Roe Bartle Hall**
2. **Municipal Auditorium**
3. **Conference Center**
4. **Grand Ballroom**

Hello **kena**®.





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Presented by IDSA (Industrial Designers Society of America) & sponsored by BusinessWeek. The IDEA (International Design Excellence Award) competition is a celebration of the most innovative & exciting product and product concept designs of the year & one of the world's most prestigious design competitions. 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 113. A foldout map of the Exhibit Hall floor plan is available at Program Pickup.

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

Thu., Oct. 28	11:00 AM–5:00 PM
Fri., Oct. 29	9:00 AM–5:00 PM
Sat., Oct. 30	9:00 AM–12 Noon

Ribbon Cutting. An opening ceremony is scheduled on Thursday at 11:00 AM at the entrance to the NSTA exhibits at Hall B.

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 126 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 121 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.

STOM and KATS Booths

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

Graduate Credit Opportunity

Kansas City conference attendees can earn one or two undergraduate or graduate credit hours (minimum: 16 contact hours required) through Northwest Missouri State University. Learn more about the assignment requirements and how to register with the Northwest representative at the Science Teachers of Missouri (STOM) booth, located in the NSTA Registration Area. The cost is $75 per credit hour. Registration will be available on Wednesday, October 27, from 5:00 PM to 7:00 PM, and Thursday, October 28, from 7:00 AM to 4:00 PM.

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 Missouri!

The **Kansas Association of Teachers of Science (KATS)** booth is located in the NSTA Registration Area. Stop by for information about Kansas and the benefits of becoming a member of KATS. Membership forms and information on association activities will be available. Find out what's happening in science education in Kansas!

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/2010kan/conference_evaluation.asp.*

Lost and Found

All lost-and-found items will be turned in at the Exhibitor Registration counter at 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. 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 2214, Convention Center
- Executive Boardroom, Marriott

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 on the third floor of the Convention Center at the skywalk connecting the conference center (3500 rooms) and the Bartle Exhibition Hall at the Hall D doors. For assistance, call the Security Office at 816-513-5110. House phones will also immediately connect to security.

Business Services

The Swank Audio Visuals Business Center offers a variety of services from the street level of the Convention Center (in the 2200 Lobby). Services include shipping, copying, computer stations, printing, and faxing. The Business Center (816-513-5651) is available to serve your business needs. Hours are 8:00 AM–4:00 PM Wednesday; 8:00 AM–5:00 PM Thursday and Friday; and 9:00 AM–2:00 PM Saturday.

The Marriott also has a Business Center located on the first floor on the opposite side of Lilly's. The Center is automated (self-service) and open 24 hours a day, seven days a week.

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 October 28 to November 10, 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.

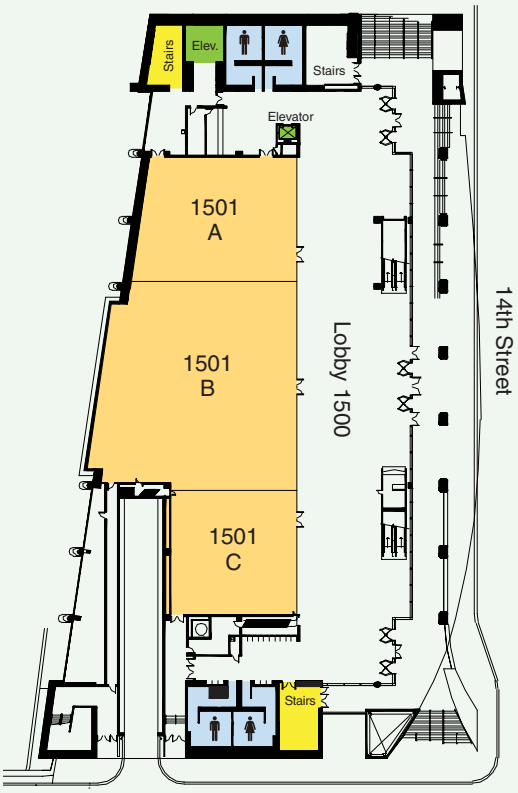
Concurrent session presenters may also complete evaluation forms for their own sessions in order to track professional development credit.

A Professional Development Documentation Form is included following page 40 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.

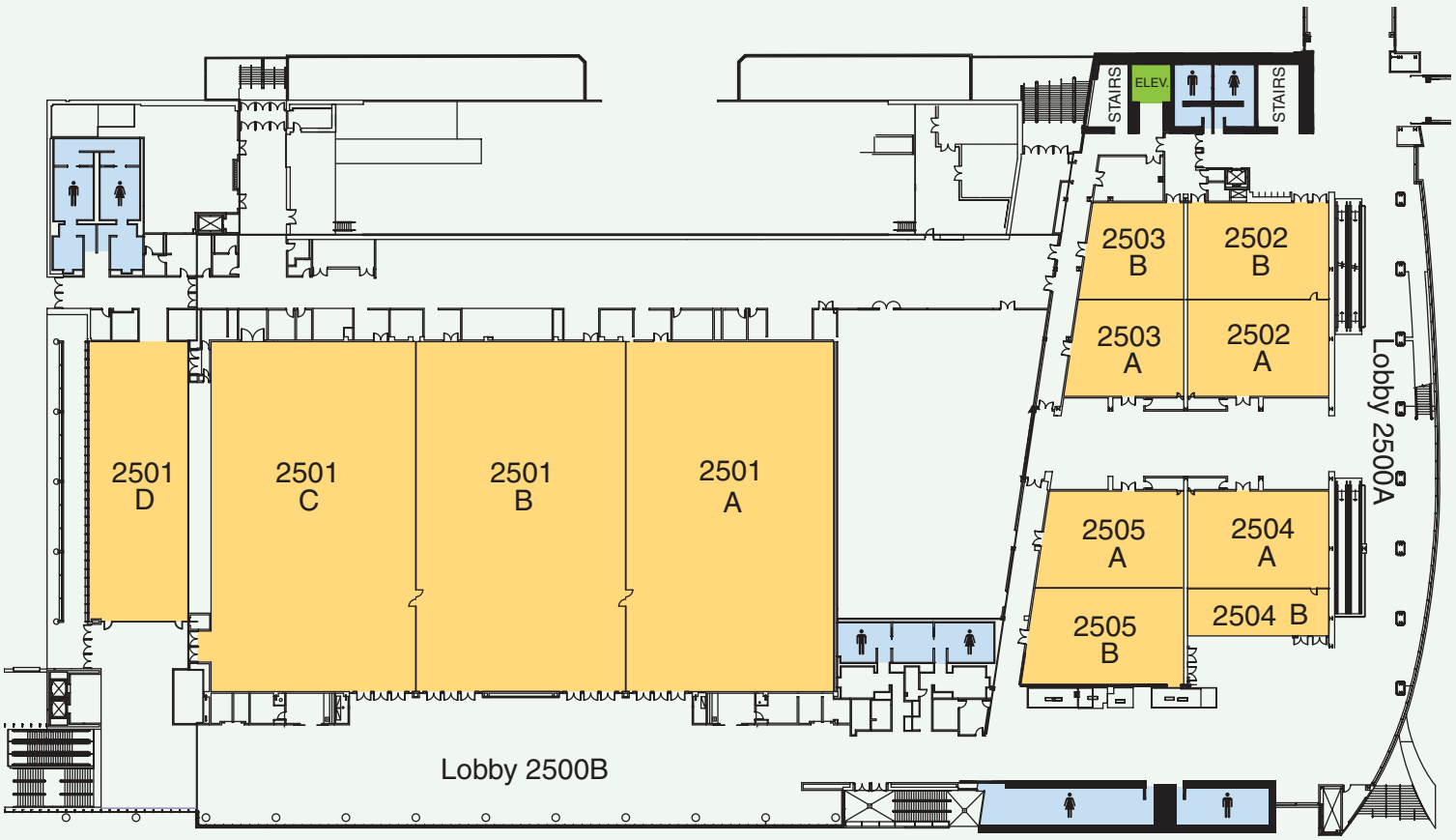
Beginning November 16, 2010, an attendee can visit *www.nsta.org/transcripts* to access a transcript of his or her attendance at specific sessions and to document credit for activities that are not being evaluated (e.g., field trips, short courses, Exhibit Hall visits, featured speakers, and meetings). 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.

Kansas City Convention Center

Level 1

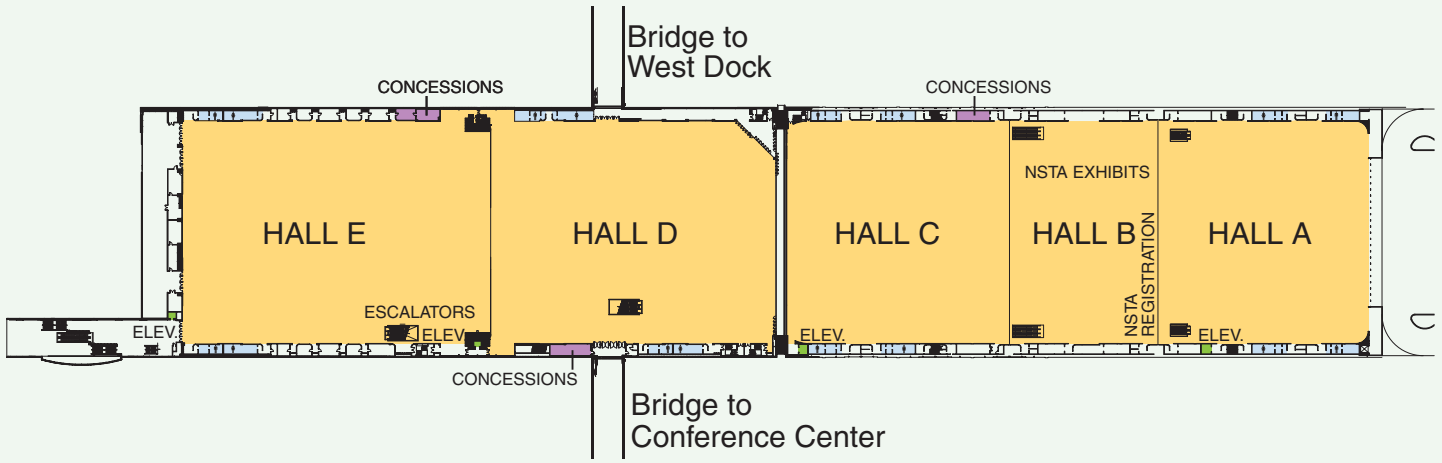


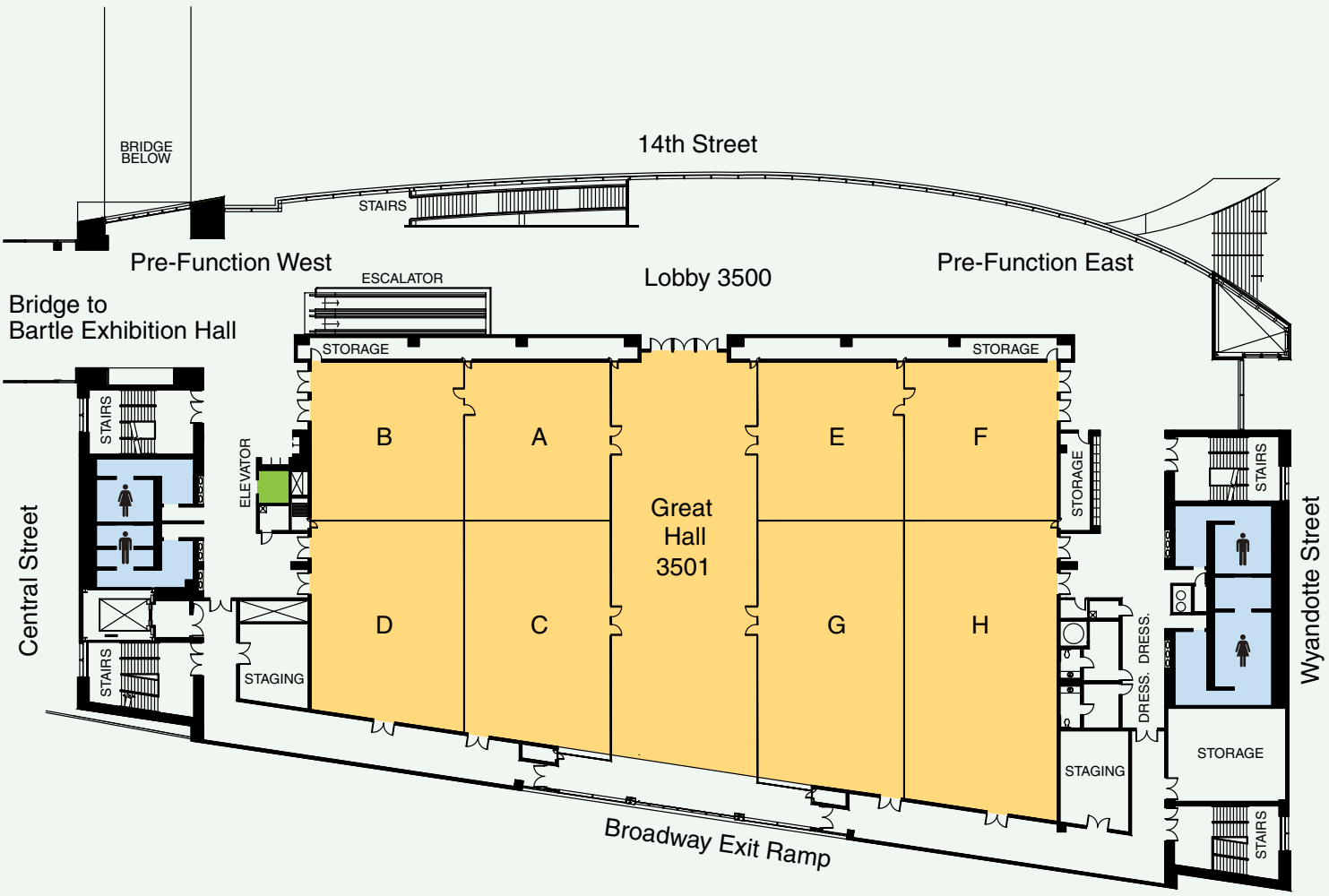
Level 2



Kansas City Convention Center

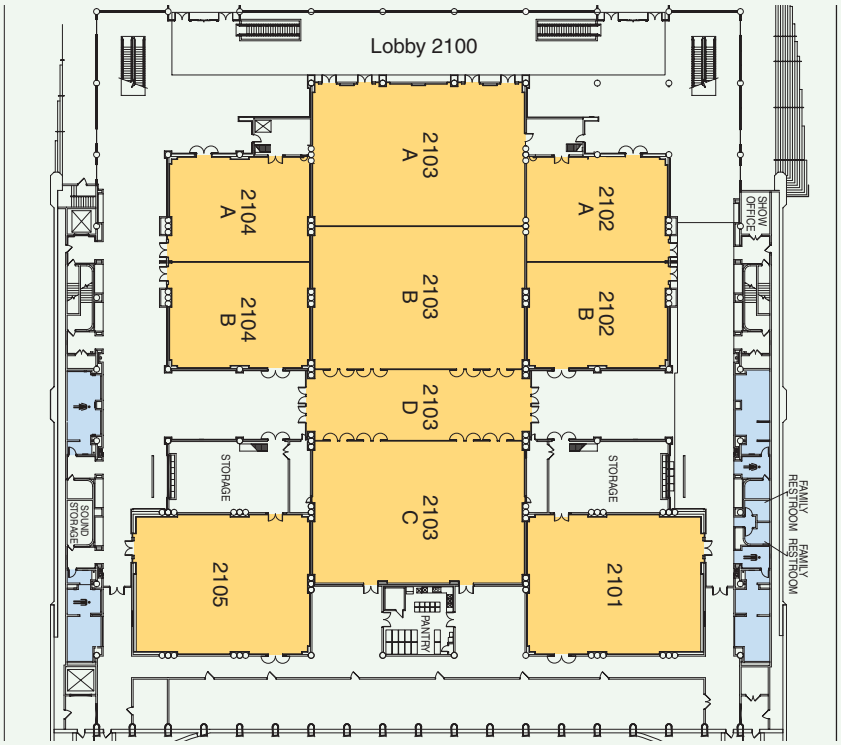
Level 3





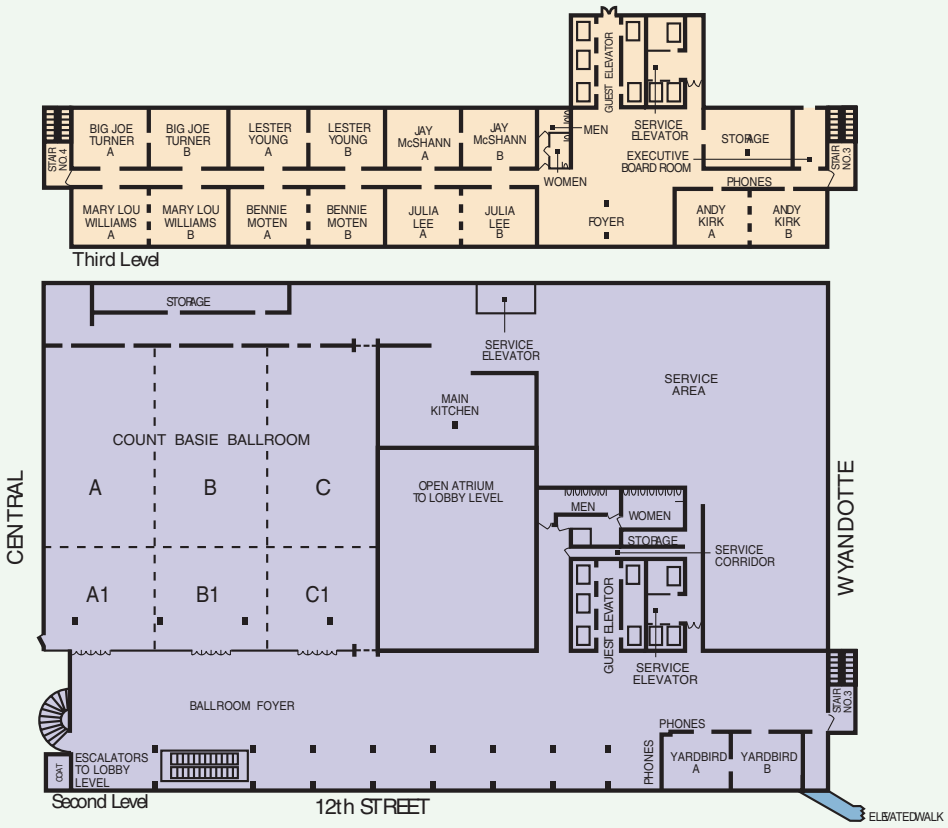
Kansas City Convention Center

Bartle Hall, Level 2

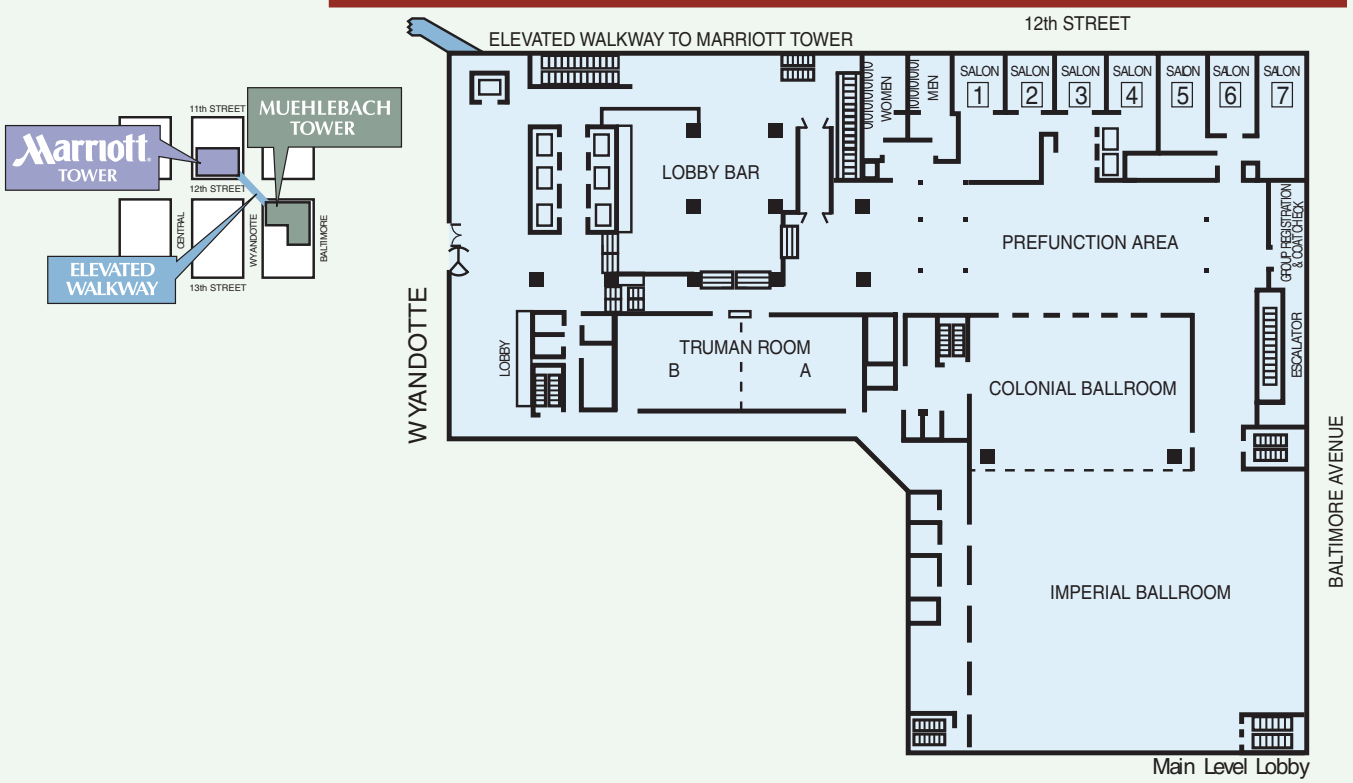


Kansas City Marriott Downtown

Marriott Tower



Muehlebach Tower



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NSTA Mission Statement

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

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All cities are subject to change pending final negotiation.

National Conferences on Science Education

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 Conferences

Baltimore, Maryland
November 11–13

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 42 for details.

Ribbon-Cutting Ceremony

An opening ceremony is scheduled on Thursday at 11:00 AM at the entrance to the NSTA exhibits at Hall B. See page 47 for details.

Thursday, October 28

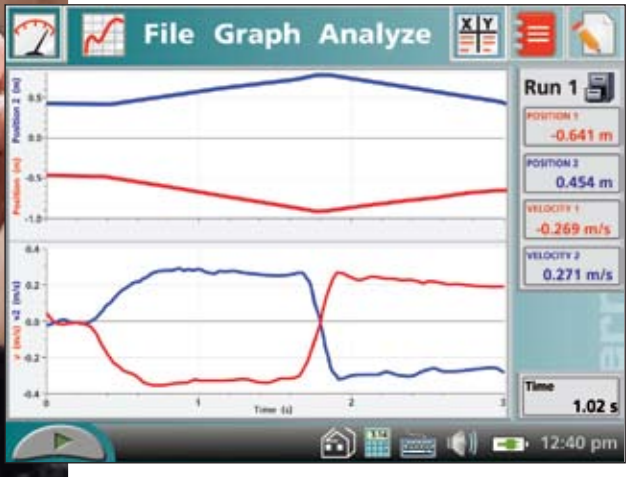
Friday, October 29

Saturday, October 30

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



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The Kansas City 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.

Data-driven Learning

Effective use of data about science learning guides instruction and student ownership of learning. Both teachers and students rely on the interpretation and analysis of data to gain the most learning from instruction. The responsibility for learning rests on both of these parties. The sessions in this strand will emphasize the importance of gathering, interpreting, communicating, and acting on data to guide instruction and enhance conceptual learning.

Developing and Communicating Conceptual Understanding for All Students

Effective science educators support students' development of conceptual understanding instead of focusing on facts and rote learning. Students need appropriate instruction that considers their developmental level, cultural background, and learning style, so in turn they can communicate their understanding as it develops. Today's student-centered learning environment takes into account learning modalities and is designed to address diverse levels of understanding. This strand will focus on building teacher and student understanding and utility of those tools and technologies that enhance conceptual understanding.

Scientific Innovation: Applying Science in the Real World

This strand addresses the student question, "Why do I need to know this?" Scientific inquiry and innovation inspire preK–16 students' learning and make science relevant to their world. These real-world connections include biotechnology, engineering and design, medical applications, space exploration, robotics, energy alternatives, agriculture, and forensic science. Preparation of students for their future role as scientifically literate citizens occurs in such venues as informal science, early childhood activities, outdoor environmental classrooms, and student-teacher-scientist partnerships.

Data-driven Learning

Thursday, October 28

8:00–9:00 AM
Using "Clickers" to Guide Instruction in the Science Classroom

12:30–1:30 PM
Creating Effective Science Literacy Assessments

2:00–3:00 PM
Impact of Standards-based Grading on Student Learning

3:30–4:30 PM
Improving Assessments, Increasing Rigor

Friday, October 29

8:00–9:00 AM
Differentiating Instruction with SKITs: Individualized Self-Assessment Tools for Any Classroom

9:30–10:30 AM
Featured Presentation: Unleashing the Power of Data to Improve Science Teaching and Learning
(Speaker: Aminata Umoja)

11:00 AM–12 Noon
Paperless Formative and Summative Assessment

12:30–1:30 PM
Tools for Data-driven Biology Teaching

2:00 –3:00 PM
The Impact of Collective Efficacy on High School Science Achievement

3:30–4:30 PM
The Reflective Assessment Technique: Fifteen Minutes to Improved Instruction

Saturday, October 30

8:00–9:00 AM
Sound Grading Practices

11:00 AM–12 Noon
Focusing On Student Learning Through Examining Student Work and Lesson Study

Developing and Communicating Conceptual Understanding for All Students

Thursday, October 28

12:30–1:30 PM
Use a Three-Prong Approach to Develop Conceptual Understanding

2:00–3:00 PM
Science + Writing + Learning

2:00–4:30 PM
SC-3: Strategies for Teaching and Assessing the Nature of Science
(Tickets required: $20)

3:30–4:30 PM
To the MACS: Mastering the Art of Communication in Science

Friday, October 29

8:00–9:00 AM
Thinking Outside the Box: Using Effective Questioning in Inquiry

8:30–11:30 AM
SC-4: Introduction to Modeling Instruction
(Tickets required: $20)

9:30–10:30 AM
Writing and Technology: An Update to the Science Notebook

11:00 AM–12 Noon
Featured Presentation: Brain-considerate Learning: Understanding the History of the Brain as the Foundation for Future Learning
(Speaker: Kenneth Wesson)

12:30–1:30 PM
Science Literacy Through Science Journalism

1:00–4:00 PM
SC-5: Transforming Factual to Conceptual Knowledge: Light and Images
(Tickets required: $25)

2:00–3:00 PM
Drawing to Enhance Scientific Communication

3:30–4:30 PM
Concept Mapping and the Learning Cycle: The Dynamic Duo of Achievement

Saturday, October 30

8:00–9:00 AM
Enhancing Nature of Science Through Literature Circles

8:30–11:30 AM
SC-6: The Science of Energy
(Tickets required: $20)

9:30–10:30 AM
Using Concept Cartoons to Address Misconceptions in Biology

11:00 AM–12 Noon
Enhancing Critical-thinking Skills Through Scientific Discrepant Events Instruction

Scientific Innovation: Applying Science in the Real World

Thursday, October 28

8:00–9:00 AM
Metric Week

8:30–11:30 AM
SC-1: Wind Energy Science for the Classroom
(Tickets required: $40)

12:30–1:30 PM
Engineering Modeling

2:00–3:00 PM
Featured Presentation: Science Education Partnerships: Lessons from the K-State Olathe Innovation Campus
(Speaker: Lisa C. Freeman)

3:30–4:30 PM
Real-World Environmental Education Through Community Partnerships

Friday, October 29

8:00–9:00 AM
Solids: The Neglected "State" of Chemistry

9:30–10:30 AM
Environmental Physical Science for Middle School

11:00 AM–12 Noon
Small Bodies, Big Concepts: Planetary Science

12:30–1:30 PM
Energizing Middle School Science

2:00–3:00 PM
EPA Tools for Teachers for Air Quality and Climate Change Education

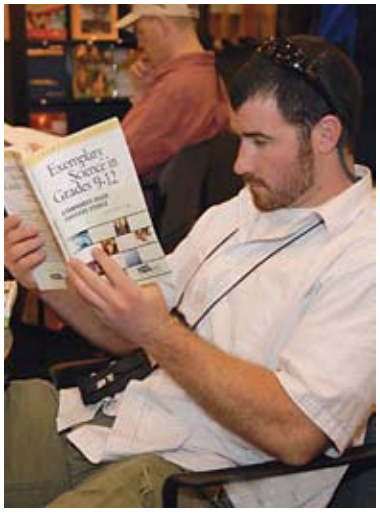
3:30–4:30 PM
City of Materials: Connecting Science to the "Stuff" in Kids' Lives

Saturday, October 30

8:00–9:00 AM
It's Showtime! Teaching Science with Hollywood Movies, 2010 Edition

9:30–10:30 AM
Forensics Science in Your Physics Classroom

11:00 AM–12 Noon
NASA Brings You Newton's Laws of Motion



NSTA Exemplary Science Program (ESP)

Meeting the Reform Features from the National Science Education Standards

Thursday, October 28 • 2503B, Convention Center

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 National Science Education Standards and NSTA leaders.

It Takes ESP to Find Exemplary Science Programs!

2:00–4:00 PM Symposium I *(page 58)*

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

Coordinators: Robert E. Yager, University of Iowa, Iowa City, and Barbara S. Spector, University of South Florida, Tampa

Sowing the Seeds of Future Success (from ESP #6)

Developing Inquiry Skills (from ESP #6)

Community of Excellence (from ESP #4)

Modeling: Changes in Instruction (from ESP #3)

4:30–5:30 PM Symposium II *(page 64)*

ESP: Realizing Goals Two and Three of the NSES

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

"Who Ate Our Corn?" (from ESP #7)

Developing Expertise in Project-based Science (from ESP #7)

Hey! What're Ya Thinkin? (from ESP #4)

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)

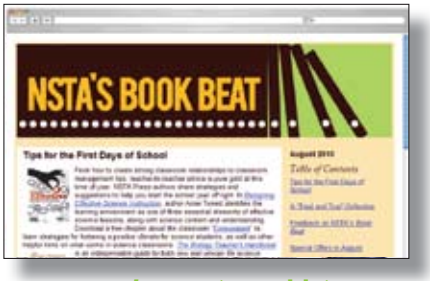
Delivers the latest news, events, classes, seminars, and NSTA happenings.

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

NSTA National Science Teachers Association

ACS Chemistry for Life™

Chemistry Day at NSTA

Chemical Bonding and Its Consequences

For Grades 9–12

Friday, October 29, 8:00 AM–4:30 PM

2103C, 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. 70)
9:30–10:30 AM	**What Holds Molecules Together?** (p. 79)
11:00 AM–12 Noon	**Why Is Water Different?** (p. 86)
12:30–1:30 PM	**Bond Connections in More Complex Molecules** (p. 91)
2:00–3:00 PM	**Chemistry of Aqueous Solutions of Gases** (p. 95)
3:30–4:30 PM	**Coupled Reactions, Energetics, and Chemical Bonds** (p. 100)

Middle School Chemistry Day

Big Ideas About the Very Small

Friday, October 29, 8:00 AM–4:30 PM

2102B, 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. 70)
9:30–10:30 AM	**Heat Transfer and Changes of State** (p. 79)
11:00 AM–12 Noon	**Density** (p. 86)
12:30–1:30 PM	**The Periodic Table, Energy Levels, and Bonding** (p. 91)
2:00–3:00 PM	**Polarity of the Water Molecule and Dissolving** (p. 95)
3:30–4:30 PM	**Chemical Change and Energy** (p. 100)

Biology Day at NSTA

Friday, October 29, 8:00 AM–1:30 PM

2101, Convention Center

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!

8:00–9:00 AM	**Inquiry-based Hands-On Activities and Demonstrations** (p. 70)
9:30–10:30 AM	**Survival of the Fittest: Variations and Selection** (p. 79)
11:00 AM–12 Noon	**The Science of Stem Cells—Introductory Activities** (p. 85)
12:30–1:30 PM	**The Evolutionary History of Life on Earth (in Less Than an Hour)** (p. 90)

Physics Day at NSTA

Friday, October 29, 8:00 AM–4:30 PM

2102 A, Convention Center

Sponsored by the American Association of Physics Teachers (AAPT) and the Arkansas–Oklahoma–Kansas 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 Kansas City is being organized by the Arkansas–Oklahoma–Kansas Section of the American Association of Physics Teachers.

8:00–9:00 AM	**Science Ethics Workshop** (p. 70)
9:30–10:30 AM	**Using the Galileoscope in Introductory Astronomy Classes** (p. 79)
11:00 AM–12 Noon	**Using Video Analysis in the Physics Classroom** (p. 84)
12:30–1:30 PM	**So You Want a School Observatory—What Comes Next?** (p. 90)
2:00–3:00 PM	**Course Building in ComPADRE** (p. 95)
3:30–4:30 PM	**Robotics and Physics Teaching** (p. 99)

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, October 28

8:00–9:30 AM	Tools to Deepen Students' Understanding of Hard-to-Teach Biology Concepts (p. 45)
12:30–1:30 PM	So You Want New Science Facilities? (Science Facilities 101) (p. 51)
2:00–3:00 PM	The Architects Have Started Without Me! What Do I Do Now? (Science Facilities 102) (p. 56)
3:30–4:30 PM	Take a Walk on the Safe Side (p. 60)

Friday, October 29

8:00–9:00 AM	Stop Faking It! Finally Understand FORCE AND MOTION So You Can Teach It (p. 70)
9:30–10:30 AM	Stop Faking It! Finally Understand ENERGY So You Can Teach It (p. 80)
11:00 AM–12 Noon	Designing Effective Science Instruction (p. 86)
	Stop Faking It! Finally Understand MATH So You Can Teach It (p. 86)
12:30–1:30 PM	Outdoor Science: A Practical Guide (p. 91)
2:00–3:00 PM	Using Science Notebooks in Elementary Classrooms (p. 93)
3:30–4:30 PM	Using Science Notebooks in Middle School Classrooms (p. 99)

Saturday, October 30

9:30–10:30 AM	Science Teaching as a Profession (p. 108)

NSTA Avenue Sessions

Visit the NSTA Avenue (Booth #215), 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, October 29

11:00 AM–12 Noon	Toshiba/NSTA ExploraVision Awards (p. 84)
12:30–1:30 PM	Toyota TAPESTRY Grants for Science Teachers = $$$ for Your School! (p. 90)
2:00–3:00 PM	SciLinks: Using the Online Assignment Tool (p. 94)
3:30–4:30 PM	The NSTA Learning Center: Free Professional Development Resources and Opportunities for Educators (p. 99)

Friday, October 29

Council for Elementary Science International (CESI) Breakfast
(Tickets required: M-1; $31)
Andy Kirk, Marriott.....8:30–10:30 AM

Informal Science Education Networking Meeting
Nixon Room (Muehlebach), Marriott..... 11:00 AM–12 Noon

Preservice and New Teachers Luncheon
(Tickets required: M-2; $12)
Sponsored by Kendall Hunt Publishing Co.
Andy Kirk, Marriott.....12 Noon–1:30 PM

NMLSTA Ice Cream Social
Colonial Ballroom (Muehlebach), Marriott .. 3:30–5:00 PM

Science Teachers of Missouri (STOM) Business Meeting/Awards Ceremony
Count Basie C1, Marriott..... 4:30–5:00 PM

Science Teacher Reception Hosted by Ken-A-Vision and School Specialty Science
Count Basie A, Marriott ..... 5:00–7:00 PM

Everyone Needs a Betsy Networking Opportunity
Colonial Blrm. (Muehlebach), Marriott ..... 7:00–8:30 PM

Saturday, October 30

NSELA Board Meeting
Roosevelt Room (Muehlebach), Marriott ... 7:00 AM–7:00 PM

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

Wind Energy Science for the Classroom (SC-1)

Joseph Rand *(joe@kidwind.org)* and **Michael Arquin** *(michael@kidwind.org),* KidWind Project, St. Paul, Minn.
Level: Middle Level–High School
Date: Thursday, October 28, 8:30–11:30 AM
Location: Truman A (Muehlebach), Marriott
Registration Fee: $40

Learn how to bring wind energy science into your classroom using standards-based activities in a hands-on manner. This short course will introduce you to the science and engineering behind wind energy and provide ideas, activities, and lesson plans to teach about wind energy concepts in middle and high school classrooms. Participants will build a classroom wind turbine, test variables, measure power output, and compare efficiencies of various blade designs. The classroom wind turbine is yours to keep!
www.kidwind.org

Process Oriented Guided Inquiry Learning (POGIL) in High School Chemistry and Biology Classrooms (SC-2)

Bruce Wellman *(bwellmanonw@olatheschools.com),* Olathe Northwest High School, Olathe, Kans.
Susan Richardson, Wichita High School East, Wichita, Kans.
Level: High School **SOLD OUT**
Date: Thursday, October 28, 9:00 AM–12 Noon
Location: Truman B (Muehlebach), Marriott
Registration Fee: $20

POGIL (*www.pogil.org/high-school*) is a classroom and laboratory technique that seeks to simultaneously teach content and key process skills such as the ability to think analytically and work effectively as part of a collaborative team. In a POGIL classroom, students work in small groups on specially designed guided inquiry materials. These materials supply students with data or information followed by leading questions designed to guide them toward formulation of their own valid conclusions. Short course participants will experience learning in a POGIL environment, explore the theoretical foundations from which POGIL was developed, and examine POGIL activities that have been written and classroom tested by high school chemistry and biology teachers.

✔ Strategies for Teaching and Assessing the Nature of Science (SC-3)

Deborah Hanuscin *(hanuscind@missouri.edu)*, **Ya-Wen Cheng** *(yck86@mail.mizzou.edu),* **Jennifer Lacy** *(jelr4c@mail.mizzou.edu)*; **Deepika Menon** *(dm2qc@mail.mizzou.edu)*; **Dominike Merle** *(dmk99@mail.mizzou.edu)*; **Tina Roberts** *(robertsti@missouri.edu)*; **Emily Walter** *(emily.walter@mail.mizzou.edu)*; **Andrew West** *(westab@mail.mizzou.edu)*; **Steve Witzig** *(sbwitzig@mail.mizzou.edu),* University of Missouri, Columbia
Level: K–20
Date: Thursday, October 28, 2:00–4:30 PM
Location: Truman A (Muehlebach), Marriott
Registration Fee: $20

What should students understand about the nature of science? How can we tell what their ideas are and what they're learning? Though developing an understanding of the nature of science is emphasized in the national standards, research shows students often have difficulty grasping these ideas. The MU Science Education Center is home to a group of experienced researchers and educators who collaborate to help teachers engage students and make nature of science meaningful. In this short course, you will participate in activities to help develop your own understanding of the nature of science. You will learn common misconceptions students have about what science is, ways to assess their ideas, and effective strategies to teach the nature of science. Each participant will receive a CD containing lesson plans, assessment tools, and resources that reflect current research about teaching and learning the nature of science.

✔ Introduction to Modeling Instruction (SC-4)

Earl Legleiter *(elegeiter@hotmail.com),* Legleiter Science Consulting, Englewood, Colo.
Level: Middle Level–High School
Date: Friday, October 29, 8:30–11:30 AM
Location: Truman A (Muehlebach), Marriott
Registration Fee: $20

Modeling Instruction is a curriculum design that engages learners in a student-centered environment where science content understanding is developed from student-designed experiments. This pedagogical approach organizes science content around just a few physical models. In this short course, participants will engage in a model development and deployment activity. The U.S. Department of Education designated Modeling Instruction as one of two exemplary science education programs in 2001.
http://modeling.asu.edu; www.modelingteachers.org.

—Photo courtesy of KidWind Project

—Photo courtesy of Earl Legleiter

At left, participants discuss power output as they learn about wind energy (SC-1). Above, model development begins with a paradigm lab that provides direct experience with the phenomena to be modeled (SC-4).

✔ Transforming Factual to Conceptual Knowledge: Light and Images (SC-5)

Patrick C. Gibbons *(pcg@wuphys.wustl.edu)* and **John F. Wiegers,** Washington University in St. Louis, Mo.
Ann P. McMahon *(annpmcmahon@gmail.com),* University of Missouri–St. Louis
Level: K–8; K–8 PD providers
Date: Friday, October 29, 1:00–4:00 PM
Location: Truman A (Muehlebach), Marriott
Registration Fee: $25

The test of conceptual understanding is the capacity to use, apply, transform, or recognize the relevance of factual knowledge in new situations. Using inquiry lesson plans based on the 5E learning cycle (engage, explore, explain, extend, evaluate) and questions that require critical-thinking skills, participants will learn how factual knowledge is transformed into conceptual knowledge. Each lesson opens with a hands-on activity that is a source for observations and questions. Activities center on light bulbs, pinhole viewers, colored windows, and mirrors. *www.so.wustl.edu/edu6011.html*

✔ The Science of Energy (SC-6)

Mary Spruill *(info@need.org)*, The NEED Project: Manassas, Va.
Level: Grades 4–12
Date: Saturday, October 30, 8:30–11:30 AM
Location: Truman B (Muehlebach), Marriott
Registration Fee: $20

Learn to differentiate sources of energy, how energy is stored and transformed, and how to trace the energy flow of a system. Participants will explore energy transformations by conducting center-based experiments on motion, sound, mechanical energy, thermal energy, radiant energy, electrical energy, and chemical energy. Hands-on activities include stored mechanical energy with yo-yos; endothermic and exothermic reactions; transforming radiant energy into motion, heat, and electricity with a radiometer; solar panels and thermometers; storing light with glow toys; thermal energy and motion transformations with rubber bands; transforming chemical energy into radiant and electrical energy with light sticks; and building apple batteries. Materials are correlated to the National Science Content Standards.

—Photo courtesy of the Kansas City Zoo

—Photo courtesy of the Missouri Dept. of Conservation's Discovery Center

Tickets for field trips may be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your field trip leader outside the center on the east (Arena) side of 13th and Central 15 minutes before departure time. You may want to bring light snacks as there will be no food provided.

Conservation Connections: Morning Session $22

#T-1 Thurs., Oct. 28 9:00 AM–1:00 PM

Hands-on nature in the heart of Kansas City! The Anita B. Gorman Conservation Discovery Center is a unique urban conservation education center where visitors experience the natural world hands on and learn how buildings and landscapes can work in harmony with nature. Join us at the Discovery Center for the morning session of Conservation Connections, a workshop that help you inspire conservation in your classroom.

In the morning session, participants will engage in two activities—Watershed Wonders and Green Design. Whatever we do on the land can impact the watershed. In Watershed Wonders, participants explore the big picture with an interactive watershed model and learn an easy classroom version. Jump into the small world of macroinvertebrates and use science to engage students in the living community of their nearby creek. In Green Design, participants investigate the green features incorporated in Discovery Center's building and grounds, seeking out the various renewable and re-use designs and exploring the award-winning native landscape, which enhances the center's programs.

Kansas City ZOO at Its BEST $53

#T-2 Thurs., Oct. 28 9:30 AM–3:30 PM

Ranked as one of the best zoos in the nation, the Kansas City Zoo (*www.kansascityzoo.org*) features more than 1,000 animals in naturalistic settings, including Africa, Australia, Tiger Trail, KidZone, Tropics, Snakes Alive!, and the new polar bear exhibit. On this visit to the zoo, participants will experience two behind-the-scenes opportunities—one at the brand-new polar bear exhibit and the other at the outback barn in the Australian exhibit, where the singing dogs, emu, and kangaroo are housed. In addition, participants will get to hear and participate in animal chats scattered throughout the zoo. As part of the ticket price, each participant will receive $10 in Zoo Bucks to use at a restaurant of his or her choice and unlimited rides on the tram train and carousel.

For participants unable to walk on their own, limited wheelchairs and electric convenience vehicles are available for rent at the participant's expense. Please call 816-513-5808 after you have purchased a ticket to reserve equipment. No children, please.

Conservation Connections: Afternoon Session $22

#T-3 Thurs., Oct. 28 1:15–5:15 PM

Hands-on nature in the heart of Kansas City! The Anita B. Gorman Conservation Discovery Center is a unique urban conservation education center where visitors experience the natural world hands on and learn how buildings and landscapes can work in harmony with nature. Join us at the Discovery Center for the afternoon session of Conservation Connections, a workshop that can help you inspire conservation in your classroom.

In the afternoon session, participants will engage in the activities Tree Trackers and Backyard Birds. Trees are an important natural resource that impact most aspects of our lives. In Tree Trackers, you will experience ways to inspire your students to make personal connections with trees. You'll also have an opportunity to express your artistic spirit as you create a one-of-a-kind leaf print. In Backyard Birds, you'll learn how to welcome feathered friends to your yard by building a birdfeeder. You'll also learn where to place it and which birdseed to use to attract particular types of birds.

There will be no meals provided. Bring snacks and beverages if desired. *Note:* These activities are different than those in the morning session.

Voyage Through a Scale Model of the Solar System $14

#T-4 Thurs., Oct. 28 1:30–3:55 PM

Experience Kansas City's own *Voyage: A Journey Through Our Solar System*, an exact replica of the original exhibition on permanent display on the National Mall in Washington, D.C. Jeff Goldstein, astrophysicist and director of the National Center for Earth and Space Science Education (NCESSE) in Washington, D.C., will be our guide as we walk approximately one mile downhill along Baltimore Avenue to view and learn about this stunning model. The *Voyage* exhibition is a one-to-10-billion scale model of the solar system stretching 2,000 feet and containing 15 8.5-foot-high aluminum stanchions locating the Sun, planets, dwarf planets (Pluto and Eris), and Explorers. As part of NCESSE's national *Voyage* program, the Kansas City community has access to extensive educational resources, including K–12 curriculum and programs for families and the public. Come learn how to use *Voyage* with your students.

This trip will run rain or shine! Wear walking shoes and dress comfortably for the weather. Sidewalks and Union Station are wheelchair accessible. Don't forget your camera!

University of Kansas Natural History Museum and Biodiversity Research Center $34

#F-1 Fri., Oct. 29 8:00 AM–1:00 PM

The KU Natural History Museum and Biodiversity Research Center is one of the world's most comprehensive biodiversity research resources, with collections of more than eight million specimens of plants and animals. Come walk among the dinosaurs on this special visit to the museum. Working paleontology labs with excavations in process have been opened to us, and we'll view many off-display bones unearthed at the University of Kansas digs in Nebraska, South Dakota, and Wyoming. Wrapped in plaster on-site, excavated bones are brought to the lab on campus for preservation, assembly, and identification. The museum has some huge dinos on display as well as invertebrate fossils. Participants will see all four floors of the museum as time allows. No meals are provided. Bring your own snacks and beverages if desired.

Biotechnology, Wind and Solar Energy, Robotics, and Fine Arts at Shawnee Mission West High School $25

#F-2 Fri., Oct. 29 12:30–3:30 PM

Come see why the students at Shawnee Mission West High School get excited about science classes! Our tour will feature students "in action" during the school day. Talk with students as they work with biotechnology, wind and solar energy, and robotics equipment. We'll also see how science is incorporated into the fine arts. Take home some great ideas!

—*Photo courtesy of Kansas City District Corps of Engineers*

Arabia Steamboat Museum **$26**

#F-3 Fri., Oct. 29 3:45–5:45 PM

A visit to the Arabia Steamboat Museum (*www.1856.com*) reveals details of frontier life seen nowhere else. Sunk in 1856 while negotiating the Missouri River, the *Arabia* was uncovered in 1988 where she lay buried under a Kansas cornfield after the river changed course. Her cargo hold was full of 200 tons of supplies bound for general stores and pioneer settlements, making the haul the largest collection of pre-Civil War artifacts in the world. An international cargo of china, jewelry, hardware, cookware, and even food allows for fascinating observations. The full-scale replica of the 171-foot boat deck features a 28-foot working paddle wheel. The preservation lab reveals how artifacts have been cleaned and preserved for display.

Wear comfortable walking shoes and bring your camera if desired. Our trip includes a visit to the gift store.

Kansas City Rivers Field Trip: Science, History, and Management **$29**

#S-1 Sat., Oct. 30 8:00 AM–1:00 PM

Kansas City was founded at a unique confluence in the massive mid-continental watershed of the Missouri River. The river and its tributaries represent an intersection of histories—natural, cultural, social, economic, environmental, and political—and contemporary debates on their management involve a myriad of questions. Management decisions must consider floods; barge traffic; access; agricultural effects from irrigation to runoff; generation of hydroelectric energy; water supplies for cities, towns, and industries; quality of the water; recreational use of waterways; erosion; deposition and other river processes; and the impact of various practices on fish and wildlife, including endangered species. Such a complex set of issues offers opportunities for teachers at all levels to engage their students in investigations and projects that involve science, technology, and society in an immensely significant context.

On this field trip you'll have the opportunity to learn something of the various histories as well as the multifaceted issues affecting the watershed in contemporary times. We'll visit several sites where we will discuss aspects of river science, history, and management. Each participant will receive a list of resources for developing teaching ideas, and we'll examine how to design and implement activities and investigations in the classroom and on field excursions.

No meal will be provided on this field trip. Please bring snacks and beverages, if desired. The trip will run rain or shine. River banks may be muddy. Wear clothing and shoes appropriate to the weather. Bring binoculars, camera, GPS, notebook, curiosity, and questions—anything to help you capture ideas for the classroom!

Association for Science Teacher Education (ASTE)

President: Meta Van Sickle

Thursday, October 28

3:30–4:00 PM	Professional Development Materials to Teach Scientific Argumentation in Middle School Science	Julia Lee A&B, Marriott

Council for Elementary Science International (CESI)

President: Kay Atchison Warfield

Thursday, October 28

2:00–3:00 PM	Get the Scoop: A Wealth of Resources for the K–8 Teacher	Count Basie C, Marriott
8:30–10:30 AM	CESI Breakfast (Ticket M-1) Speaker: Karen L. Ostlund, The University of Texas at Austin	Andy Kirk, Marriott

Friday, October 29

12:30–1:30 PM	Council for Elementary Science International Share-a-Thon	1501B, Convention Center

National Association for Research in Science Teaching (NARST)

President: Dana L. Zeidler

Friday, October 29

2:00–3:00 PM	Identity Action Theory: An Identity Development Model for Enhancing Secondary Students' Engagement and Achievement in Science	Julia Lee A&B, Marriott
3:30–4:30 PM	Making Connections Between Students' Out-of-School Experiences and Science Learning in the Classroom	Julia Lee A&B, Marriott

National Middle Level Science Teachers Association (NMLSTA)

President: Rajeev Swami

Friday, October 29

3:30–5:00 PM	NMLSTA Ice Cream Social (Open to All Middle Level Teachers)	Colonial Ballroom (Muehlebach), Marriott

National Science Education Leadership Association (NSELA)

President: Janey Kaufmann

Thursday, October 28

12:30–1:30 PM	Tools and Ideas for Leaders	Julia Lee A&B, Marriott
2:00–3:00 PM	NSELA Working Groups—Network with Science Education Leaders	Julia Lee A&B, Marriott

Saturday, October 30

7:00 AM–7:00 PM	NSELA Board Meeting	Roosevelt Room (Muehlebach), Marriott

Society for College Science Teachers (SCST)

President: Connie Russell

Friday, October 29

9:30–11:30 AM	Predictors of Success in Introductory Chemistry	Yardbird B, Marriott
	Teaching Organic Chemistry Through Group Problem Solving with Maximum Guidance and Minimal Lecturing	
	Using Student-selected Topics to Enhance Learning in Introductory Biology Courses	
	Teaching Astronomy and Physics Online and in the Virtual World of Second Life	
	Motivating Students to Explore and Share Knowledge in a Noncompetitive Classroom Environment	

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

NSTA 2010 Kansas City 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 Kansas City conference. Sessions/events such as field trips, short courses, featured speakers, the General Session, meetings, and exhibit hall visits are not available for online evaluation. However, these events still qualify for professional development.

Beginning November 16, 2010, Kansas City transcripts can be accessed at *www.nsta.org/transcripts* by logging on with your Kansas City Badge ID#. Keep this form and use it to add the following activities to your Kansas City 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, October 28 8:00 AM–6:00 PM

Start Time	End Time	Activity/Event Title

Friday, October 29 7:00 AM–8:30 PM

Start Time	End Time	Activity/Event Title

Saturday, October 30 7:00 AM–7:00 PM

Start Time	End Time	Activity/Event Title

8:00–8:30 AM Presentation

SESSION 1

Introducing Chemistry with *An Inconvenient Truth* (Chem)

(Middle Level–High School) *2102B, Convention Center*

Theresa Y. Robinson-Thomas *(theresa.robinson@nl.edu),* National Louis University, Chicago, Ill.

Learn how to present chemistry in an engaging way that is relevant to urban students and promotes literacy using *An Inconvenient Truth.*

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 131, 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

8:00–9:00 AM Presentations

SESSION 1 (two presentations)

(Middle Level–College) *1501C, Convention Center*

Collaborating and Sharing Expertise to Teach Ninth-Grade Physics (Phys)

Mark J. Volkmann *(volkmannmj@missouri.edu),* University of Missouri, Columbia

Marsha Tyson *(mtyson@columbia.k12.mo.us),* Oakland Junior High School, Columbia, Mo.

What does collaboration between a ninth-grade physics teacher and a university science education faculty member look like? We'll look at the challenges, successes, and benefits.

Conceptualizing Gravity: It's More Than $F = m(9.8 m/s^2)$ (Phys)

James P. Concannon *(jim.concannon@westminster-mo.edu),* Westminster College, Fulton, Mo.

Use a preassessment to collect students' ideas about gravity, targeting the misconception that heavier objects roll down an inclined plane faster (keeping friction constant)…without introducing formulas or numbers!

SESSION 2

Medical Mysteries: A Free Online Adventure Game That Reinforces the Scientific Method (Bio)

(Middle Level) *2201, Convention Center*

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 emphasize the scientific method and encourage health and science careers? Discover a free website where students use the scientific method to investigate a disease outbreak.

SESSION 3

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

(Elementary–High School) *2502A, Convention Center*

Rita Crocker *(rcrocker@sherwoodk12.net),* Sherwood Middle School, Creighton, Mo.

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

SESSION 4

Teaching Physics Using Modeling Instruction (Phys)

(General) *2503B, Convention Center*

Earl Legleiter *(elegleiter@hotmail.com),* Legleiter Science Consulting, Englewood, Colo.

Paul E. Adams *(padams@fhsu.edu),* Fort Hays State University, Hays, Kans.

Penny Blue *(pblue@usd405.com),* Lyons High School, Lyons, Kans.

Presider: Penny Blue

Participants in the Modeling Instruction Institute (MI2) discuss their experiences using modeling instruction to guide student inquiry and construct in-depth physics content understanding.

SESSION 5

Climate Change Projections Using Online Water Budget Modeling (Env)

(Middle Level–High School) *2505A, Convention Center*

Jayne Jones *(jjones@usd404.org)* and **Cynita R. Jones** *(cjones@usd404.org),* Riverton High School, Riverton, Kans.

Data from the 2007 IPCC (Intergovernmental Panel on Climate Change) report will be accessed to model predicted climate change using the *Web*WIMP online water budget modeling program.

SESSION 6

Using "Clickers" to Guide Instruction in the Science Classroom (Gen)

(Elementary–High School) *3501B, Convention Center*

Kaci A. Heins *(runsemo@hotmail.com),* The Peak School, Flagstaff, Ariz.

"Clicker" assessments can provide instant feedback to students and teachers along with demonstrating how the data can then guide instruction.

SESSION 7

Finding New Levels of Achievement Through Standards-based Grading (Gen)

(Middle Level–High School) *Andy Kirk A&B, Marriott*

Chris R. McGee *(cmcgee200@gmail.com),* Nipher Middle School, Kirkwood, Mo.

Robert Dillon *(rdillon25@gmail.com),* Maplewood Richmond Heights Middle School, St. Louis, Mo.

Transitioning to standards-based grading allowed us to re-examine teaching practices. Students are not just learning more, they are learning longer.

SESSION 8

Is This Your First NSTA Conference? (Gen)

(General) *Count Basie C, Marriott*

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

Get That Textbook Out of My Classroom! How to Integrate Young Adult Literature in the Science Classroom (Gen)

(Elementary–High School) *Julia Lee A&B, Marriott*

Sarah R. Young *(sarahyoung@rowlandhall.org)* and **Mike Roberts** *(mikeroberts@rowlandhall.org),* Rowland Hall Middle School, Salt Lake City, Utah

Move away from textbooks and into the library. Use recent young adult literature to teach physical science skills and content.

SESSION 10

Insider Tips: Resources and Field Trips to Informal Science Centers (Gen)

(General) *Lester Young A, Marriott*

Patricia Friedrichsen *(friedrichsenp@missouri.edu)* and **Heather Worsham** *(hmw7a5@mizzou.edu),* University of Missouri, Columbia

Get resource information and field trip tips from interns at the Science Center (St. Louis), Science City (Kansas City), and Missouri Department of Conservation nature centers.

SESSION 11

Using Toys to Teach Science (Gen)

(Middle Level) *Mary Lou Williams A&B, Marriott*

Deb Ballin *(debballin@hotmail.com),* St. Joseph (Mo.) School District

From quick engaging activities to explorations or elaborations, toys can break the ice and communicate conceptual understanding.

8:00–9:00 AM Workshops

Evolution: Variation, Selection, and Time (Bio)
(Middle Level–High School) 2101, Convention Center
Molly Malone, The 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.*

Ramps and Pathways: A Constructivist Approach to Teaching Early Childhood Physical Science (Phys)
(Preschool–Elementary) 2102A, Convention Center
Betty Zan *(betty.zan@uni.edu),* University of Northern Iowa, Cedar Falls
Experiment with ramps and pathways and learn how to support young children's conceptual understanding about force and motion and inquiry.

Squeezing GLUE-GOO into the National Science Education Standards (Chem)
(Informal Education) 2103C, Convention Center
Lynn Higgins *(lynhiggins@sbcglobal.net),* Polymer Ambassadors, St. Louis, Mo.
Make your own "slime" from grocery store supplies and learn the science behind this popular activity. I will share strategies for extending inquiry into a cooperative physical science project.

Bringing Glaciers into the Classroom (Earth)
(Elementary–Middle Level) 2502B, Convention Center
Gary L. Wesche *(wesche_family@yahoo.com),* St. John Francis Regis School, Kansas City, Mo.
Create an environment to simulate science conducted on the continent of Antarctica. Students participate in project development, grant writing, logistics preparation, travel arrangement (both historical and modern), field preparation, and field work.

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, October 28
8:00–9:00 AM
Marriott Kansas City Downtown
Count Basie C

This session is generously supported by Carolina Biological Supply Company.

CAROLINA
World-Class Support for Science & Math

NSTA National Science Teachers Association

Food Safety/Microbial Activity **(Bio)**
(Middle Level–High School) *2504A&B, Convention Center*
John W. Fedors *(jfedors@wavecable.com),* Science Activities, Lincoln, Calif.
Microbes—necessary (can't live without them); competitors (among themselves and for our food); survivors (they've been around for awhile); and now, their role in genetic engineering.

Environmental Science in a World of Seven Billion **(Env)**
(Middle Level–High School) *2505B, Convention Center*
Norma Neely, Truman State University, Kirksville, Mo.
Discover timely, interdisciplinary, hands-on activities to help students understand the connections between human population growth and a host of environmental challenges. Receive curriculum on CD-ROM.

Metric Week **(Gen)**
(General) *3501C, Convention Center*
Robert B. Shaw *(rshaw@micds.org),* Mary Institute and Saint Louis Country Day School, St. Louis, Mo.
Find out how a week dedicated to the International Standard of Measurement changes student (and adult) perceptions of the modern metric system!

Science Notebooking in 3-D **(Gen)**
(General) *Colonial Ballroom, Muehlebach Tower, Marriott*
Nancy F. Wisker *(sara@dinah.com),* Dinah Zike Academy, San Antonio, Tex.
Take your students' science notebooks to a new dimension with Dinah Zike's 3-D interactive graphic organizers known as Foldables®. Transform notebooks into individualized brain-smart tools.

NASA Education Resources: Going Beyond Space Sciences **(Gen)**
(Elementary) *Count Basie A, Marriott*
Ollie Bogdon *(bogdono@umkc.edu),* University of Missouri–Kansas City
Explore the galaxy of NASA education resources available free to teachers. Receive materials and participate in hands-on activities in the physical and life science strands.

8:00–9:15 AM Exhibitor Workshops

Inquiry in the Classroom **(Gen)**
(Grades 5–8) *2104A, Convention Center*
Sponsor: Pearson
Zipporah Miller, Author, Bowie, Md.
More inquiry in more places. Whether you're a lab-oriented teacher or a textbook-focused teacher, Zipporah Miller will show you a variety of hands-on/minds-on inquiry options to keep all your students engaged.

Introducing Classroom Electrophoresis That Can Be Completed in 30 Minutes **(Bio)**
(Grades 6–College) *2204, Convention Center*
Sponsor: EDVOTEK
Jack Chirikjian *(info@edvotek.com),* EDVOTEK, Bethesda, Md.
EDVOTEK Dye Molecular Biology™ experiments are designed for ANY age group. They include DNA fingerprinting, paternity determination, and gene sizing. Using colorful dyes makes results easy to understand and no staining is needed. Our QuickStrips™ conveniently provide each student group with the required samples and eliminate the need for pre-lab preparation.

Introducing Inquiry Investigations™ Hands-On Inquiry Activities Focusing On Technology **(Gen)**
(Grades 7–10) *2208, 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 for students in grades 7–10. See how technology and inquiry help students understand essential science content. As participant teams work together to construct a working telephone, participants learn about new USB technology (direct to computer data recording) using Datalogger probes.

Experimental Design **(Gen)**
(Grades K–6) *2209, 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.

8:00–9:30 AM Workshop

NSTA Press Session: Tools to Deepen Students' Understanding of Hard-to-Teach Biology Concepts (Bio)

(High School–College/Supervision) *2503A, Convention Center*

Susan B. Koba *(skoba@cox.net),* Science Education Consultant, Omaha, Neb.

Anne L. Tweed *(atweed@mcrel.org),* 2004–2005 NSTA President, and McREL, Denver, Colo.

Learn to use the framework and tools from *Hard-to-Teach Biology Concepts* to enhance lessons on difficult topics and deepen students' biological understandings.

8:00–9:30 AM Exhibitor Workshop

Chemistry and the Atom: Fun with Atom Building Games! (Gen)

(Grades 5–12) *2215A, 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) *2210, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

Jessica Penchos, Lawrence Hall of Science, University of California, Berkeley

Virginia Reid, Consultant, Olympia, Wash.

The FOSS Middle School curriculum will be used to demonstrate the use of science notebooks with students, grades 6–8. Learn how to implement student science notebooks in your classroom to increase student understanding of inquiry and science content and to enhance literacy skills. Sample materials will be distributed.

8:30–11:30 AM Short Course

Wind Energy Science for the Classroom (SC-1)

(Middle Level–High School) *Truman A (Muehlebach), Marriott*

Tickets Required: $40

Joseph Rand *(joe@kidwind.org)* and **Michael Arquin** *(michael@kidwind.org),* KidWind Project, St. Paul, Minn.

For description, see page 34.

9:00–11:00 AM Exhibitor Workshop

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

(Grades 2–5) *2207, Convention Center*

Sponsor: Delta Education/School Specialty Science–Seeds

Traci Wierman, Jen Tilson, Megan Goss, and **Suzy Loper**, 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 Short Course

Process Oriented Guided Inquiry Learning (POGIL) in High School Chemistry and Biology Classrooms (SC-2)

(High School) *Truman B (Muehlebach), Marriott*

Tickets Required: $20

Bruce Wellman *(bwellmanonw@olatheschools.com),* Olathe Northwest High School, Olathe, Kans.)

Susan Richardson, Wichita High School East, Wichita, Kans.

For description, see page 34.

9:15–10:30 AM General Session

Science Education: Conceptual Understanding at an Emotional Level

(General) *3501 E–H, Convention Center*

Jeff Goldstein *(jeffgoldstein@ncesse.org),* Director, National Center for Earth and Space Science Education, Capitol Heights, Md.

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

Platform Guests: Jeff Goldstein; Alan McCormack; Pat Shane, NSTA Retiring President, and The University of North Carolina at Chapel Hill; Patricia Simmons, NSTA President-Elect, and North Carolina State University, Raleigh; Linda Lacy, STOM President, NSTA Director, Coordination & Supervision of Science Teaching, Program Coordinator, NSTA Kansas City Area Conference, and North Kansas City (Mo.) Schools; Carol Williamson, Chairperson, NSTA Kansas City Area Conference, and University of Kansas, Lawrence; Charlotte J. McDonald, Local Arrangements Coordinator, NSTA Kansas City Area Conference, and Education Consultant, Olathe, Kans.; Sharon S. McDonald, KATS President, Mullinville, Kans.; Sally Harms, NSTA Director, District XI, and Wayne State College, Wayne, Neb.; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.

I firmly believe the goal in science education ought to be conceptual understanding at an emotional level. And the pathway to this is a student empowered to own the process of inquiry, to embrace the simple magic of a question like "I wonder what's under that rock?" and to revel in the experience of learning something new. Science is a journey, not just a book of knowledge. A journey filled with rich conceptual experiences by an individual, by a class of students, and even by an entire species of explorers called humans.

Dr. Goldstein is director of the National Center for Earth and Space Science Education (NCESSE), where he is responsible for overseeing the creation and delivery of national science education initiatives with a focus on Earth and space. These include programs for schools, families, and the public; professional development for grades K–12 educators; and exhibitions for museums and science centers. As NCESSE director, Goldstein oversees the Voyage National Program. He led the inter-organizational team that permanently installed the Voyage Model Solar System on the National Mall in Washington, D.C.

10:00–11:15 AM Exhibitor Workshops

Flinn Scientific Presents Best Practices for Teaching Chemistry™: Experiments and Demonstrations (Chem)

(Grades 9–12) *2103A, Convention Center*

Sponsor: Flinn Scientific, Inc.

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

Join us as we present exciting and interactive demonstrations, show video clips, and demonstrate the features and benefits of our new comprehensive Teaching Chemistry professional development program. Imagine the opportunity to learn best practices from 20 award-winning master teachers as they carry out their favorite experiments, demonstrations, and chemistry lab activities.

It's Here! The All-new Pearson *Chemistry* ©2012 (Chem)

(Grades 9–12) *2104A, 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.

Using Modern Molecular Modeling Techniques in Middle and High School Science Classrooms (Chem)

(Grades 7–College) *2203, Convention Center*

Sponsor: Wavefunction, Inc.

Jurgen Schnitker *(sales@wavefun.com),* Wavefunction, Inc., Irvine, Calif.

Modeling and simulation with state-of-the-art software provide a very effective way to convey the molecular concepts of physical science and chemistry. Join us for this hands-on workshop and learn how to take advantage of powerful 3-D visualization in classroom demonstrations and student labs.

How to Establish and Fund a Biotech Program (Bio)

(Grades 6–College) *2204, Convention Center*

Sponsor: EDVOTEK

Jack Chirikjian *(info@edvotek.com),* EDVOTEK, Bethesda, Md.

Starting a biotechnology program in high schools and colleges and obtaining funding doesn't have to be challenging. We'll discuss how to write a fundable grant application and how to purchase the best educational biologics and equipment for the least cost. A list of funding sources will be provided.

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

(Grades 9–12) *2206, 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!

Inquiry Investigations™ Forensics Science Curriculum Module and Kits (Gen)

(Grades 7–10) *2208, Convention Center*

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Wassau County Public Schools, Reno, Nev.

Using our new Inquiry Investigations forensic series with more than 55 activities, students learn foundational analysis skills that help them solve multifaceted cases. See how program software allows the preparation of web-based content, along with individualized assessment. Participants will perform skill-based investigative techniques and case investigations, and receive a program resource CD and correlations.

Introducing the Delta Science Module Program (Gen)

(Grades K–8) *2209, 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.

10:00–11:30 AM Exhibitor Workshop

Genetics: Crazy Traits and Adaptation Survivor (Gen)

(Grades 5–12) *2215A, 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.

11:00–11:05 AM Exhibits Opening/Ribbon Cutting Ceremony

NSTA Exhibits Entrance, Hall B, Convention Center

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

Welcoming Remarks: Carol Williamson, Chairperson, NSTA Kansas City Area Conference, and University of Kansas, Lawrence

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; Linda Lacy, STOM President, NSTA Director, Coordination & Supervision of Science Teaching, Program Coordinator, NSTA Kansas City Area Conference, and North Kansas City (Mo.) Schools; Charlotte J. McDonald, Local Arrangements Coordinator, NSTA Kansas City Area Conference, and Education Consultant, Olathe, Kans.; Sharon S. McDonald, KATS President, Mullinville, Kans.; Sally Harms, NSTA Director, District XI, and Wayne State College, Wayne, Neb.; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Rick Smith, NSTA Managing Director, Advertising, Exhibits, and Workshops, Arlington, Va.

Musical Entertainment: Liberty Strolling Strings, Liberty High School, Liberty, Mo., under the direction of Mary Lou Jones

11:00 AM–1:30 PM Exhibitor Workshop

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

(Grades 5–8) *2210, 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 in with FOSS Planetary Science 2011. This sneak preview will highlight new features and strategies incorporated into the course.

11:05 AM–5:00 PM Exhibits

Hall B, Convention Center

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

11:30 AM–1:30 PM Exhibitor Workshop

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

(Grades 2–5) *2207, 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) *2208, 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 Exhibitor Workshop

CPO SmartTrack with Velocity Sensor and Energy Car (Gen)

(Grades 5–12) *2215A, 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

Seeing the Light: Images and Pinhole Viewers (Phys)

(Elementary–Middle Level) *2102A, Convention Center*

John F. Wiegers *(wiegers@wustl.edu)* and **Patrick C. Gibbons** *(pcg@wuphys.wustl.edu),* Washington University in St. Louis, Mo.

Ann P. McMahon *(annpmcmahon@gmail.com),* University of Missouri–St. Louis

Using 5E lessons on light bulbs and pinhole viewers, transform factual knowledge into conceptual understandings, create a ray model of light, and explain images and observations.

SESSION 2

Teaching Chemistry Using Modeling Instruction (Chem)

(Middle Level–College) *2102B, Convention Center*

Earl Legleiter *(elegleiter@hotmail.com),* Legleiter Science Consulting, Englewood, Colo.

Learn about a chemistry teacher's experiences using modeling instruction, a curriculum design in which students use guided inquiry to construct in-depth science content understanding in a student-centered environment.

SESSION 3

Building High School/College Partnerships (Bio)

(High School–College) *2201, Convention Center*

Julie A. Cook *(julie.cook@jcps.k12.mo.us),* Jefferson City High School, Jefferson City, Mo.

Elizabeth Bryda, University of Missouri, Columbia

Many grant-funded programs focus on building partnerships between high school teachers and college-level faculty.

SESSION 4

Rated MPG for Confusion: Using Gas Mileage to Learn Data Analysis Skills (Env)

(Middle Level–College) *2505A, Convention Center*

Claudia J. Bode *(bode@ku.edu),* University of Kansas, Lawrence

Alan Gleue *(agleue@usd497.org),* Lawrence High School, Lawrence, Kans.

Use real-world miles-per-gallon (MPG) ratings to teach students how to analyze graphs and transform data.

SESSION 5

The Science of Bread Making (Gen)

(Elementary–High School) *Andy Kirk A&B, Marriott*

Vaughn Williams *(vk5williams@sbcglobal.net),* The Winston School, Dallas, Tex.

Bread is a natural polymer. Come investigate bread making as an activity to understand polymer science.

SESSION 6

Get SIMulated! (Gen)

(Elementary–High School) *Colonial Blrm. (Muehlebach), Marriott*

Diane L. Kasparie, Quincy Notre Dame High School, Quincy, Ill.

Online science simulations are research-proven, student-centered, relevant tools that empower great teaching and active learning and are aligned to state and national standards.

SESSION 7

NSELA Session: Tools and Ideas for Leaders (Gen)

(General) *Julia Lee A&B, Marriott*

Janey Kaufmann, NSELA President, Scottsdale, Ariz.

Susan B. Koba *(skoba@cox.net),* Science Education Consultant, Omaha, Neb.

Brenda Wojnowski *(bwojnowski@gmail.com),* Wojnowski and Associates, Inc., Dallas, Tex.

Meet with National Science Education Leadership Association leaders as we trade tips, tools, and tactics that enhance the work of science leaders.

SESSION 8

Before and After Retirement: Practicalities and Possibilities (Gen)

(General) *Lester Young A, Marriott*

Howard Wahlberg *(hwahlberg@nsta.org),* Assistant Executive Director, Member, Chapter, and Customer Relations, NSTA, Arlington, 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 9

"Literacy" *vs.* "literacy"—What's the Difference? (Gen)

(General) *Mary Lou Williams A&B, Marriott*

Rae McEntyre *(rae.mcentyre@education.ky.gov),* Kentucky Dept. of Education, Frankfort

Professionals say science literacy is content; educators say it's reading. Learn how these two meanings are connected and how instruction can be influenced.

12:30–1:30 PM Workshops

Spark Timers, Glue, and Scissors to Study Motion (Phys)

(High School–College) *1501C, Convention Center*

Meera Chandrasekhar *(meerac@missouri.edu),* and **Dorina Kosztin**, University of Missouri, Columbia

Cut and glue spark-timer tape to produce position-time and velocity-time graphs of uniform and accelerated motion and correlate to motion diagrams. Handouts!

Amazing Things Cells Can Do (Bio)

(Middle Level–High School) *2101, Convention Center*

Molly Malone, The 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. Free activities at *http://learn.genetics.utah.edu.*

Polymerically Perfect Sodas: Teaching the Science and Technology of Plastics (Chem)

(Middle Level–High School/Informal) *2103C, Convention Center*

Lynn Higgins *(lynhiggins@sbcglobal.net),* Polymer Ambassadors, St. Louis, Mo.

Make plastic "sodas" using eight plastics (synthetic polymers) made by eight processes. Learn how plastics are made and manufactured. Free materials and lesson plans.

MoonKAM: Exploring Lunar Images (Earth)

(Middle Level) *2502A, Convention Center*

Leesa Hubbard *(leesa@sallyridescience.com),* Sally Ride Science, San Diego, Calif.

Julie Miller *(jmillerirc@olatheschools.com),* Olathe (Kans.) District Schools

Learn about the exciting GRAIL mission to the Moon and how students can take pictures with MoonKAM cameras. Teach using imagery from the lunar surface!

Activities from Across the Earth System (Earth)

(Elementary–High School) *2502B, Convention Center*

Becca Hatheway, University Corporation for Atmospheric Research, Boulder, Colo.

Roberta M. Johnson *(rmjohnsn@gmail.com),* 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 provided!

NSTA Press Session: So You Want New Science Facilities? (Science Facilities 101) (Gen)

(Supervision/Administration) *2503A, Convention Center*

LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Oakland County Schools, Waterford, Mich.

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

Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos

James T. Biehle *(biehlej@sbcglobal.net),* Inside/Out Architecture, Inc., Kirkwood, Mo.

Presider: LaMoine L. Motz

Do your science facilities define your curriculum or the other way around? In more than 15 years of conducting visits to new and newly renovated school science facilities, we have discovered that the best science facilities can not only define but also restrict the curriculum. Join the authors of *NSTA Guide to Planning School Science Facilities* (2nd ed.) 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.

Science and Math Lessons for the Biological Sciences **(Bio)**
(Middle Level) *2504A&B, Convention Center*
Elizabeth O'Day *(boday@hallsville.org),* Hallsville Intermediate School, Hallsville, Mo.
Susan German *(sgerman@hallsville.org),* Hallsville Middle School, Hallsville, Mo.
Learn how simple materials, formative assessments, and inquiry starters can be used to integrate math and science. Tips for differentiation will also be included.

Teaching Environmental Awareness Through Geocaching **(Env)**
(General) *2505B, Convention Center*
Kathleen A. O'Brien, Derby High School, Derby, Kans.
Use GPS devices and geocaching to teach students of all ages to appreciate and understand the environment. I'll show you how.

Creating Effective Science Literacy Assessments **(Gen)**
(High School) *3501B, Convention Center*
Cathy Farrar *(farrarcat@gmail.com),* University of Missouri–St. Louis
Use transfer tasks to assess science literacy skills.

Engineering Modeling **(Phys)**
(Elementary–High School) *3501C, Convention Center*
Paul M. Rutherford *(paul.rutherford@leesummit.k12.mo.us),* Summit Technology Academy, Lee's Summit, Mo.
Using scale models of airplanes, students learn the applications of scaling using ratios and proportions. Model airplanes, calculators, and other equipment will be provided for attendees.

Use a Three-Prong Approach to Develop Conceptual Understanding **(Gen)**
(General) *3501D, Convention Center*
Karen L. Ostlund *(klostlund@mail.utexas.edu),* The University of Texas at Austin
Learn how to develop conceptual understanding with hands-on activities, reading strategies, and continuous assessment.

Modeling the Spectrum **(Gen)**
(Middle Level–High School) *Count Basie A, Marriott*
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 to examine the electromagnetic spectrum.

12:30–1:45 PM Exhibitor Workshops

The Next Generation of Science Virtual Labs—No Cleanup Required **(Gen)**
(Grades 9–12) *2104A, 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 class next week.

Effective STEM Challenges for the Classroom **(Gen)**
(Grades K–8) *2104B, Convention Center*
Sponsor: Houghton Mifflin Harcourt
Michael DiSpezio, Science Writer and Educational Consultant, North Falmouth, Mass.
Join Michael DiSpezio for this high-energy, entertaining, and engaging workshop that explores effective and realistic STEM construction challenges. See how a bit of guidance can direct student experience toward addressing specific content standards in science and mathematics. You'll be challenged to engineer and test models of air bag–cushioned Mars landers. Come join in the engineering fun and leave with new and exciting ideas for the classroom.

The Sky Through the Ages (Earth)
(Grades 5–12) *2204, Convention Center*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(hkoller@simcur.com),* Simulation Curriculum Corp., Aurora, Ont., Canada
When our ancestors looked up at the night sky, what did they see and how did they explain what they saw? Where are Earth and its constellation headed? What will the sky look like in 2012? Join us on the big screen as we use the Starry Night curriculum to recreate the night skies at different times throughout history.

Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (Bio)
(Grades 6–12) *2206, 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!

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) *2209, 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.

2:00–3:00 PM Featured Presentation

Science Education Partnerships: Lessons from the K-State Olathe Innovation Campus (Gen)
(General) *2105, Convention Center*

Lisa C. Freeman *(lfreeman1@niu.edu),* Professor of Biology and Vice President for Research and Graduate Studies, Northern Illinois University, DeKalb

Presider: David Beier, Program Committee, NSTA Kansas City Area Conference, and The Barstow School, Kansas City, Mo.

Partnerships involving university scientists, school district administrators, and teachers can enhance student experiences by increasing the scientific resources available to teachers and students and by exposing students to science as it is practiced in modern research laboratories. These collaborations can also have positive impacts on participating scientists, who become more adept at communicating their knowledge to nontechnical audiences. However, despite their obvious benefits, science education partnerships can be difficult to create, implement, and sustain because of resource limitations and because of the disparate cultures associated with the scientific research and pre-college education communities. This presentation will focus on strategies intended to overcome these challenges and thereby foster vital connections. Key contributors to this presentation include Randy Dix, Gretchen Sherk, Kristopher Silver, Carol Williamson, and Teresa M. Woods.

Lisa C. Freeman, DVM, PhD, has focused her academic career on bringing people and resources together to solve complex problems. Freeman joined Northern Illinois University in July 2010 as vice president for Research and Graduate Studies and a professor of biology. Previously, Freeman spent 15 years at Kansas State University (K-State), where she taught courses in pharmacology and in the responsible conduct of research. Her positions at K-State included director of Mentored Training and, most recently, associate vice president for Innovation for the K-State Olathe Innovation Campus. As the associate vice president for Innovation, Freeman was responsible for building public-private partnerships relevant to teaching, research, and outreach activities.

2:00–3:00 PM Presentations

SESSION 1

Corrosion Is Everywhere: Use It to Make Chemistry Relevant and Fun (Chem)

(High School) *2103C, Convention Center*

Debbie Goodwin *(nywin@hotmail.com),* Chillicothe High School, Chillicothe, Mo.

Use corrosion to teach practical applications of chemistry concepts. Make reactivity, oxidation/reduction, solution chemistry, and corrosion prevention contextual and exciting using inquiry-based labs. Handouts.

SESSION 2 (two presentations)

(High School) *2201, Convention Center*

Learning Through the Rhythm of Science (Bio)

Maegan N. Buzzetta, Therese Miller, and **James P. Concannon** *(jim.concannon@westminster-mo.edu),* Westminster College, Fulton, Mo.

In this lesson, high school students reinforce their understanding of protein synthesis in an assessment involving elements of movement. The lesson was designed using the 5E (Engage, Explore, Explain, Elaborate, and Evaluate) model of instruction.

Independent Assortment and Meiosis (Bio)

Anjali D. Gray *(agray@lourdes.edu),* Lourdes College, Sylvania, Ohio

Explore a novel way to teach independent assortment using an unusual model system. See production of a variety of gametes and offspring.

SESSION 3

Earth Science: Can You Dig It? (Earth)

(Middle Level) *2502B, Convention Center*

Deb Ballin *(debballin@hotmail.com),* St. Joseph (Mo.) School District

Here is a complete classroom-ready Earth science unit. Lessons can be used alone or as part of the 5E Learning Cycle. All support materials are included.

SESSION 4

Impact of Standards-based Grading on Student Learning (Gen)

(Middle Level–High School) *3501B, Convention Center*

Chris R. McGee *(cmcgee200@gmail.com),* Nipher Middle School, Kirkwood, Mo.

Kevin Manwaring *(kevin.manwaring@kirkwoodschools.org),* North Kirkwood Middle School, Kirkwood, Mo.

Thrive in a standards-based environment! We'll show you how.

SESSION 5

Science Showcase Night: More Than Your Average Fair (Gen)

(Elementary–Middle Level) *Andy Kirk A&B, Marriott*

Barb E. McMahill *(bmcmahill@fortosage.net),* **Ruth Skaggs, Vicki B. Dike** *(vdike@fortosage.net),* and **April M. Agate** *(aagate@fortosage.net),* Fort Osage School District, Independence, Mo.

Presider: Carrie Reich, Fort Osage School District, Independence, Mo.

Traditional science fair too challenging? Want to differentiate to meet all your students' needs? Incorporate a schoolwide science night into your curriculum.

SESSION 6

Engaging Students, Developing Science Knowledge, and Teaching Science Literacy Skills with Quality Nonfiction Science Books (Gen)

(General) *Colonial Blrm. (Muehlebach), Marriott*

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

Explore the advantages of using nonfiction science trade books to teach science literacy skills while helping students build essential science knowledge and conceptual understanding. Handouts.

SESSION 7

CESI Session: Get the Scoop: A Wealth of Resources for the K–8 Teacher (Gen)

(Preschool–Middle Level) *Count Basie C, Marriott*

Barbara Z. Tharp *(btharp@bcm.edu),* Baylor College of Medicine, Houston, Tex.

Quality science lessons, informative publications, conferences you can't afford to miss, opportunities in your state, and more! Join us and share your expertise.

SESSION 8

NSELA Session: NSELA Working Groups—Network with Science Education Leaders (Gen)

(General) *Julia Lee A&B, Marriott*

Janey Kaufmann *(janeykaufmann@msn.com),* NSELA President, Scottsdale, Ariz.

Susan B. Koba *(skoba@cox.net),* Science Education Consultant, Omaha, Neb.

Brenda Wojnowski *(bwojnowski@gmail.com),* Wojnowski and Associates, Inc., Dallas, Tex.

NSELA's Working Groups provide members with an avenue to pursue an area of interest in science education.

SESSION 9

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

(General) *Lester Young A, Marriott*

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 10 (two presentations)

(General) *Mary Lou Williams A&B, Marriott*

Making the Real-World Connection to Science (Gen)

Cynthia Kramer, SCOPE, St. Louis, Mo.

Deendayal Dinakarpandian *(dinakard@umkc.edu),* University of Missouri–Kansas City

Partners from industry, universities, and NSF projects can help your students connect their learning with real-world opportunities.

Using and Creating Geotagged Media (Gen)

Greg Smith *(smithg@usd231.com),* Wheatridge Middle School, Gardner, Kans.

Thomas R. Baker *(tbaker@esri.com),* Environmental Systems Research Institute, Kansas City, Kans.

Alexis H. Denny *(alexisdenny@girlscoutsksmo.org),* Girl Scouts of NE Kansas and NW Missouri, Kansas City, Mo.

Geotagging is an engaging way for students to discover how biological and geological phenomena vary across geography. Learn to use and create geotagged media.

Starting an NSTA Student Chapter:

Faculty & Student Perspectives

Thursday
October 28
2:00–3:00 PM
Marriott Kansas City Downtown
Lester Young A

Interested in getting your preservice teachers more involved in the profession? You won't want to 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.

National Science Teachers Association NSTA

2:00–3:00 PM Workshops

What's Under the Curve? (Phys)
(High School–College) *1501C, Convention Center*
Dorina Kosztin *(kosztind@missouri.edu)* and **Meera Chandrasekhar** *(meerac@missouri.edu),* University of Missouri, Columbia
We will use mathematical concepts of area under the curve to investigate concepts such as displacement in uniform and accelerated motion and work done by constant and variable forces.

Epigenetics—Beyond the Central Dogma (Bio)
(High School) *2101, Convention Center*
Molly Malone, The University of Utah, Salt Lake City
The environment interacts with the epigenome to control gene expression. Interactive activities explore epigenetics and how it confounds conventional notions of inheritance. Free materials at *http://learn.genetics.utah.edu.*

Paperless Integrated Math and Science Instruction (Gen)
(Middle Level–High School) *2102A, Convention Center*
Greg Dodd *(gbdodd@gmail.com),* George Washington High School, Charleston, W.Va.
Integrate math and science instruction in this "green" hands-on workshop. Technology enables paperless data collection and analysis in the 21st-century classroom.

Inquiry Matters: Incorporating Inquiry into Elementary and Middle School Physical Science (Chem)
(Elementary–Middle Level) *2102B, Convention Center*
Patti M. Galvan, American Chemical Society, Washington, D.C.
Explore characteristic physical properties of four similar-looking household liquids and, as a final challenge, identify four unknowns. A handout of all activities will be provided.

STEM in Action: The Bridge to the Real World (Earth)
(Elementary–High School) *2502A, Convention Center*
Barry Fried *(bfried@schools.nyc.gov)* and **Honora Dash** *(hdash@schools.nyc.gov),* John Dewey High School, Brooklyn, N.Y.
CANCELED
Instructional technology helps engage students in the learning process by providing authentic science experiences through design projects, competitions, and live-data analysis to make relevant science connections to the real world.

NSTA Press Session: The Architects Have Started Without Me! What Do I Do Now? (Science Facilities 102) (Gen)
(General) *2503A, Convention Center*
LaMoine L. Motz *(llmotz@comcast.net),* 1988–1989 NSTA President, and Oakland County Schools, Waterford, Mich.
Juliana Texley *(jtexley@att.net),* Palm Beach State College, Boca Raton, Fla.
Sandra West Moody *(sw04@txstate.edu),* Texas State University, San Marcos
James T. Biehle *(biehlej@sbcglobal.net),* Inside/Out Architecture, Inc., Kirkwood, Mo.
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 ed.) will present detailed information and examples of functional and flexible science facilities for project-based inquiry science. We'll examine budgeting, working with an architect, space requirements, technology, flexibility, safety, new types of spaces, and special adjacencies.

Simulating Population Growth with Bingo Chips (Bio)
(High School–College) *2504A&B, Convention Center*
Jennifer L. Poulton *(poulton@graceland.edu),* Graceland University, Lamoni, Iowa
Explore exponential and logistic population growth in a simulation. Plastic bingo chips, dice, and graph paper are the only materials required for this hands-on activity.

Climate Change: Classroom Tools to Explore the Past, Present, and Future (Env)
(Middle Level–High School/Informal) *2505B, Convention Center*
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
Explore the scientific foundations of what we know about climate change through hands-on and data-rich classroom activities. Handouts.

What the Heck Is a Lab Journal? (Student-generated Legal Scientific Documentation) (Bio)
(Middle Level–High School) 3501C, Convention Center
Brenda Bott *(brendabott@smsd.org)* and **Nick Adams,** Shawnee Mission West High School, Overland Park, Kans.
Use legal documentation to set up your own lab journal, complete a lab activity, and then document the activity in the journal. We'll provide tips for successful journal writing, including a rubric.

✔ **Science + Writing + Learning (Gen)**
(Elementary–Middle Level) 3501D, Convention Center
Julie A. Alexander *(jualexan@columbia.k12.mo.us)* and **Ragan Webb** *(rwebb@columbia.k12.mo.us),* Columbia (Mo.) Public Schools
Learn to implement science notebooks in your classrooms. Notebook components, math integration, supporting data, and assessments will be addressed using student examples.

The Station Approach: Using Learning Centers to Teach with Limited Resources (Gen)
(Middle Level–High School) Count Basie A, Marriott
Denise Jaques Jones *(jonesdenise@rockwood.k12.mo.us)* and **Sarah Harashe** *(harashesarah@rockwood.k12.mo.us),* LaSalle Springs Middle School, Wildwood, Mo.
Presider: Denise Jaques Jones
Make planning simpler by moving small groups of students through a series of centers or stations, allowing you to use limited resources and differentiate instruction.

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) 2208, 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, including 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) 2215A, 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.

2:00–4:00 PM NSTA ESP Symposium I

NSTA Exemplary Science Programs (ESP)…Meeting the Reform Features from the National Science Education Standards (Gen)

(General) *2503B, Convention Center*

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 Barbara S. Spector* (spector2@usf.edu), *University of South Florida, Tampa*

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.

Sowing the Seeds of Future Success (from ESP #6)

Craig Wilson *(cwilson@science.tamu.edu)* and **Timothy Scott** *(tim@science.tamu.edu),* Texas A&M University, College Station

Developing Inquiry Skills (from ESP #6)

Kevin Finson *(finson@bumail.bradley.edu),* Bradley University, Peoria, Ill.

Community of Excellence (from ESP #4)

Susan B. Koba *(skoba@cox.net),* Science Education Consultant, Omaha, Neb.

Modeling: Changes in Instruction (from ESP #3)

Earl Legleiter *(egleiter@hotmail.com),* Legleiter Science Consulting, Englewood, Colo.

2:00–4:30 PM Short Course

✔ **Strategies for Teaching and Assessing the Nature of Science (SC-3)**

(K–20) *Truman A (Muehlebach), Marriott*

Tickets Required: $20

Deborah Hanuscin *(hanuscind@missouri.edu),* **Ya-Wen Cheng** *(yck86@mail.mizzou.edu),* **Jennifer Lacy** *(jelr4c@mail.mizzou.edu),* **Deepika Menon** *(dm2qc@mail.mizzou.edu),* **Dominike Merle** *(dmk99@mail.mizzou.edu),* **Tina Roberts** *(robertsti@missouri.edu),* **Emily Walter** *(emily.walter@mail.mizzou.edu),* **Andrew West** *(westab@mail.mizzou.edu),* and **Steve Witzig** *(sbwitzig@mail.mizzou.edu),* University of Missouri, Columbia

For description, see page 34.

2:15–3:30 PM Exhibitor Workshops

Hands-On Integrated Science Activities for Middle School (Gen)

(Grades 6–8) *2103A, Convention Center*

Sponsor: Flinn Scientific, Inc.

Janet Hoekenga, Flinn Scientific, Inc., Batavia, Ill.

Hands-on science leads to minds-on learning! Flinn Scientific presents relevant and age-appropriate activities for middle school that integrate life, Earth, and physical science topics. We'll perform and observe experiments designed to capture the curiosity and engage the energy of adolescent students. Handouts provided for all activities.

If You Teach AP Chemistry, You Gotta Get This! (Chem)

(Grades 9–12) *2104A, 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.

Bringing Biology to Life **(Bio)**

(Grades 9–12) *2104B, 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!

Living by Chemistry: What Shape Is That Smell? **(Chem)**

(Grades 9–12) *2203, 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.

The Layered Earth **(Earth)**

(Grades 5–12) *2204, Convention Center*

Sponsor: Simulation Curriculum Corp.

Herb Koller *(hkoller@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!

Introduction to Wisconsin Fast Plants® **(Bio)**

(Grades K–12) *2206, 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.

2:30–4:30 PM Exhibitor Workshop

Using Science Notebooks with FOSS K–6 (Gen)
(Grades K–6) *2210, 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) *2209, 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 effective questioning through a lens of "Bloomish" taxonomy and we'll 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
ASTE Session: Professional Development Materials to Teach Scientific Argumentation in Middle School Science (Gen)
(Middle Level) *Julia Lee A&B, Marriott*
Jim Ellis *(jdellis@ku.edu),* The University of Kansas, Lawrence
Learn about an NSF-supported project that is developing teacher education materials to enhance student scientific argumentation.

3:30–4:30 PM Presentations

SESSION 1
Free Planetarium Simulators and Lessons (Earth)
(Informal Education) *2502A, Convention Center*
Don Loving *(wallcloud2001@yahoo.com),* Murray State College, Tishomingo, Okla.
Get instructions and complete lessons for several free planetarium simulators. These programs are easy to learn and can be used to teach 20 concepts in astronomy.

SESSION 2
NSTA Press Session: Take a Walk on the Safe Side (Gen)
(General) *2503A, Convention Center*
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 inexpensive fixes.

SESSION 3
How Healthy Is Our Water? (Env)
(General) *2505A, Convention Center*
Kate Delehunt *(kdelehunt@brwa.net),* Blue River Watershed Association, Kansas City, Mo.
Jan Alderson *(standupscience@sbcglobal.net),* Shawnee Mission South High School, Overland Park, Kans.
Charlotte J. McDonald *(cmcdonald54@comcast.net),* Local Arrangements Coordinator, NSTA Kansas City Area Conference, and Education Consultant, Olathe, Kans.
Gary L. Wesche *(wesche_family@yahoo.com),* St. John Francis Regis School, Kansas City, Mo.
Presider: Joan Leavens, One Health Kansas at Kansas State University, Olathe
Learn how the Blue River Watershed Association provides water testing instruction, stream cleanup projects, macroinvertebrate lessons, rain garden construction, and data analysis for students, teachers, schools, and the community.

SESSION 4

✔ **To the MACS: Mastering the Art of Communication in Science (Gen)**

(Middle Level) *3501D, Convention Center*

Carla J. Johnson *(carla.johnson@sjsd.k12.mo.us)* and **Terri L. Johnson** *(terri.science@gmail.com),* Bode Middle School, St. Joseph, Mo.

Transport students beyond the inquiry-based science classroom and into the 21st-century digital world of science investigations as they learn to communicate as budding scientists.

SESSION 5

Ready, Set, Read! Teaching Science Through Trade Books (Gen)

(Elementary) *Andy Kirk A&B, Marriott*

Pyper Reynolds, Haley Woods, Jessica Schmitz, Samantha Whorton, and **Jaclyn Malke,** University of Missouri, Columbia

Effectively integrate literature into 5E learning cycle lessons by adapting trade books.

SESSION 6

Taking Science on the Road: The MySci™ Story (Gen)

(Elementary) *Colonial Ballroom (Muehlebach Tower), Marriott*

Hurlie Cozart *(hcozart@slsc.org),* **Tanya Cross** *(tcross@slsc.org),* **Skyler Wiseman** *(sharmann@slsc.org),* and **Steve Kessel** *(skessel@slsc.org),* Washington University in St. Louis, Mo.

Learn about MySci, a K–2 mobile science outreach program and an innovative partnership among Monsanto, Washington University in St. Louis, and three informal science institutions.

SESSION 7

Keeping Up with the Kids: Cool Ways to Use Technology in the Science Classroom (Gen)

(General) *Mary Lou Williams A&B, Marriott*

Hillary A. Enloe *(henloe@mc-wildcats.org),* Montgomery County R-II High School, Montgomery City, Mo.

Heather Worsham *(hmw7a5@mizzou.edu),* University of Missouri, Columbia

Want to integrate 2010 technologies into your science classroom? Two science teachers discuss how they have used wikis, flip cameras, smartphones, Twitter, and Google Wave.

3:30–4:30 PM Workshops

Modeling to Promote Science Learning (Phys)

(General) *1501C, Convention Center*

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

Come get some practical modeling activities in force and motion concepts.

Wind Energy Science for the Classroom (Phys)

(Informal Education) *2101, Convention Center*

Joseph Rand *(joe@kidwind.org),* KidWind Project, St. Paul, Minn.

These engaging, hands-on, standards-based lessons bring wind energy science into the classroom.

Activities That Connect the Science You Teach to Your School's Math Curriculum (Phys)

(Elementary–Middle Level) *2102A, Convention Center*

Ollie Bogdon *(bogdono@umkc.edu)*, University of Missouri–Kansas City

Engage in four hands-on activities that can be used in both math and science curricula and address state and national standards in math as well as Earth and physical sciences.

NanoTeach: Helping Students Understand Nanoscience (Chem)

(High School) *2102B, Convention Center*

Anne L. Tweed *(atweed@mcrel.org),* 2004–2005 NSTA President, and McREL, Denver, Colo.

Whitney H. Cobb *(wcobb@mcrel.org),* McREL, Denver, Colo.

How can we help secondary students develop conceptual understanding of nanoscale science? Learn about an approach that connects the characteristics of effective science instruction with nanoscale science content.

Polymers: New Twists on Old Favorites (Chem)
(Middle Level–High School) 2103C, Convention Center
Debbie Goodwin *(nywin@hotmail.com),* Chillicothe High School, Chillicothe, Mo.
Enhance and deepen science and math concepts taught in traditionally "fun" polymer labs. Add more scientific processes to make them inquiry based. Complete handouts.

Temperature and Weather (Earth)
(Elementary) 2502B, Convention Center
Susan Graves *(jgraves2@sbcglobal.net),* Riverside Leadership Magnet School, Wichita, Kans.
I'll share ideas and construction for teaching temperature and weather with integrations to other curricular areas.

Recess and Story Time for DNA and Protein Synthesis (Bio)
(High School–College) 2504A&B, Convention Center
Carol A. Robertson *(carol_robertson@fulton.k12.mo.us),* Fulton High School, Fulton, Mo.
Engage students with models and kinesthetic activities and involve them in acting out stories teaching DNA structure, DNA replication, and protein synthesis.

Tackling the Global Warming Challenge in a Rapidly Changing World (Env)
(Middle Level–High School/Informal) 2505B, Convention Center
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
How is Earth changing as climate warms? Can we stop it? Can we adapt? Help students develop critical-thinking skills, science understanding, and global warming solutions. Handouts!

Improving Assessments, Increasing Rigor (Bio)
(High School) 3501B, Convention Center
Cathy Farrar *(farrarcat@gmail.com),* University of Missouri–St. Louis
Cherron White *(cherronwhite1987@gmail.com),* Normandy High School, St. Louis, Mo.
Learn strategies to improve science assessments by incorporating transfer tasks and reworking questions to increase the DOK level.

Real-World Environmental Education Through Community Partnerships (Env)
(Middle Level–High School) 3501C, Convention Center
Sarah Holmes *(sholmes@barstowschool.org)* and **Caroline Kill** *(ckill@barstowschool.org),* The Barstow School, Kansas City, Mo.
Practice water quality testing while learning how to secure community partnerships in environmental education.

PD Providers Boot Camp: Learning the Basics (Gen)
(General) Count Basie A, Marriott
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
Join the NSTA Professional Development Committee to explore strategies and skills associated with conducting PD presentations.

Teaching Energy Sources to Younger Students (Gen)
(Preschool–Elementary) Count Basie C, Marriott
Rebecca Lamb *(rlamb@need.org),* The NEED Project, Manassas, Va.
Explore the advantages and disadvantages of our nation's 10 sources of energy using innovative, grade-appropriate activities that engage all learning types.

4:00–5:15 PM Exhibitor Workshops

What's at the Heart of Science Teaching? Inquiry, Evidence, and Thinking (Gen)

(Grades 5–8) *2104A, 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.

ScholAR Chemistry In-the-Bag Inquiry (Chem)

(Grades 6–12) *2204, 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.

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

(Grades 9–12) *2206, 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.

Inquiry Investigations™ Biotechnology Activities with E-Gels® (Gen)
(Grades 7–10) *2208, 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.

4:00–5:30 PM Exhibitor Workshop

Gas Laws Kit: Chemistry and the DataCollector—Charles and Boyle's Laws Uncovered (Gen)
(Grades 5–12) *2215A, 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.

4:30–5:30 PM NSTA ESP Symposium II

NSTA Exemplary Science Programs (ESP)…Meeting the Reform Features from the National Science Education Standards (Gen)
(General) *2503B, Convention Center*

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 Susan B. Koba* (skoba@cox.net), *Science Education Consultant, Omaha, Neb.*

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.

"Who Ate Our Corn?" (from ESP #7)

Craig Wilson *(cwilson@science.tamu.edu)* and **Timothy Scott** *(tim@science.tamu.edu),* Texas A&M University, College Station

Developing Expertise in Project-based Science (from ESP #7)

Gail Dickinson *(dickinson@txstate.edu),* Texas State University, San Marcos

"Hey! What're Ya Thinkin"? (from ESP #4)

Barbara S. Spector *(spector2@usf.edu),* University of South Florida, Tampa

5:00–5:30 PM Presentations

SESSION 1

Empowering Young Minds Through LEGO® Robotics (Phys)

(Middle Level) *2102A, Convention Center*

Josephine D. Reno *(pigletreno@yahoo.com),* Central Middle School, Kansas City, Kans.

Barbara Green *(bagreen@kckps.org),* Coronado Middle School, Kansas City, Kans.

LEGO Robotics provides a unique and stimulating experience in which students learn the value of teamwork and explore real-world problems that face scientists and engineers today.

SESSION 2

Students' Inquiries About the Ideal Gas Law (Chem)

(Middle Level–High School) *3501C, Convention Center*

Lyndsey Bittle *(lbittle.13@westminster-mo.edu)* and **James P. Concannon** *(jim.concannon@westminster-mo.edu),* Westminster College, Fulton, Ill.

Many people have the misconception that a vacuum "sucks" air. Here are some ways students can explore vacuums using simple, everyday materials.

5:00–6:00 PM Presentations

SESSION 1

Basic Polymer Chemistry for the High School Classroom (Chem)

(High School) *2103C, Convention Center*

Debbie Goodwin *(nywin@hotmail.com),* Chillicothe High School, Chillicothe, Mo.

Simple demonstrations, labs, and activities bring polymers into the curriculum and make it relevant. Concepts include formation, classification, structure, and properties. Handouts provided.

SESSION 2

JetStream: An Online School for Weather (Earth)

(General) *2502B, 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."

SESSION 3

Start a Wind Energy Challenge in Your State (Env)

(Middle Level–High School) *2505A, Convention Center*

Michael Arquin *(michael@kidwind.org),* KidWind Project, St. Paul, Minn.

Learn how to plan and hold a wind energy challenge in your classroom, state, or region.

SESSION 4

Targeted Connections: A Call for Cross-Curricular Design (Gen)

(Elementary–Middle Level) *Andy Kirk A&B, Marriott*

Cheryl Malm *(cgmalm@nwmissouri.edu),* Northwest Missouri State University, Maryville

Patricia Lucido *(patricia.lucido@rockhurst.edu),* Rockhurst University, Kansas City, Mo.

Examination of mathematics and science concepts to identify supporting ideas, processes, and skills allows the design of parallel curricula or "targeted connections."

SESSION 5

Fly Me to the Moon (Gen)

(Elementary–High School) *Mary Lou Williams A&B, Marriott*

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

Reader? Teacher? Student? Author? Publisher? Join representatives of two NSTA Publications Committees to explore the criteria by which the best in science literature is identified.

5:00–6:00 PM Workshops

Your School's FlexCam™ Belongs in the Physics Lab (Phys)
(General) *1501C, Convention Center*
David P. Beier *(dbeier@barstowschool.org),* The Barstow School, Kansas City, Mo.
Discover 40 applications of your school's FlexCam for your physical science and physics classroom (it is lost somewhere in your school's biology department—they will never even miss it). FREE discs of 75 video clips to use in your class to get you started.

Glacier Dynamics: The Science and Activities (Earth)
(Elementary–Middle Level) *2101, Convention Center*
Cheri Hamilton *(chamilton@cresis.ku.edu),* and **Brandon Gillette** *(bgillette@ku.edu),* The University of Kansas, Lawrence
Interact with world-class scientists as you investigate hands-on, inquiry-based glacier and climate science activities covering properties of ice and glacial movements.

Fossil Fuels to Products (Chem)
(Middle Level–High School) *2102B, Convention Center*
Mary Spruill *(rlamb@need.org),* The NEED Project, Manassas, Va.
Use hands-on activities to learn about exploration, production, refining, chemical manufacturing, transportation, marketing, and uses of petroleum, natural gas, and products in the industrial sector.

Your Life Is Full of Space: How Space Science Impacts Your Daily Life (Earth)
(Middle Level–High School/Informal Ed.) *2502A, Conv. Center*
Ollie Bogdon, University of Missouri–Kansas City
Explore the galaxy of space-related spin-offs benefiting our everyday life and answer the age-old student question…"why do I need to learn this stuff?"

Hands-On Learning Activities for AP Environmental Science (Env)
(High School) *2505B, Convention Center*
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.

Incorporating the Future into Today's Classrooms (Bio)
(High School) *3501B, Convention Center*
Cathy Farrar *(farrarcat@gmail.com),* University of Missouri–St. Louis
Susie Helwig *(shelwig@me.com),* North Kansas City High School, North Kansas City, Mo.
Anand Chandrasekhar *(anandc@missouri.edu),* University of Missouri, Columbia
Several ready-to-try activities, created through a Howard Hughes Medical Institute (HHMI) grant, introduce stem cells, cell fate and position, and the use of mapping as a scientific tool.

Probes for the Biological Sciences (Bio)
(Middle Level–College) *3501D, Convention Center*
Lynette Day, Shawnee Mission (Kans.) School District
Probes are not just for the physical sciences. Come learn how to use probes in the biological sciences. We'll look at spirometers, heart rate monitors, and O_2 and CO_2 sensors.

Point, Game, Set, Match: Science Wins with Tennis Ball Containers (Gen)
(General) *Count Basie A, Marriott*
David F. Mastie *(mastie@umich.edu),* Retired Educator, Chelsea, Mich.
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
Free, "green," transparent, unbreakable, and infinitely adaptable, used tennis ball containers offer hands-on activities that make density, porosity, permeability, capillarity, core sampling, and other elusive ideas visible.

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.

Buy all 4 volumes together and save!

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Visit *www.nsta.org/store* to place an order.
Call 1-800-277-5300 to order by phone.

NSTA National Science Teachers Association


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8:00–9:00 AM Presentations

SESSION 1

Water World **(Bio)**

(Middle Level) *2201, Convention Center*

Deborah L. Pasley *(deborah.pasley@sjsd.k12.mo.us)* and **Deborah N. Siebern-Dennis** *(deborah.siebern@sjsd.k12.mo.us),* Bode Middle School, St. Joseph, Mo.

Presider: Deborah L. Pasley

Using a class website, blog site, microscopes, and notebooking, students conduct real-world science at local ponds.

SESSION 2

Ocean Cores: Window to the Past **(Earth)**

(General) *2502B, Convention Center*

John R. Sode *(jsode@socket.net),* Marshfield High School, Marshfield, Mo.

Let's examine cores from the western Atlantic near Florida and the American Northwest relating to the dinosaur extinction and ancient localized climate change events.

SESSION 3

A "Mission to Mars" STEM Robotics Field Experience for Students **(Earth)**

(Supervision/Administration) *2505A, Convention Center*

C. Matt Seimears *(cseimear@emporia.edu),* **Stephen K. Jowers** *(sjowers@emporia.edu),* **Rachel Houston, Chelsie Kisner** *(ckisner@emporia.edu),* **Brittney Rinehart** *(brinehar@emporia.edu),* and **Erin Peterson,** Emporia State University, Emporia, Kans.

John S. Loos *(jloos@usd259.net),* Mayberry Middle Magnet School, Wichita, Kans.

Learn how to design and develop a Mars simulation competition between students through the use of PITSCO Tetrix Robotics.

SESSION 4

Solids: The Neglected "State" of Chemistry **(Chem)**

(High School) *3501C, Convention Center*

Debbie Goodwin *(nywin@hotmail.com),* Chillicothe High School, Chillicothe, Mo.

Use the "stuff" of the everyday world to make science relevant. Hands-on activities using solid materials (ceramics, metals, polymers) make concepts easier to teach and learn. Handouts.

SESSION 5

Thinking Outside the Box: Using Effective Questioning in Inquiry **(Gen)**

(Middle Level–High School) *3501D, Convention Center*

Leslie A. Birdon *(lesliebirdon@abrschools.org),* Prescott Middle School, Baton Rouge, La.

Teaching/learning models can be used in different ways for developing elaborative, flexible thinking within open-ended inquiry activities for secondary students, such as the SCAMPER brainteaser and analogies.

SESSION 6

21st-Century Science Inquiry: Integrating Science Across the Curriculum **(Gen)**

(General) *Count Basie A1, Marriott*

J. Carrie Launius *(jlaunius@hazelwoodschools.org),* Hazelwood School District, St. Louis, Mo.

E. Wendy Saul *(saulw@umsl.edu),* University of Missouri–St. Louis

Wonder how to integrate 21st-century skills into your science curriculum? Learn how to be innovative and teach so that information can be related to the real world.

SESSION 7

Building Teacher Leadership Through a Science and Literacy Project **(Gen)**

(Elementary–Middle Level) *Truman B (Muehlebach), Marriott*

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 the skills of middle grades science teachers to model, coach, and mentor elementary teachers in the implementation of a science and literacy project.

8:00–9:00 AM Workshops

"Seeing" the Invisible: Exploring the EMS (Phys)
(Middle Level–High School) *1501C, Convention Center*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
How do we "see" something that exists but is not visible? Explore the properties of light waves—from radio to ultraviolet—in an effort to answer this question.

NABT Session: Inquiry-based Hands-On Activities and Demonstrations (Bio)
(Middle Level–High School) *2101, Convention Center*
John W. Fedors *(jfedors@wavecable.com),* Science Activities, Lincoln, Calif.
Try some hands-on activities and demonstrations involving energy, magnetism, diffusion (passive/active transport), cell organelles, heat transfer, hydrophilic/hydrophobic materials, and forensic potentials.

AAPT AOK Session: Science Ethics Workshop (Gen)
(General) *2102A, Convention Center*
Karen A. Williams *(kwillims@mac.com),* East Central University, Ada, Okla.
We will examine case studies in science, including treatment of data, authorship, misconduct, and more.

ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic Theory of Matter (Chem)
(Middle Level) *2102B, 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) *2103C, 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 the activities to use in your classes.

Cosmic Times: Relating Astronomy History to Science Inquiry (Earth)
(Middle Level–High School) *2502A, Convention Center*
Cheryl Niemela *(clniemela@gmail.com),* Universities Space Research Association, Greenbelt, Md.
These NASA activities, curriculum, and online resources explore the history of cosmology and the people that used everyday science inquiry for discovering fundamental concepts about the universe.

NSTA Press Session: Stop Faking It! Finally Understand FORCE AND MOTION So You Can Teach It (Phys)
(Elementary–Middle Level) *2503A, Convention Center*
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.

Inquiry Investigations in School Yard Ecosystems (Bio)
(Elementary) *2504A&B, Convention Center*
Veronica J. Feilner, Missouri Dept. of Conservation, Jefferson City
Experience inquiry-based activities that engage students in investigations of school yard ecosystems regardless of school location (city, rural, etc.).

Teaching Science Outdoors and Making Local Connections (Env)
(Elementary–Middle Level/Informal) *2505B, Convention Center*
Joanna Snyder *(joanna_snyder@berkeley.edu)* and **Terry Shaw,** Lawrence Hall of Science, University of California, Berkeley
Experience meaningful outdoor activities that connect easily to classroom learning. We'll share access to published teaching resources and an interactive website for support and dialogue. *Note:* Half of this workshop will occur outdoors!

Differentiating Instruction with SKITs: Individualized Self-Assessment Tools for Any Classroom **(Gen)**

(General) *3501B, Convention Center*

Patricia Roberts *(patti.roberts@gmail.com),* Columbia, Mo.

CANCELED

Discover an innovative self-assessment tool (SKIT) that is both simple to create and multifaceted in its applicability in the classroom. Leave the session with one complete SKIT and the resources necessary to develop your own individualized assessments.

Using Dinah Zike's Foldables® for Effective Science Instruction **(Gen)**

(General) *Colonial Ballroom (Muehlebach), Marriott*

Nancy F. Wisker *(sara@dinah.com),* Dinah Zike Academy, San Antonio, Tex.

In this fast-paced workshop, make and take Dinah Zike's unique 3-D interactive graphic organizers (Foldables). See examples of these powerful tools and their potential uses.

Geocaching and EarthCaching **(Gen)**

(General) *Count Basie A, Marriott*

Alexis H. Denny *(alexisdenny@girlscoutsksmo.org),* Girl Scouts of NE Kansas & NW Missouri, Kansas City, Mo.

Thomas R. Baker *(tbaker@esri.com),* Environmental Systems Research Institute, Kansas City, Kans.

Greg Smith *(smithg@usd231.com),* Wheatridge Middle School, Gardner, Kans.

Use GPS, geocaching, and EarthCaching to excite students and explore the natural world. Learn to create your own geocaches and receive free mapping software.

Fun Activities with Gel Polymers to Enhance Any Science Class **(Gen)**

(Elementary–Middle Level) *Count Basie C, Marriott*

Cora S. Salumbides *(cora_salumbides@yahoo.com),* Jefferson Union High School District, Daly City, Calif.

When students are familiar with equipments and materials used in science activities, interest and curiosity are enhanced. These activities using household polymeric materials make any science class come alive.

8:00–9:00 AM Exhibitor Workshops

Project-Based Inquiry Science (PBIS): The Next Generation of Middle School Programs (Chem)
(Grades 6–8) *2103B, 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.

How to Start a Biotech Program (Bio)
(Grades 7–College) *2202, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(essy_levy@bio-rad.com),* Bio-Rad Laboratories, San Diego, Calif.
Biotech is where it's at! Hear the 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 building blocks that will allow you to continue to address the world's rapidly changing scientific landscape.

Discovery-based Physics with SPARKscience: Motion (Phys)
(Grades 6–12) *2208, Convention Center*
Sponsor: PASCO
Presenter to be announced
This session discovers *motion*—one of the most challenging high school physics 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 physics curriculum. Be one of the first to experience how SPARKscience can enhance your teaching practice and improve student understanding of core topics.

8:00–9:15 AM Exhibitor Workshops

Transform Assessment with Page Keeley Science Probes (Gen)
(Grades K–12) *2103A, Convention Center*
Sponsor: McGraw-Hill School Education Group
Page Keeley, 2008–2009 NSTA President, and Maine Mathematics and Science Alliance, Augusta
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. Page will help you find out what your students know and how to use that information to transform your instruction with these practical tools.

The Science Behind Climate Change: What Every Student (and Teacher) Should Know (Earth)
(Grades K–8) *2104A, Convention Center*
Sponsor: Pearson
Michael E. Wysession, Washington University in St. Louis, Mo.
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.

Help Students Flourish with New Digital Learning Tools (Gen)
(Grades K–12) *2104B, 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.

Living by Chemistry: Feeling Under Pressure (Chem)

(Grades 9–12) *2203, 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.

ScholAR Chemistry In-the-Bag Inquiry (Chem)

(Grades 6–12) *2204, Convention Center*

Sponsor: Sargent-Welch

Mark Meszaros, Sargent-Welch, Rochester, N.Y.

These easy-to-perform demonstrations are designed to engage your 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.

AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (Bio)

(Grades 9–12) *2206, Convention Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Are you ready for a forensic dissection activity that is on the cutting edge? Engage students and revitalize your instruction of mammalian structure and function with a "real" classroom autopsy! Participants, working in pairs, dissect a pig by modeling the autopsy protocols of a forensic pathologist.

Fast and Furious: Force and Motion for Middle School! (Chem)

(Grades 6–8) *2207, 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.

Put Some Spark into Science Investigations (Gen)

(Grades 2–8) *2209, 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 will help your students become independent thinkers and inquirers. Participants will receive a complimentary resource packet and related Delta products.

8:00–9:30 AM Exhibitor Workshops

K–8 Science with Vernier (Gen)

(Grades K–8) *2211, Convention Center*

Sponsor: Vernier Software & Technology

Jack Randall *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Discover 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) *2215A, 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.

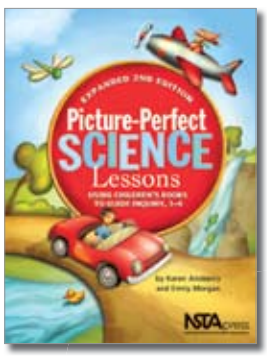
Order New Releases Today!

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

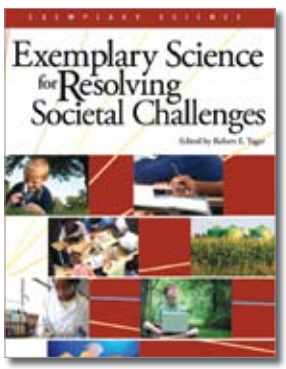
Grades 7–12

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



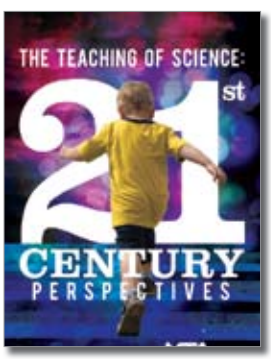
As with all of the *Exemplary Science* titles, this book provides resources, ideas, and case studies to stimulate science education faculties across the country to begin substantive discussions that will drive them to re-embrace curiosity, invention, inquiry, and societal connection in the classroom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

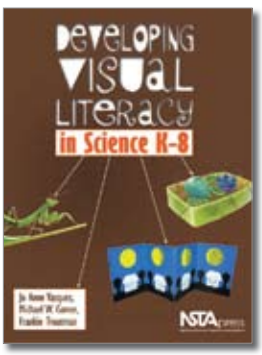
Members: $22.36
Non-Members: $27.95

Preview free chapters before you buy or

Attendee Preview

Developing Visual Literacy in Science, K–8

Grades K–8



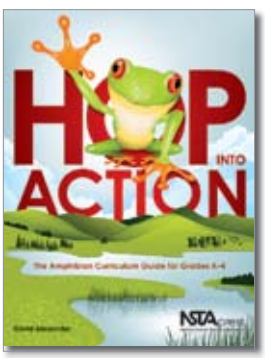
More than 50% of science lessons in today's elementary textbooks use visual information to help demonstrate concepts. This book assists students in developing visual literacy in science—for example, interpreting photographs, charts, diagrams, figures, labels, and graphic symbols. This practical resource 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



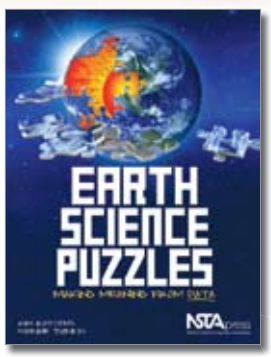
K–4 teachers, homeschoolers, camp leaders, and naturalists will find the standards-based lessons in this volume the perfect introduction to environmental science for young learners. Developed in response to a global amphibian extinction crisis, this book will equip children with the necessary tools to 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.

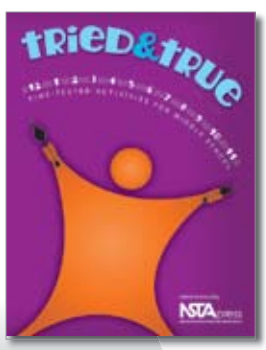
Members: $20.76
Non-Members: $25.95

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

8:00–10:30 AM Exhibitor Workshop

Using Middle School Science Notebooks to Assess Learning with FOSS (For Experienced Users) (Gen)

(Grades 5–8) *2210, 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.

8:30–10:30 AM CESI Breakfast

Toying with Inquiry (M-1)

(Tickets Required; $31) *Andy Kirk, Marriott*

Karen L. Ostlund, Retired Professor, UTeach, The University of Texas at Austin

Join our keynote speaker Karen Ostlund and members of CESI. Dr. Ostlund is invested in elementary science. She has written many books just for elementary teachers, has been a University of Texas Professor, and is a GEMS Director. This presentation will have you playing with toys and learning more about the inquiry continuum from directed to guided to full inquiry!

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

8:30–11:30 AM Short Course

✔ **Introduction to Modeling Instruction (SC-4)**

(Middle Level–High School) *Truman A (Muehlebach), Marriott*

Tickets Required: $20

Earl Legleiter *(elegeiter@hotmail.com),* Legleiter Science Consulting, Englewood, Colo.

For description, see page 34.

9:00 AM–5:00 PM Exhibits

Hall B, Convention Center

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

9:30–10:30 AM Featured Presentation

Unleashing the Power of Data to Improve Science Teaching and Learning (Gen)

(General) *2105, Convention Center*

Aminata Umoja *(aumoja@comcast.net),* Educational Consultant, Umoja Consulting, LLC, Lithonia, Ga.

Presider: Kelly Kenney, Program Committee, NSTA Kansas City Area Conference, and Hickman Mills School District, Kansas City, Mo.

Through the Using Data process, educators tap into the power of collaborative inquiry to close the achievement gap, improve teaching and learning, and engage in difficult conversations for the benefit of our students. I will share the successes of the Using Data process as well as our Theory of Action. We can improve science instruction for all of our students in a relatively short time, two to three years.

Aminata Umoja's entire adult life has been committed to improving the quality of education for children. She is a full-time consultant with Research for Better Teaching and is also the founder of Kilombo Academic and Cultural Institute, a home school tutorial project, and Umoja Consulting, LLC, an educational consulting company. An educator for over 30 years, Umoja taught in both the Los Angeles Unified School District and Atlanta Public Schools. She began her career as a professional developer with Emory University's Elementary Science Education Partnership (ESEP) program. She received much of her training as a professional developer from the South Eastern Regional Consortium at SERVE.

Umoja has conducted numerous professional development sessions on the Using Data process, equity, differentiated instruction, professional learning communities, kit-based inquiry science, reading and writing in science, deepening content with technology, and effective pedagogy. She has facilitated sessions for the National Staff Development Council and the Association for Supervision and Curriculum Development and has served as a consultant for the science toolkit for the SEDL National Center for Quality Afterschool.

spark science™

Discovery-Based Science Learning Environment

SPARKscience combines powerful, highly intuitive software with state of the art data collection to create interactive and **discovery-based lab activities**. Direct measurements and powerful analysis tools allow students to see science concepts as never before.

FREE Hands-On Workshops

Friday • October 29 • Workshop Room 2208

Visit Booth 204

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

PASCO®

www.pasco.com/sparkscience

9:30–10:30 AM Presentations

SESSION 1

Making Lemonade: Using a Construction Project as a Curriculum (Phys)

(Elementary–High School) *1501C, Convention Center*

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

Use those distracting jackhammers to your advantage! Here is a set of activities that can help students understand the physical science of engineering and building.

SESSION 2

Exploring Biofuels: Bioprospecting for Cellulose-degrading Microbes (Bio)

(High School–College) *2201, Convention Center*

Sara Krauskopf *(skrauskopf@glbrc.wisc.edu),* and **John M. Greenler** *(jgreenler@glbrc.wisc.edu),* Great Lakes Bioenergy Research Center, University of Wisconsin, Madison

To meet the renewable fuels mandate, scientists are searching for enzymes to convert plant material into fuels. Learn techniques for isolating microbes from your environment.

SESSION 3

MY NASA DATA: Your Students Can Be Earth Scientists! (Earth)

(Middle Level–High School) *2502A, Convention Center*

Rita Crocker *(rcrocker@sherwoodk12.net),* Sherwood Middle School, Creighton, Mo.

Engage your students in learning about planet Earth by using MY NASA DATA to access Earth systems satellite data and imaging. Plenty of handouts!

SESSION 4

Developing an Alternative Energy Resources Lab at Your School (Env)

(Middle Level–College) *2505A, Convention Center*

Douglas M. Moles, Shawnee Mission West High School, Shawnee Mission, Kans.

A local school teacher will take you through the process of designing and installing an alternative energy resource lab at your school, from applying for grants to receiving permits to designing your own data website.

SESSION 5

✔ **Writing and Technology: An Update to the Science Notebook (Gen)**

(Elementary–Middle Level/Supv.) *3501D, Convention Center*

Rebecca Litherland, Parkway School District, St. Louis, Mo.

Lindsey Muckler, Ross Elementary School, St. Louis, Mo.

Using science notebooks? Increase their impact by integrating expository writing skills and using technology for differentiation and communication.

SESSION 6

Outstanding Print Resources, Science Literacy Skills, and Hands-On Investigations: Don't Settle for One Without the Others! (Gen)

(General) *Colonial Ballroom (Muehlebach), Marriott*

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

I will share quality print resources, appropriate hands-on explorations, and literacy strategies to assist students in reading and writing science text.

SESSION 7

Let's Build an Outdoor Classroom! (Gen)

(General) *Count Basie A1, Marriott*

Cathy F. Wissehr *(cwissehr@uark.edu),* University of Arkansas, Fayetteville

Learn how to build an effective and sustainable outdoor classroom while avoiding pitfalls along the way. We'll also identify sources of possible funding.

SESSION 8

NSTA High School Committee Share Session (Gen)

(High School) *Julia Lee A&B, Marriott*

Michael J. 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 9

Using Energy Data in the Classroom (Gen)

(Elementary–Middle Level) *Truman B (Muehlebach), Marriott*

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

Analyze real-time energy data and use these sources to teach important math and graphing skills while learning about renewable energy and energy efficiency.

9:30–10:30 AM Workshops

NABT Session: Survival of the Fittest: Variations and Selection (Bio)

(Middle Level–College/Informal Ed.) *2101, Convention Center*

Mary P. Colvard *(mcolvard@tds.net),* Howard Hughes Medical Institute, Chevy Chase, Md.

Let's focus on selection as I share hands-on activities that encourage students to formulate questions that can be answered through investigation, data collection, and pattern recognition. Take home the Howard Hughes Medical Institute (HHMI) *Evolution* DVD and classroom-ready activities.

AAPT AOK Session: Using the Galileoscope in Introductory Astronomy Classes (Earth)

(General) *2102A, Convention Center*

Carl T. Rutledge *(crutledge@mac.com),* East Central University, Ada, Okla.

Participants will get hands-on experience with the analysis, assembly, and use of the Galileoscope, a small, inexpensive, high-quality telescope. Ways to effectively use it in an introductory astronomy class will be discussed. Some experiments will be performed and handouts for others provided.

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

(Middle Level) *2102B, 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) *2103C, 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.

When Teaching About Earthquakes, Don't Forget About New Madrid (Earth)
(Middle Level–College) 2502B, Convention Center
Lloyd H. Barrow *(barrowl@missouri.edu),* University of Missouri, Columbia
Come compare plate and inter-plate earthquakes of North America. Midwest students need to be aware of three New Madrid earthquakes (1811–1812) and possible explanations.

NSTA Press Session: Stop Faking It! Finally Understand ENERGY So You Can Teach It (Phys)
(Elementary–Middle Level) 2503A, Convention Center
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 learn how to make the formulas for potential and kinetic energy make sense for you and your students? These questions and more will be addressed by the author of the *Stop Faking It!* book series. Lame jokes a definite possibility.

Remote Sensing: Mapping the Ice Sheets in Greenland and Antarctica (Earth)
(High School) 2503B, Convention Center
Brandon Gillette *(bgillette@ku.edu)* and **Cheri Hamilton** *(chamilton@cresis.ku.edu),* The University of Kansas, Lawrence
Interact with world-class scientists as you investigate hands-on, inquiry-based polar and climate science activities covering properties of ice and remote sensing.

Conserving Missouri's Aquatic Ecosystems (Bio)
(Middle Level) 2504A&B, Convention Center
Briedi Scott, Missouri Dept. of Conservation, Jefferson City
Explore Missouri's aquatic ecosystems while accomplishing your math and science goals. This free instructional unit provides engaging, GLE-aligned, inquiry-based learning activities and outdoor experiences.

The Forest Ecosystem (Env)
(Elementary–Middle Level) 2505B, Convention Center
Nancy A. Snider *(nancy.snider@mdc.mo.gov), and* **Karen Armstrong** *(karen.armstrong@mdc.mo.gov),* Missouri Dept. of Conservation, St. Charles
Explore the Midwest forest ecosystem while using science notebooking in a variety of hands-on, inquiry-based activities.

Environmental Physical Science for Middle School (Gen)
(Elementary–High School) 3501C, Convention Center
Sarah R. Young *(sarahyoung@rowlandhall.org),* Rowland Hall Middle School, Salt Lake City, Utah
Teach circuits, energy transfer, heat, and green building using engineering and the environment.

Extreme Makeover: Laboratory Edition! (Gen)
(Elementary–High School) Count Basie A, Marriott
Deborah L. Hanuscin *(hanuscind@missouri.edu)* and **Heather Worsham** *(hmw7a5@mizzou.edu),* University of Missouri, Columbia
Join us for a makeover of familiar activities to focus on inquiry and stimulate students' curiosity.

Compacting in Elementary Science (Gen)
(Preschool–Middle Level) Count Basie C, Marriott
Robert B. Shaw *(rshaw@micds.org),* Mary Institute and Saint Louis Country Day School, St. Louis, Mo.
Learn about curriculum compacts to maximize inquiry, standards, rigor, academic choice, and meaningful student learning through backward design of knowledge acquisition, exploration, and demonstration activities.

9:30–10:30 AM Exhibitor Workshops

***Active Physics,* Newly Revised Third Edition (Phys)**
(Grades 9–12) *2103B, Convention Center*
Sponsor: It's About Time
Gary Curts, Dublin (Ohio) Public Schools
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 the practical hands-on activity that you can do in your own classroom. Also see how Fourier probeware enhances project-based activities.

Discovery-based Biology with SPARKscience: Measuring Reaction Time to a Visual Stimulus—A Guided Inquiry Approach (Bio)
(Grades 6–12) *2208, Convention Center*
Sponsor: PASCO
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.

9:30–11:30 AM Presentations

SESSION 1 (five presentations)
(General) *Yardbird B, Marriott*
Presider: Linda L. Tichenor, University of Arkansas at Fort Smith

SCST Session: Predictors of Success in Introductory Chemistry (Gen)
Douglas Bryhan *(dbryhan@uafortsmith.edu),* University of Arkansas at Fort Smith
We've indentified indirect indicators of student behavioral traits that have a direct bearing on their performance in introductory science classes.

SCST Session: Teaching Organic Chemistry Through Group Problem Solving with Maximum Guidance and Minimal Lecturing (Chem)
Joseph P. Kakareka *(jkakarek@fgcu.edu),* Florida Gulf Coast University, Fort Myers
I'll share teaching techniques and procedures for a two-semester college organic chemistry course with an emphasis on group problem solving with minimal lecturing.

SCST Session: Using Student-selected Topics to Enhance Learning in Introductory Biology Courses (Bio)
Carl D. Gilbert *(cgilbert@uafortsmith.edu),* University of Arkansas at Fort Smith
By designing introductory biology courses around topics of interest to students, higher-order thinking skills can be enhanced and rates of student success may be increased.

SCST Session: Teaching Astronomy and Physics Online and in the Virtual World of Second Life (Gen)
Jim F. Caffey *(jcaffey@drury.edu),* Drury University, Springfield, Mo.
Learn about innovations in teaching astronomy and physics in online and virtual environments as well as some proven methods.

SCST Session: Motivating Students to Explore and Share Knowledge in a Noncompetitive Classroom Environment (Gen)
Sandhya N. Baviskar *(sbaviska@uafortsmith.edu),* University of Arkansas at Fort Smith
Learn how to implement jigsaw cooperative learning techniques in a college biology classroom.

9:30 AM–12 Noon Exhibitor Workshop

Bio-Rad Crime Scene Investigator PCR Basics Kit (Bio)
(Grades 9–College) *2202, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(essy_levy@bio-rad.com),* Bio-Rad Laboratories, San Diego, 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

Teaching Inquiry Science with Toys and Treats (Gen)

(Grades 6–12) *2103A, Convention Center*

Sponsor: McGraw-Hill School Education Group

Ralph Feather, Jr. *(rfeather@bloomu.edu),* 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.

Is America Flunking Science? If So, Why? (Bio)

(Grades 9–12) *2104A, 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?

Get Charged Up with Educational Innovations! (Phys)

(Grades 5–9) *2104B, 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!

Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (Chem)

(Grades 9–College) *2203, Convention Center*

Sponsor: Wavefunction, Inc.

Jurgen Schnitker *(sales@wavefun.com),* Wavefunction, Inc., Irvine, Calif.

Widely recognized as a powerful teaching tool, molecular modeling is now a common component of introductory chemistry classes at the college level. Join us for this hands-on workshop and learn how to integrate state-of-the-art modeling into your AP chemistry teaching.

Learn How to Fingerprint Your Own DNA: Classroom PCR That Works (Bio)

(Grades 6–College) *2204, Convention Center*

Sponsor: EDVOTEK

Jack Chirikjian *(info@edvotek.com),* EDVOTEK, Bethesda, Md.

Learn how to prepare your own DNA for fingerprinting and discover how these procedures can be integrated into classroom experiments using polymerase chain reaction (PCR) and electrophoresis. We'll demonstrate gel staining with InstaStain™, a safe, nonliquid method that also reduces time and mess. Enter a raffle for one kit (a $75 value)!

Discover the Solar System and Beyond (Earth)

(Grades 3–8) *2205, 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.

Hands-On Science with Classroom Critters (Bio)

(Grades K–12) *2206, 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 curricula (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.

Teaching About the Rock Cycle and Earth Time (Earth)

(Grades 6–8) *2207, 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 the millions of years that it takes. 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.

Integrating Science and Literacy, Grades 1–6 (Gen)
(Grades 1–6) *2209, 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.

10:00–11:30 AM Exhibitor Workshops

Transforming the Science Lab with Vernier Technology (Gen)
(Grades 7–College) *2211, Convention Center*
Sponsor: Vernier Software & Technology
Jack Randall *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Discover how technology transforms 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) *2215A, 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 Meeting

Informal Science Education Networking Meeting
Nixon Room (Muehlebach), Marriott

11:00 AM–12 Noon Featured Presentation

✔ **Brain-considerate Learning: Understanding the History of the Brain as the Foundation for Future Learning (Gen)**
(General) *2105, Convention Center*

Kenneth Wesson *(kenawesson@aol.com),* Educational Consultant, Neuroscience, and Vice President, Western Division and International Divisions, Delta Education/School Specialty Science, San Jose, Calif.

Presider: Patricia Lucido, Program Committee, NSTA Kansas City Area Conference, and Rockhurst University, Kansas City, Mo.

Current brain research dictates that we displace the obsolete phraseology that once proclaimed, "We go to school to learn." Instead, the human brain methodically processes billions of bits of information anywhere the brain happens to be. A continuous stream of sensory experiences is encoded into memory on a minute-by-minute basis. Recent advances in neuroscience and incredible brain-imaging technologies are opening a window into the inner-workings of the human brain. Not only are these mysteries finally undergoing a long overdue disclosure, they are also receiving the increased attention of educators who are re-thinking some long-held beliefs about classroom learning. Several important principles in neuroscience with which educators should become acquainted offer explanations as to why some teaching approaches are unfailingly successful, while others lead to both teacher and learner frustration. How the human brain "works" is basic to understanding human learning and classroom instruction.

Kenneth Wesson works as an educational consultant for preschool through university institutions and organizations. An expert on the neuroscience of learning and methods for creating classrooms and learning environments that are "brain-considerate," Wesson regularly addresses psychological, medical, and educational associations, as well as parenting organizations, on establishing "brain-considerate" learning environments. In addition to his seminars on learning, Wesson also speaks on the topics of brain development, diversity in learning, the neuropsychology of prejudice, curriculum development, and how children learn. He is also frequently asked to serve as an expert witness in court cases involving brain trauma and memory.

11:00 AM–12 Noon Presentations

SESSION 1

Learning Cycle Share-a-Thon! (Gen)

(Elementary) *1501B, Convention Center*

Courtney Kuhl, Jenna Woods, Kristin Hulse, Laura Handrahan, and **Melanie Stelzer,** University of Missouri, Columbia

*E*ngage in the *E*xploration of the 5E learning cycle as we *E*xplain how to *E*xtend student learning and *E*valuate in new and creative ways.

SESSION 2

Mini Recycled Cars (Phys)

(Middle Level) *1501C, Convention Center*

Christine D. Herald *(chrish@manhattan.k12.ks.us),* Eisenhower Middle School, Manhattan, Kans.

After a unit on simple machines, students build small cars out of recycled materials and then race against each other.

SESSION 3

AAPT AOK Session: Using Video Analysis in the Physics Classroom (Phys)

(High School–College) *2102A, Convention Center*

Todd R. Leif *(tleif@cloud.edu),* Cloud County Community College, Concordia, Kans.

Explore the use of video analysis in the physics classroom. I'll demonstrate "LivePhoto Physics" experiments and look at their uses in the community college classroom.

SESSION 4

U.S. Regional GLOBE Networking Session (Env)

(General) *2201, Convention Center*

Teresa J. Kennedy and **Nandini McClurg,** The University of Texas at Tyler

GLOBE facilitates student learning, offers a hands-on/minds-on environment, and enables students to learn science through international networks of their peers and scientists around the world. GLOBE's vision promotes students, teachers, and scientists to work in close partnership with NASA, NOAA, and NSF Earth System Science Projects (ESSPs).

SESSION 5

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

(General) *2503B, 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 6

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

(Middle Level) *2505A, Convention Center*

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 7

How Do Natural Disasters Affect People? A Project-based Learning Lesson (Env)

(Elementary) *2505B, Convention Center*

Kari Stubbs *(kstubbs@brainpop.com),* BrainPOP, New York, N.Y.

Tornadoes! Earthquakes! Floods! See how technology enhances the student exploration of natural disasters through global communication, collaboration, and project sharing.

SESSION 8

Two Birds…Synergistic Teaching of Science to English Language Learners (Gen)

(Elem.–High School) *Colonial Blrm. (Muehlebach), Marriott*

Daniel J. Bergman *(dannyjbergman@gmail.com),* Wichita State University, Wichita, Kans.

This session will share, compare, and model strategies for teaching English language learners AND science inquiry. Learn how to reach ELL students and ALL students.

SESSION 9

Leading Beyond the Classroom: Tips from the NSTA High School Committee (Gen)

(High School) *Julia Lee A&B, Marriott*

Michael J. 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 10

NASA Explorer Schools: Preparing the Next Generation of Explorers **(Gen)**

(Middle Level–High School/Supv.) *Mary Lou Williams A&B, Marriott*

Rob LaSalvia, NASA Glenn Research Center, Cleveland, Ohio

Presider: Jodie Rozzell, Director, NASA Explorer Schools, NSTA, Arlington, Va.

Learn how this three-year partnership transforms STEM education in schools. See how NASA uses its innovative mission content and technology to excite and engage students.

SESSION 11

Mathematize Me! **(Gen)**

(Middle Level–High School) *Truman B (Muehlebach), Marriott*

Carrie Newdigger *(newdiggerc@usd351.com),* Macksville High School, Macksville, Kans.

Michael E. Gurley *(mgurley@joplin.k12.mo.us),* and **Judy Gurley** *(jgurley@joplin.k12.mo.us),* Joplin High School, Joplin, Mo.

Correlate math and biology using measurements and scaling. Come incorporate accurate measurements of students' body proportions and relate them to their uniqueness.

11:00 AM–12 Noon Workshops

NABT Session: The Science of Stem Cells—Introductory Activities **(Bio)**

(High School–College) *2101, Convention Center*

Mary P. Colvard *(mcolvard@tds.net),* Howard Hughes Medical Institute, Chevy Chase, Md.

Materials such as Uno® cards and the Connect 4 game are used as part of this inquiry-based, hands-on workshop. Classroom-ready activities move from a basic understanding of stem cells to how microarrays are used by researchers to determine which genes are being expressed. Take home the Howard Hughes Medical Institute (HHMI) *Potent Biology* DVD and a CD-ROM with activities appropriate for high school, honors, AP, and introductory college biology students.

Tickets Required (M-2; $12 on-site) and, if still available, must be purchased at the Registration Area by 3:00 PM on **Thursday, October 28.**

This event is generously sponsored by Kendall Hunt Publishing Company.

Kendall Hunt publishing company

NSTA National Science Teachers Association

ACS Middle Level Session: Density (Chem)
(Middle Level) *2102B, 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 explore how their densities can be explained on the molecular level.

ACS Session Three: Why Is Water Different? (Chem)
(High School) *2103C, 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.

NSTA Press Session: Designing Effective Science Instruction (Gen)
(General) *2502A, Convention Center*
Anne L. Tweed *(atweed@mcrel.org),* 2004–2005 NSTA President, and McREL, Denver, Colo.
High-quality science instruction calls for teachers who understand content, incorporate research-informed strategies, and connect with students. This workshop will help participants identify an instructional framework that includes three necessary elements—content, understanding, and environment.

Hazardous Weather: Thunderstorms, Tornadoes, Hurricanes, and Snowstorms (Earth)
(General) *2502B, Convention Center*
John R. Sode *(jsode@socket.net),* Marshfield High School, Marshfield, Mo.
Track hurricanes, follow tornadoes, and plot snowfall levels in this hands-on session using free AMS materials applicable to advanced as well as at-risk students.

NSTA Press Session: Stop Faking It! Finally Understand MATH So You Can Teach It (Gen)
(Elementary–Middle Level) *2503A, Convention Center*
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 these 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!

Stellar Life Cycles (Earth)
(Middle Level–High School) *2504A&B, Convention Center*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
We will use actual NASA images and artist renderings in a card set to explore how different stars progress through the life cycle.

Paperless Formative and Summative Assessment (Gen)
(Middle Level–High School) *3501B, 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 to evaluate and improve science instruction and student comprehension.

Small Bodies, Big Concepts: Planetary Science (Earth)
(Elementary–Middle Level) *3501C, Convention Center*
Whitney H. Cobb *(wcobb@mcrel.org),* McREL, Denver, Colo.
Join NASA's Missions of Discovery—Dawn, Stardust-NExT, EPOXI, and Discovery—that are currently zooming to comets and asteroids and enrich your students' conception of our solar system.

What Can You Learn from an Oreo®? (Gen)
(Elementary–Middle Level) *Count Basie A, Marriott*
Kathy J. Ferrell *(kathyjferrell@hotmail.com),* Excelsior Springs Middle School, Excelsior Springs, Mo.
Katie M. Murphy *(katieferrell@hotmail.com),* Southwest Baptist University, Bolivar, Mo.
Use this popular cookie to teach many science process skills. Learn how to use the four-question strategy to turn your discoveries into inquiry.

Science on the Move! (Gen)
(Elementary–Middle Level) *Count Basie C, Marriott*
Karen Betz *(betzkaren@rockwood.k12.mo.us)* and **Jeff Puls** *(pulsjeffrey@rockwood.k12.mo.us),* Rockwood School District, Eureka, Mo.
Learn how our district renovated a used RV into a very powerful and exciting traveling science tool for our students.

11:00 AM–12 Noon Exhibitor Workshops

NEW! *Investigating Astronomy* from TERC/*EarthComm* from AGI (Earth)
(Grades 9–12) *2103B, Convention Center*
Sponsor: It's About Time
Gary Curts, Dublin (Ohio) Public Schools
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 will motivate your students and leave with practical hands-on activities that you can do in your own classroom. Also see how Fourier probeware enhances project-based activities.

Discovery-based Chemistry with SPARKscience: States of Matter (Chem)
(Grades 6–12) *2208, Convention Center*
Sponsor: PASCO
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–12 Noon Presentation

SESSION 1
Data-driven Performance Assessment Processes That Promote Authentic Learning Outcomes (Gen)
(College) *Count Basie A1, Marriott*
C. Matt Seimears *(cseimear@emporia.edu),* **Lauren Raleigh, Renae Bott,** and **Brandi Maples** *(bmaples@emporia.edu),* Emporia State University, Emporia, Kans.
See how scientific data can help preservice teachers develop effective performance assessments.

11:30 AM–1:30 PM Exhibitor Workshop

Taking Science Outdoors with FOSS K–8 (Gen)
(Grades K–8) *2210, 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

Fun, Fabulous Foldables® (Gen)
(Grades K–12) *2103A, Convention Center*
Sponsor: McGraw-Hill School Education Group
Dinah D. Zike *(dinah@hctc.net),* 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.

Planet Diary: Using Current Events to Engage Your Students in Science (Gen)
(Grades 5–8) *2104A, Convention Center*
Sponsor: Pearson
Jack Hankin, Planet Diary Author and Creator, Pacifica, Calif.
Jack Hankin, Planet Diary author and creator, will take you on an exciting professional development scavenger hunt using up-to-date journal entries and activities that engage students in real-world science. Handouts and free lesson activities will be provided from Interactive Science, Pearson's new innovative K–8 science program.

National Geographic K–5 Science: Experience Science Through the Eyes of an Explorer (Gen)
(Grades K–5) *2104B, Convention Center*
Sponsor: National Geographic School Publishing
Jeff Dannemiller, National Geographic School Publishing, Carmel, Calif.
In this highly interactive hands-on session, participants will see how National Geographic explorers use their unique experiences in the field to teach young scientists about the nature of science and inquiry. Participants will experience all levels of inquiry, helping students to fully understand the power of science inquiry and its connection to the nature of science.

New Ways to Prepare Your Students Using 21st-Century STEM Initiatives—GO DIGITAL! (Bio)
(Grades 7–College) *2203, Convention Center*
Sponsor: Swift Optical Instruments, Inc.
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.

The Layered Earth (Earth)
(Grades 5–12) *2204, Convention Center*
Sponsor: Simulation Curriculum Corp.
Herb Koller *(hkoller@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!

Energy Works! (Phys)
(Grades 3–5) *2205, 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.

Introduction to Electrophoresis (Bio)
(Grades 9–12) *2206, 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.

SGI Biology: Putting the Life Back in Life Science! (Bio)
(Grades 9–12) *2207, 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.

12 Noon–1:30 PM Luncheon

Preservice and New Teachers Luncheon (M-2)
(Tickets Required; $12) *Andy Kirk, Marriott*
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 3:00 PM on Thursday.

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 Workshops

Transforming the Science Lab with Vernier Technology (Gen)

(Grades 7–College) *2211, Convention Center*

Sponsor: Vernier Software & Technology

Jack Randall *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Discover how technology transforms 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 DataCollector—Charles and Boyle's Laws Uncovered (Gen)

(Grades 5–12) *2215A, 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.

12:30–1:30 PM Presentations

SESSION 1

NABT Session: The Evolutionary History of Life on Earth (in Less Than an Hour) (Bio)

(General) *2101, Convention Center*

Brad Williamson, University of Kansas, Lawrence

Let's explore the history of life on Earth through the lens of "Major Transitions"—we'll cover all of life in less than an hour! Originally proposed by John Maynard Smith and Eors Szmathmary, this way of looking at evolution not only informs our ideas about evolutionary history, it also provides a new theoretical framework for organizing the teaching of biology.

SESSION 2

AAPT AOK Session: So You Want a School Observatory—What Comes Next? (Earth)

(High School–College) *2102A, Convention Center*

Phillip R. Scott *(pscott@mcalester.k12.ok.us),* McAlester High School, McAlester, Okla.

There are many details to consider when building an astronomical observatory for use in a high school astronomy program. Learn from this science teacher's experiences.

SESSION 3

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

(General) *2502A, 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.

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 4

Become a NOAA Teacher at Sea (Gen)

(General) *2502B, 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 the opportunity to work with scientists on board a NOAA research ship. Come learn how to apply and participate.

SESSION 5

NSTA Avenue Session: Toyota TAPESTRY Grants for Science Teachers = $$$ for Your School! (Gen)

(Elementary–High School) *2503B, 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 6

Environmental Stewardship: Awards, Recognition, and Grants (Env)

(Informal Education) *2505A, Convention Center*

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

Patrick Deavy, National Environmental Education Foundation, Washington, D.C.

Presider: Patrick Deavy

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 7

Tools for Data-driven Biology Teaching (Bio)

(High School) *3501B, Convention Center*

Phyllis Balcerzak *(pbalcerz@biology2.wustl.edu),* Washington University in St. Louis

Kelly Taylor *(kelly.taylor@slps.org),* Carnahan High School of the Future, St. Louis, Mo.

The NSF-sponsored teacher institute at Washington University uses action research, case studies, and lab investigations to inform practice and improve instruction in the science classroom.

SESSION 8

FOOD FOR THOUGHT: Teaching Science and Inquiry with Food-related Activities (Gen)

(Elementary–High School) *Colonial Blrm. (Muehlebach), Marriott*

Daniel J. Bergman *(dannyjbergman@gmail.com),* Wichita State University, Wichita, Kans.

This session will present unique approaches to teaching science concepts and inquiry through lessons and demonstrations involving ordinary food items.

SESSION 9

Science Mentor Day: Preparing for the Fair (Gen)

(Elementary–High School) *Count Basie A1, Marriott*

Betty Paulsell *(bpaulsell@sciencepioneers.org),* Science Pioneers, Inc., Kansas City, Mo.

Set up a half day for students to learn inquiry skills and ideas for science fair projects with advice from area scientists and engineers.

SESSION 10

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

(High School) *Truman B (Muehlebach), Marriott*

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 a very unique learning style—and almost no one is creating curricula for them.

12:30–1:30 PM Workshops

CESI Session: Council for Elementary Science International Share-a-Thon (Gen)

(Preschool–Middle Level) *1501B, Convention Center*

Barbara Z. Tharp *(btharp@bcm.edu),* Baylor College of Medicine, Houston, Tex.

Join CESI for a wealth of ready-to-use, classroom-tested hands-on activities created just for the elementary teacher. Handouts and website links.

Newton's Laws…Easy as 1, 2, 3! (Phys)

(Middle Level) *1501C, Convention Center*

Donna J. Orrell *(dorrell@bluevalleyk12.org)* and **Robert Dickerson** *(rdickerson@bluevalleyk12.org),* Prairie Star Middle School, Leawood, Kans.

Help students deepen their conceptual understanding of Newton's laws with these hands-on activities.

ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (Chem)

(Middle Level) *2102B, Convention Center*

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

Perform 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) *2103C, 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 the activities to use in your classes.

NSTA Press Session: Outdoor Science: A Practical Guide (Env)

(Elementary–Middle Level) *2503A, Convention Center*

Steve 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. Free seeds!

Using Discrepant Events to Ignite Student Learning (Phys)
(General) *2504A&B, Convention Center*
David P. Beier *(dbeier@barstowschool.org),* The Barstow School, Kansas City, Mo.
Engage your students and jump-start learning with a new discrepant event every week. I'll share 25 science puzzlers designed to pique student interest and motivate learning. Take home handouts and resources.

Global Connections: Forests of the World (Env)
(Informal Education) *2505B, Convention Center*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Laura Downey *(ldowney@kacee.org),* Kansas Association for Conservation and Environmental Education, Manhattan
The forests of the world are changing. Project Learning Tree's new secondary module, Global Connections: Forest of the World, explores this vital component of Earth's natural systems. Take home the activity module and poster sets.

Energizing Middle School Science (Gen)
(Middle Level–High School) *3501C, Convention Center*
Paul E. Adams *(padams@fhsu.edu),* Fort Hays State University, Hays, Kans.
Join a team of Kansas middle school teachers to learn ways to energize your classroom using wind energy, biofuels, and alternative energy.

Science Literacy Through Science Journalism (Gen)
(High School/Supervision) *3501D, Convention Center*
Laura Pearce *(laura_1249@yahoo.com)*, **E. Wendy Saul** *(saulw@umsl.edu),* and **Cathy Farrar** *(farrarcat@gmail.com)* University of Missouri–St. Louis
These ready-to-try activities and tasks were created as part of an NSF grant that incorporates science journalism into high school classes.

Dancing with the 5Es: Classrooms on the Move (Gen)
(Elementary) *Count Basie A, Marriott*
Jan Brown *(jbrown@bssd.net),* Blue Springs High School, Blue Springs, Mo.
Mary F. Haskins *(mary.haskins@rockhurst.edu),* Rockhurst University, Kansas City, Mo.
Chris Gibler *(cgibler@bssd.net),* Blue Springs (Mo.) School District
Try these hands-on activities that incorporate the 5Es of inquiry and revolutionize your classroom instruction forever.

Engaging Hands-On Inquiry Activities (Gen)
(Elementary–Middle Level) *Count Basie C, Marriott*
Sandra Van Natta, Intersociety Polymer Education Council, Hamilton, Ohio
Sue E. Hall, Polymer Ambassador, Stevens Point, Wis.
Encourage students to design their own investigations and experiments using inexpensive supplies such as polymers. Math and literature integration included.

12:30–1:30 PM Exhibitor Workshop

There's More to Project-Based Inquiry Science Than Just a Project (Bio)
(Grades 6–8) *2103B, 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.

1:00–2:00 PM Exhibitor Workshop

Discovery-based Middle School Science with Sally Ride Science and SPARKscience (Earth)
(Grades 6–12) *2208, Convention Center*
Sponsor: PASCO
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) *2209, 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) *2202, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(essy_levy@bio-rad.com),* Bio-Rad Laboratories, San Diego, 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 cellulosic ethanol (a highly researched biofuel). Can biofuels solve global warming? Let your students decide if this is possible!

1:00–4:00 PM Short Course

✔ **Transforming Factual to Conceptual Knowledge: Light and Images (SC-5)**
*(*K–8; K–8 PD Providers*)* *Truman A (Muehlebach), Marriott*
Tickets Required: $25
Patrick C. Gibbons *(pcg@wuphys.wustl.edu)* and **John F. Wiegers,** Washington University in St. Louis, Mo.
Ann P. McMahon *(annpmcmahon@gmail.com),* University of Missouri–St. Louis
For description, see page 35.

2:00–3:00 PM Presentations

SESSION 1
The Simple Science of Flight: Seriously, How Do Airplanes Fly? (Phys)
(High School–College) *1501C, Convention Center*
CANCELED
David L. Esker *(david.esker@ymail.com),* Pikes Peak Community College, Colorado Springs, Colo.
The mystery of aerodynamics is reduced to the key physics concepts needed to derive the equations giving take-off speeds and power requirements of various airplanes.

SESSION 2
The Case of the Circling Mouse: Animal Models, Human Disease, and Modes of Inheritance (Bio)
(High School) *2201, Convention Center*
Julie A. Cook *(julie.cook@jcps.k12.mo.us),* Jefferson City High School, Jefferson City, Mo.
Elizabeth Bryda *(brydae@missouri.edu),* University of Missouri, Columbia
Presider: Anne E. Hutton, Lincoln University, Jefferson City, Mo.
Here is an innovative approach to teaching genetics that involves a professional geneticist and counselor as well as animal models of human genetic diseases.

SESSION 3
Engaging Upper Elementary and Middle School Students in International Science Inquiry (Earth)
(Elementary–Middle Level) *2502A, Convention Center*
Walter S. Smith *(walter.smith@ttu.edu),* Texas Tech University, Lubbock
Presider: Susan German *(sgerman@hallsville.org),* Hallsville Middle School, Hallsville, Mo.
Involve gifted or all grades 4–8 students in free, international, standards-based science through the MOON Project. Only eyes and internet access required!

SESSION 4
NSTA Press Session: Using Science Notebooks in Elementary Classrooms (Gen)
(Elementary) *2503A, Convention Center*
Michael Klentschy *(mpkdr@aol.com),* Carlsbad, Calif.
Learn some strategies for getting started with notebooks in the elementary classroom as well as extending current use. We'll examine stems, prompts, and feedback guides, with a special focus on English language learners.

SESSION 5

NSTA Avenue Session: SciLinks: Using the Online Assignment Tool (Gen)

(Elementary–High School) *2503B, Convention Center*

Tyson Brown *(tbrown@nsta.org),* Director, SciLinks, NSTA, Arlington, Va.

Virginie L. Chokouanga, Customer Service and Database Administrator, SciLinks, NSTA, Arlington, Va.

The SciLinks assignment tool allows your students to show what they've learned from the web resources SciLinks provides. Learn to create and distribute assignments.

SESSION 6

"No Child Left Inside" Educational Innovation (Env)

(General) *2505A, Convention Center*

Jan Alderson *(standupscience@sbcglobal.net)* and **P.J. Born** *(soborn@smsd.org),* Shawnee Mission South High School, Overland Park, Kans.

Joan Leavens *(leavens@k-state.edu),* One Health Kansas at Kansas State University, Olathe

Explore highly successful, award-winning activities that engage K–12 students in outdoor learning experiences, including field research, nature journaling, destination science experiences, school yard activities, and bird-watching. Take home a CD of successful ideas and opportunities. The first 20 attendees will receive Richard Louv's book *Last Child in the Woods.*

SESSION 7

The Impact of Collective Efficacy on High School Science Achievement (Gen)

(General) *3501B, Convention Center*

Mark W. Burcham *(burchamm@wilkes.k12.nc.us),* Wilkes County Schools, North Wilkesboro, N.C.

Presider: Kristie Burcham *(burchamkr@wilkes.k12.nc.us),* Wilkes County Schools, Roaring River, N.C.

Build collective efficacy among teachers to increase student achievement. We'll show you how current research can guide this process.

SESSION 8

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

(Middle Level–High School) *3501C, Convention Center*

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

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

EPA's online resources will have your students in the control seat as they discover the causes and effects of pollution as well as the impacts of climate change on wildlife and their habitats. We will demonstrate seven online tools for teachers, including Air Pollution: What's the Solution, which features real-time data; Smog City 2; the Air Quality Index Toolkit for Teachers; and the Climate Change, Wildlife, and Wildlands Toolkit.

SESSION 9

NARST Session: Identity Action Theory: An Identity Development Model for Enhancing Secondary Students' Engagement and Achievement in Science (Gen)

(Middle Level–College) *Julia Lee A&B, Marriott*

M. Cecil Smith *(mcsmith@niu.edu),* Northern Illinois University, DeKalb

This innovative approach to secondary student motivation and achievement emphasizes identity formation processes in science classrooms.

SESSION 10

STEM in the Classroom (Gen)

(Middle Level–High School) *Truman B (Muehlebach), Marriott*

David A. Young *(dayoung7@gmail.com),* Fayetteville High School, Fayetteville, Ark.

How can we teach our curriculum AND address the nature and needs of a STEM investigation? Come see some possible solutions.

2:00–3:00 PM Workshops

National Earth Science Teachers Association Earth Science Share-a-Thon (Earth)
(Elementary–High School) *1501B, Convention Center*
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
Ardis Herrold, Grosse Pointe North High School, Grosse Pointe Woods, Mich.
Stephen A. Dilks, Simonsen Ninth-Grade Center, Jefferson City, Mo.
William Romine *(romine.william@gmail.com),* University of Missouri, Columbia
Teresa J. Kennedy and **Nandini McClurg,** The University of Texas at Tyler
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!

Plier Birds (Bio)
(Middle Level–High School) *2101, Convention Center*
Cheryl Fentress *(fentresscl@bps-ok.org)* and **Gary Layman** *(laymangl@bps-ok.org),* Bartlesville Mid-High School, Bartlesville, Okla.
Presider: Terri Bryan, Bartlesville Mid-High School, Bartlesville, Okla.
Compete for survival using pliers and nuts to simulate bird beaks and seeds. Only the most successful will reproduce!

AAPT AOK Session: Course Building in ComPADRE (Phys)
(Middle Level–College) *2102A, Convention Center*
Bruce Mason *(bmason@ou.edu),* University of Oklahoma, Norman
The ComPADRE online resource collections provide materials and services to help teachers organize, present, and share their physics and physical science classes.

ACS Middle Level Session: Polarity of the Water Molecule and Dissolving (Chem)
(Middle Level) *2102B, Convention Center*
James H. Kessler *(jhkessler@acs.org),* American Chemical Society, Washington, D.C.
Explore why water is a polar molecule and try some dissolving activities that can be explained on the molecular level.

ACS Session Five: Chemistry of Aqueous Solutions of Gases (Chem)
(High School) *2103C, 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 the activities to use in your classes.

Ice Core Records—From Volcanoes to Stars (Earth)
(High School) *2502B, Convention Center*
Doug Lombardi *(lombardi.doug@gmail.com),* Southern Nevada Regional Professional Development Program, North Las Vegas
Use absolute and relative dating techniques with high-resolution ice core data and historic volcanic eruptions to correlate and date supernova events from nitrate anomalies.

Bioinformatics and Challenging Darwin's Common Ancestor Inference: A 5E Lesson (Bio)
(High School) *2504A&B, Convention Center*
Jay L. Meyers *(jay.meyers@sjsd.k12.mo.us),* St. Joseph (Mo.) School District
This lesson based on the 5E instructional approach uses bioinformatics to analyze common ancestry.

GreenSchools! (Env)
(General) *2505B, Convention Center*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Laura Downey *(ldowney@kacee.org),* Kansas Association for Conservation and Environmental Education, Manhattan
Project Learning Tree's (PLT) GreenSchools! program connects PLT classroom activities and environmental service-learning projects. Come learn more about the program, how to organize GreenSchools! training, and how to get free access to PLT GreenSchools! resources and materials online.

✔ **Drawing to Enhance Scientific Communication** **(Gen)**

(General) *3501D, Convention Center*

Paul S. Markovits, Pattonville School District, St. Ann, Mo.

Try various techniques for helping students hone their skills in making drawings for their personal scientific journals.

Playing Games in Math and Science: More Fun Than Worksheets! **(Gen)**

(Elementary–Middle Level) *Count Basie C, Marriott*

Therese T. Keirsey *(tkeirsey@stjohnlalande.com),* St. John LaLande School, Blue Springs, Mo.

Games aligned to standards can be a great tool in achieving differentiation success. Explore concepts in symmetry, geometry, astronomy, and Earth and life science using cards, dice, pattern blocks, and other everyday items. Handouts.

In QUEST of Quality Elementary Science Teaching **(Gen)**

(Preschool–Middle Level) *Mary Lou Williams A&B, Marriott*

Deborah L. Hanuscin *(hanuscind@missouri.edu),* **Deepika Menon** *(dm2qc@mail.mizzou.edu),* **Delinda van Garderen** *(vangarderend@missouri.edu)*, **Jeni Davis** *(jrd4h5@mail.mizzou.edu),* and **Eun Ju Lee** *(el2c9@mail.mizzou.edu)* University of Missouri, Columbia

Tracy Hager, Shepard Boulevard Elementary School, Columbia, Mo.

S. Rená Smith *(srsmith@nwmissouri.edu),* Maryville University and Northwest Missouri State University, Maryville

Come learn how to use Universal Design for Learning to address the needs of ALL students in science!

2:00–3:00 PM Exhibitor Workshop

Active Chemistry **(Chem)**

(Grades 9–12) *2103B, Convention Center*

Sponsor: It's About Time

Gary Curts, Dublin (Ohio) Public Schools

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. We will show 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 Workshops

Fun, Fabulous Foldables® **(Gen)**

(Grades K–12) *2103A, Convention Center*

Sponsor: McGraw-Hill School Education Group

Dinah D. Zike *(dinah@hctc.net),* 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.

From Science to Engineering **(Gen)**

(Grades 6–8) *2104A, 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.

Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science **(Gen)**

(Grades K–8) *2104B, 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.

Master of Science in Geosciences via Distance Learning from Mississippi State University **(Earth)**

(Grades K–12) *2203, Convention Center*

Sponsor: Mississippi State University

Doug Gillham *(dmg3@msstate.edu),* Mississippi State University, Mississippi State, Miss.

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.

Do They Get It? Assessment Strategies for an Inquiry Classroom (Gen)

(Grades K–5) *2205, 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.

Amplify Your Genetics Teaching Skills with Carolina's Inquiries in Science™ Biology Units (Bio)

(Grades 9–12) *2206, 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!

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

(Grades 9–12) *2207, 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!

2:00–3:30 PM Exhibitor Workshops

Transforming the Science Lab with Vernier Technology (Gen)

(Grades 7–College) *2211, Convention Center*

Sponsor: Vernier Software & Technology

Jack Randall *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.

Discover how technology transforms 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) *2215A, 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) *2210, 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) *2208, Convention Center*
Sponsor: PASCO
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.

3:30–4:30 PM Presentations

SESSION 1 (two presentations)
(Preschool–Middle Level) *1501C, Convention Center*

Magnets and Metals: Is There Always an Attraction? (Phys)
Corwin T. Ryck *(ryck.corwin@yahoo.com)* and **James P. Concannon** *(jim.concannon@westminster-mo.edu),* Westminster College, Fulton, Mo.
Address student misconceptions about magnets, including the larger the magnet the stronger it is and all metals are attracted to magnets.

Motivating Students to Monitor and Assess Their Learning (Phys)
Cheryl C. Frye *(cfrye@menifeeusd.org)* and **Shelly Munoz** *(smunoz@menifeeusd.org),* Menifee Valley Middle School, Menifee, Calif.
Motivate students to monitor their understanding of state standards through common assessments and re-teaching modules.

SESSION 2

AAPT AOK Session: Robotics and Physics Teaching (Phys)

(General) *2102A, Convention Center*

Steve J. Maier *(sjmaier@nwosu.edu),* Northwestern Oklahoma State University, Alva

Learn about the BEST robotics program, including how to form a team at your school and/or host a competition.

SESSION 3

Ethnobotany in the Classroom: Integrating Wild Plants into Science and Environmental Studies (Env)

CANCELED

(Informal Education) *2201, Convention Center*

Emmett L. Wright *(birdhunt@ksu.edu),* Kansas State University, Manhattan

David A. Wright *(sowright@smsd.org),* Shawnee Mission South High School, Shawnee Mission, Kans.

MaryJane Wright, Retired Educator, Manhattan, Kans.

Examine medicinal, useful, and edible wild plants within the context of how they can be used to promote scientific, historical, and cultural understandings of the environment through field walks and classroom activities.

SESSION 4

NSTA Avenue Session: The NSTA Learning Center: Free Professional Development Resources and Opportunities for Educators (Gen)

(Supervision/Administration) *2502B, Convention Center*

Flavio Méndez *(fmendez@nsta.org),* Senior Director, NSTA Learning Center, NSTA, Arlington, Va.

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

Lost when it comes to finding online professional development resources to enhance your content knowledge and skills? With more than 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 5

NSTA Press Session: Using Science Notebooks in Middle School Classrooms (Gen)

(Middle Level–College/Supervision) *2503A, Convention Center*

Michael Klentschy *(mpkdr@aol.com),* Carlsbad, Calif.

Learn some strategies for getting started with notebooks in the middle school classroom as well as extending current use. We'll look at writing stems, discussion questions and prompts, note-taking devices, graphing strategies, and feedback guides.

SESSION 6

Field Biology: An Outdoor Summer Enrichment Course (Env)

(High School) *2505A, Convention Center*

Steven L. Tomey *(stomey@lindberghschools.ws),* Lindbergh High School, St. Louis, Mo.

This lab-based class takes students outside daily to investigate biological processes in real habitats. Students also receive credit while exploring environments on weekly field trips throughout the state.

SESSION 7

The Reflective Assessment Technique: Fifteen Minutes to Improved Instruction (Gen)

(Elementary–Middle Level) *3501B, Convention Center*

Cathleen Kennedy *(cathy@kacgroup.com),* KAC Group, San Carlos, 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 8

Concept Mapping and the Learning Cycle: The Dynamic Duo of Achievement (Bio)

(Middle Level–High School) *3501D, Convention Center*

Kelley Reetzke *(kreetzke@kcmsd.net)* and **Mike Nelson** *(mnelson@kcmsd.net),* Southwest Early College Campus, Kansas City, Mo.

Jody Bay *(jbay@kcmsd.net),* Southwest Early College, Kansas City, Mo.

Discover the one, two punch for guiding learners to a deeper understanding of science concepts and development of inquiry-oriented skills.

SESSION 9

NARST Session: Making Connections Between Students' Out-of-School Experiences and Science Learning in the Classroom (Gen)

(General) *Julia Lee A&B, Marriott*

Natalie A. Tran *(ntran6@csub.edu),* California State University, Bakersfield

Come examine the relationship between students' connections to their out-of-school experiences and science learning outcomes.

SESSION 10

Mystery and Mayhem: An Interdisciplinary Activity (Gen)

(Middle Level–High School) *Truman B (Muehlebach), Marriott*

Autumn D. Palmer *(palmera@carthage.k12.mo.us),* Carthage Senior High School, Carthage, Mo.

Starting at the crime and ending at the courthouse, learn how students from multiple disciplines work together to present their findings to a real judge.

3:30–4:30 PM Workshops

National Earth Science Teachers Association Rock and Mineral Raffle (Earth)

(General) *1501B, Convention Center*

Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.

Parker O. Pennington IV *(parkiv@umich.edu),* Retired Educator, Ann Arbor, Mich.

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.

Using Inquiry-based Instructional Strategies to Teach Osmosis and Diffusion to High School Biology Students (Bio)

(Middle Level–High School) *2101, Convention Center*

Deanna M. Lankford *(dmld80@mail.missouri.edu)* and **Patricia Friedrichsen** *(friedrichsenp@missouri.edu),* University of Missouri, Columbia

Support student understanding of diffusion and osmosis through critical thinking and problem solving. We'll share examples of how teachers can use inquiry to improve teaching and learning.

ACS Middle Level Session: Chemical Change and Energy (Chem)

(Middle Level) *2102B, 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 an exothermic chemical reaction.

ACS Session Six: Coupled Reactions, Energetics, and Chemical Bonds (Chem)

(High School) *2103C, 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 the activities to use in your classes.

Discovering the EM Spectrum with NASA (Phys)

(General) *2502A, Convention Center*

David P. Beier *(dbeier@barstowschool.org),* The Barstow School, Kansas City, Mo.

NASA scientists use a variety of instruments to observe and study sources of energy far off into space. Facilitate your students' understanding of the EM spectrum with activities that demonstrate "seeing the invisible." FREE NASA giveaways.

Inquiry Learning Using Probes, Sensors, and Computer Models (Gen)

(Elementary–High School) *2503B, Convention Center*

Carol Williamson *(cwilliamson@ku.edu),* Chairperson, NSTA Kansas City Area Conference, and University of Kansas, Lawrence

Brad Williamson, University of Kansas, Lawrence

Julie Miller *(jmillerirc@olatheschools.com),* Olathe (Kans.) District Schools

Finally, an effective structure to employ probes, sensors, and computer models. This workshop features free classroom-ready online resources developed by The Concord Consortium through an NSF project for grades 3–12 science. Come learn about a summer 2011 workshop.

Open Doors to Nature **(Env)**
(Elementary–High School) *2505B, Convention Center*
Miranda E. Kurbin *(mkurbin@nkcsd.k12.mo.us),* North Kansas City (Mo.) School District
Kathie D. May *(kathleen.may@mdc.mo.gov),* Missouri Dept. of Conservation, Kansas City
Show your students the wonders of the outdoors with orienteering, bird watching, hiking, and tree classification.

City of Materials: Connecting Science to the "Stuff" in Kids' Lives **(Chem)**
(Middle Level/Informal Education) *3501C, Convention Center*
Debbie Goodwin *(nywin@hotmail.com),* Chillicothe High School, Chillicothe, Mo.
Discover an interactive STEM website for middle school students that connects science and engineering to their everyday world. See correlating demonstrations and labs for teachers. Handouts.

NSTA/CBC Outstanding Trade Books **(Gen)**
(General) *Andy Kirk A&B, Marriott*
J. Carrie Launius *(jlaunius@hazelwoodschools.org),* Hazelwood School District, St. Louis, Mo.
E. Wendy Saul *(saulw@umsl.edu),* University of Missouri–St. Louis
Learn what makes an outstanding trade book and how books are selected. See how to integrate these books into your curriculum.

STEM Activities for the Elementary and Middle School Science Classroom **(Gen)**
(Elementary–Middle Level) *Count Basie C, Marriott*
Don Powers *(dt-powers@wiu.edu),* Western Illinois University, Macomb
Explore activities and strategies designed to integrate science, technology, engineering, and math (STEM) in the elementary and middle school classroom.

Saving Energy at Home and School **(Gen)**
(Elementary–Middle Level) *Mary Lou Williams A&B, Marriott*
Mary Spruill *(rlamb@need.org),* The NEED Project, Manassas, Va.
These lessons teach energy efficiency and conservation at home and school. Receive sample materials and innovative ideas for implementing an energy management program in your classroom.

3:30–4:30 PM Exhibitor Workshop

Fourier Probeware and Nova5000 **(Chem)**
(Grades 6–12) *2103B, 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.

3:30–4:45 PM Exhibitor Workshop

Bio-Rad: Light Up Your Classroom with pGLO™ Transformation **(Bio)**
(Grades 7–College) *2202, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(essy_levy@bio-rad.com),* Bio-Rad Laboratories, San Diego, 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
Colonial Ballroom (Muehlebach), Marriott
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

I See What You Mean! Developing Visual Literacy (Gen)

(Grades K–8) *2103A, Convention Center*

Sponsor: McGraw-Hill School Education Group

Jo Anne Vasquez *(jvasquez@helios.org),* 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.

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

(Grades K–12) *2104A, 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.

Biology in the Real World (Bio)

(Grades 9–12) *2104B, Convention Center*

Sponsor: Houghton Mifflin Harcourt

Stephen Nowicki, Duke University, Durham, N.C.

Join Holt McDougal *Biology* author Dr. Stephen Nowicki as he discusses ways to connect the real world to the biology classroom. Dr. Nowicki will end the session by signing copies of Holt McDougal *Biology.*

Test Making at Its Easiest: Let Examgen Show You How! (Gen)

(Grades 5–12) *2203, Convention Center*

Sponsor: Fisher Science Education

Luke Masouras, Examgen, Inc., Syracuse, N.Y.

How many hours per week do you spend making tests and finding questions and formatting them into exams, quizzes, homework, and review material? We can help you minimize the time spent creating all this material. All our material is aligned to your state standards and curricula.

Detecting Radiation in Our Radioactive World (Gen)

(Grades 5–12) *2204, 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.

Introduction to Inquiry in the Middle School Classroom (Gen)

(Grades 6–8) *2205, 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.

Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (Bio)

(Grades 6–12) *2206, 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.

Real Chemistry for All Students…But How? (Chem)

(Grades 9–12) *2207, 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. Tom Hsu will lead this hands-on exploration that will touch the areas of greatest student difficulty and show you many intuitive and practical solutions that will help your students engage with chemistry and learn. *A Natural Approach to Chemistry* doesn't require Bunsen burners nor fume hoods and all the experiments use nontoxic chemicals that are easily disposed of. This is real chemistry without expensive chemical disposal fees!

4:00–5:30 PM Exhibitor Workshop

CPO SmartTrack with Velocity Sensor and Energy Car (Gen)

(Grades 5–12) *2215A, 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. During this inquiry-based learning activity, 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.

4:30–5:00 PM Meeting

Science Teachers of Missouri (STOM) Business Meeting/Awards Ceremony

Count Basie C1, Marriott

The STOM Annual Business Meeting/Awards Ceremony is an opportunity for members to honor awardees, conduct a brief business meeting, and network with Missouri educators. Visit *www.stom.org* for further details.

5:00–7:00 PM Reception

Science Teacher Reception Hosted by Ken-A-Vision and School Specialty Science

(By Invitation Only)* *Count Basie A, Marriott*

Join your friends and colleagues from STOM and KATS at a social reception hosted by Ken-A-Vision and School Specialty Science.

**Stop by the Ken-A-Vision booth (#501) or the School Specialty Science booth (#601) to obtain your invitation to attend.*

7:00–8:30 PM Meeting

Everyone Needs a Betsy Networking Opportunity

Colonial Ballroom, Muehlebach Tower, Marriott

This summer's issue of *Science and Children* featured the article "Everybody Needs a Betsy." Come meet THE Betsy, find your own Betsy, or offer to be another teacher's Betsy. Preservice teachers and teachers of all levels of expertise are invited to join us for this networking event!


NSTA

7:00 AM–7:00 PM Meeting

NSELA Board Meeting

Roosevelt (Muehlebach), Marriott

8:00–9:00 AM Presentations

SESSION 1

Robotics in the Middle Level (Phys)

(Elementary–Middle Level) 2102A, Convention Center

Laura A. Jackson, Summit Lakes Middle School, Lee's Summit, Mo.

See how teachers have used student-programmed robots to motivate learners along the inquiry path.

SESSION 2

Inquiry for Everyone (Really) (Bio)

(Middle Level–High School) 2201, Convention Center

Michael C. Ralph *(mralph03@gmail.com),* Biology Rocks!, Olathe East High School, Olathe, Kans.

Shannon M. Ralph *(sralph81@gmail.com),* Biology Rocks!, Dodge City High School, Dodge City, Kans.

Guided and open inquiry activities for students in the "bottom two-thirds" can be more difficult, but they can yield exceptional results in a biology classroom.

SESSION 3

Teaching About Corals: Using NOAA Resources (Earth)

(Elementary–High School) 2502B, Convention Center

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 can bring corals to life in your classroom.

SESSION 4 (two presentations)

(General) 2505A, Convention Center

Science Saves Football Field (Env)

John R. Sode *(jsode@socket.net),* Marshfield High School, Marshfield, Mo.

Learn how to use student projects to convert urban, suburban, and rural erosion sites into viable environments such as wetlands, forests, and grasslands.

Developing Problem-solving and Mathematical Skills to Quantify the Environmental Impact of Individual Recycling Efforts (Env)

Mary F. Haskins *(mary.haskins@rockhurst.edu),* Rockhurst University, Kansas City, Mo.

Examine web-based recycling and sustainability calculators. We'll share methods of "personalizing" these calculators to analyze an individual's environmental impact.

SESSION 5

Sound Grading Practices (Gen)

(Middle Level–High School/Supv.) 3501B, Convention Center

Daniel L. Rector *(drector@columbia.k12.mo.us),* West Junior High School, Columbia, Mo.

Grades are supposed to measure and communicate what a student can achieve. What are the grades you are assigning truly measuring?

SESSION 6

It's Showtime! Teaching Science with Hollywood Movies, 2010 Edition (Gen)

(Middle Level–College) 3501C, Convention Center

Daniel J. Bergman *(dannyjbergman@gmail.com),* Wichita State University, Wichita, Kans.

Action! Get some ideas for connecting science concepts and movies and other media into students' learning of science.

8:00–9:00 AM Workshops

Bring Electricity to Light! (Phys)
(General) *1501C, Convention Center*
Laura Zinszer *(lzinszer@columbia.k12.mo.us)* and **Mike Cranford** *(mcranfor@columbia.k12.mo.us),* West Junior High School, Columbia, Mo.
Are your wires crossed? Do your batteries seem depleted? Come get charged up and learn how we teach electricity in our ninth-grade Physics First classes. We'll share hands-on lessons on series and parallel circuits, resistors, Ohm's Law, voltage drop, and more using our unique electricity boards.

Developing Awareness of Individual Impact on the Environment Through Activities (Env)
(General) *2102B, Convention Center*
Abha Singh, Western Illinois University, Macomb
Learn how to motivate learners to modify their lifestyles and habits for wise use of resources and practical problem solving.

Polydensity Tube: Make–Learn–Take = Serious Fun with a Dense Subject (Chem)
(Middle Level–High School/Informal) *2103C, Convention Center*
Lynn Higgins *(lynhiggins@sbcglobal.net),* Polymer Ambassadors, St. Louis, Mo.
Make your own polydensity tube with solids floating or sinking in two immiscible liquids. No oil, so layers separate cleanly and quickly. Activities use materials found in your local grocery store.

Engaging Students with Math and Science Through Global Issues (Gen)
(Middle Level–High School/Informal) *2210, Convention Center*
Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador/Supai, Phoenix, Ariz.
Bring contemporary global issues like climate change, sustainable design, and population growth alive in your class. Participate in hands-on lessons that use real-world data to integrate math and science. Receive free curriculum!

Scale the Universe (Gen)
(Middle Level–High School) *2502A, Convention Center*
Rae McEntyre *(rae.mcentyre@education.ky.gov),* Kentucky Dept. of Education, Frankfort
How big is big? How small is small? Come "Scale the Universe" as we investigate size and scale. Free NASA materials!

Radiation Storm *vs.* Magnetic Shield: Superheroes of Magnetism and Space Weather Education (Earth)
(Informal Education) *2503A, Convention Center*
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
Becca Hatheway, University Corporation for Atmospheric Research, Boulder, Colo.
Try some tested hands-on activities and resources about the basics of magnetism, Earth's magnetic field and poles, and space weather. Handouts provided.

What's Your Cosmic Connection to the Elements? (Chem)
(Middle Level–High School) *2503B, Convention Center*
Cheryl Niemela *(clniemela@gmail.com),* Universities Space Research Association, Greenbelt, Md.
These activities and curricula from NASA explore the origin of the periodic elements. Take home a workbook, poster, and *Imagine the Universe* CD.

Hands-On Learning Activities for AP Biology (Bio)
(High School) *2504A&B, Convention Center*
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.

Biotechnology and Environmental Risk: Project Learning Tree's New Secondary Program (Env)
(High School–College) *2505B, Convention Center*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Laura Downey *(ldowney@kacee.org),* Kansas Association for Conservation and Environmental Education (KACEE), Manhattan
Explore biotechnology from an environmental and societal perspective using new activities and case studies. Each participant will receive the Project Learning Tree (PLT) Exploring Environmental Issues: Focus on Risk module and biotechnology supplement.

✔ **Enhancing Nature of Science Through Literature Circles** **(Gen)**
(Elementary–High School) *3501D, Convention Center*
Emily Love *(elove@bssd.net),* Former MU Fellow, and Moreland Ridge Middle School, Blue Springs, Mo.
Dane Schaffer *(dlszh3@mail.missouri.edu),* Graduate Student, University of Missouri, Columbia
See how to use literature circles in your classroom to incorporate the National Science Education Standard "History and Nature of Science." Door prizes!

Dynamic Demos That Motivate Student Discussion and Inquiry **(Gen)**
(Middle Level–High School) *Count Basie A, Marriott*
Elizabeth Grotelueschen, Retired Educator, Gering, Neb.
Julia Willoughby, Math/Science Teacher, Lander, Wyo.
These easily duplicated demonstration ideas promote discussion and further inquiry while introducing concepts of density, air pressure, and electricity/magnetism.

Water, Precious Water **(Gen)**
(Elementary) *Count Basie C, Marriott*
Lynn Carr *(lcarr@gvtc.com),* AIMS Education Foundation, Fresno, Calif.
Participate in four events—Amazing Water Race/Water Stretch, Fold and Float, Paper Towel Absorption, and Bubble Rings—to better understand adhesive and cohesive forces.

Weird and Wacky Ways to Integrate Science, Math, and Literature **(Gen)**
(General) *Julia Lee A&B, Marriott*
Sue E. Hall, Polymer Ambassador, Stevens Point, Wis.
Sandra Van Natta, Intersociety Polymer Education Council, Hamilton, Ohio
Put some wiggle into your science literature. Investigate discovery-oriented lessons that will enhance curriculum integration. Experience classroom-tested activities presented by teachers with more than 80 years of combined teaching.

8:00–9:00 AM Exhibitor Workshop

Bio-Rad Genes in a Bottle™ Kit **(Bio)**
(Grades 7–College) *2202, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(essy_levy@bio-rad.com),* Bio-Rad Laboratories, San Diego, 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!

8:30–11:00 AM SPECIAL EVENT

Science Matters Community Event
(Elementary) *Exhibit Hall B, 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. The Planetary Society Vice President Bill Nye, popularly known as Bill Nye the Science Guy®, 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.*

8:30–11:30 AM Short Course

✔ **The Science of Energy (SC-6)**
(Grades 4–12) *Truman B (Muehlebach), Marriott*
Tickets Required: $20
Mary Spruill *(info@need.org)*, The NEED Project, Manassas, Va.
For description, see page 35.

9:00 AM–12 Noon Exhibits

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

9:30–10:30 AM Presentations

SESSION 1

Forces: What Physics Books Do Not Tell You (Phys)
(Elementary–Middle Level) *2102A, Convention Center*
John F. Wiegers *(wiegers@wustl.edu)* and **Patrick C. Gibbons** *(pcg@wuphys.wustl.edu),* Washington University in St. Louis, Mo.
Ann P. McMahon *(annpmcmahon@gmail.com),* University of Missouri–St. Louis
Use 5E lesson plans and critical-thinking questions/skills as you engage in hands-on activities that transform recitational knowledge into conceptual understandings of forces and balance.

SESSION 2

English Language Learners Find Identity in "Places and Plants" (Bio)
(General) *2201, Convention Center*
Melanie M. Fraga *(melanie.fraga@jcps.k12.mo.us)* and **Julie A. Cook** *(julie.cook@jcps.k12.mo.us),* Jefferson City High School, Jefferson City, Mo.
Genealogical roots can be traced through botanical roots. The study of ethnobotany and students' ethnic cuisine can bridge the gap between old and new worlds.

SESSION 3

Using NOAA's Climate Change Resources in Your Classroom (Earth)
(General) *2502B, 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 numerous high-interest educational materials on this critical topic.

SESSION 4

NSTA Press Session: Science Teaching as a Profession (Gen)
(General) *2503A, Convention Center*
Sheila Tobias, Author, Tucson, Ariz.
Examine why science teaching isn't a profession, and why it matters that it isn't. Using case studies, we'll look at steps aimed at retaining science teachers who are needed more than ever.

SESSION 5

Using Concept Cartoons to Address Misconceptions in Biology (Bio)
(Middle Level–High School) *3501D, Convention Center*
Sue White *(slwhite@usd260.com),* Derby High School, Derby, Kans.
Learn how a unique visual approach, known as Concept Cartoons, is used to identify and remedy common science misconceptions that students bring from their experiences.

9:30–10:30 AM Workshops

UKanTeach Share-a-Thon (Gen)
(General) *1501B, Convention Center*
Carol Williamson *(cwilliamson@ku.edu),* Chairperson, NSTA Kansas City Area Conference, and University of Kansas, Lawrence
Learn about the innovative UKanTeach program at the University of Kansas and experience some inquiry-based model lessons for grades 3–12. Freebies!

The Rainbow and Beyond (Phys)
(General) *1501C, Convention Center*
Nisse A. Lee *(missphizniss@gmail.com)* and **Sheila A. Ferguson** *(sferguso@lamar.colostate.edu),* Colorado State University, Fort Collins
Join Little Shop of Physics for a hands-on romp through the electromagnetic spectrum—visible light, ultraviolet light, and infrared and thermal radiation. Free lessons and supplies!

Glass Jars, Gum Drops, and Big Boxes: Teaching Big Concepts with Everyday Materials (Bio)
(Middle Level–High School) *2101, Convention Center*
Rebecca K. Robinett *(rrobinett@esu3.org),* Weeping Water (Neb.) Public Schools
Teach inquiry projects using these simple supplies that really grab students' attention. Many of the tools used in the inquiries are supplied by students at no cost to them.

Use Polymers to Teach Chemistry (Chem)
(Middle Level–High School) *2102B, Convention Center*
Jon Valasek *(valasekjon@yahoo.com),* St. Mark's School of Texas, Dallas
Many chemistry concepts can be taught using polymers. Try some hands-on activities related to the topic.

The Impact of Polymers on Impact Sports (Chem)
(Middle Level) 2103C, Convention Center
Sandra Van Natta, Intersociety Polymer Education Council, Hamilton, Ohio
Sue E. Hall, Polymer Ambassador, Stevens Point, Wis.
Learn the science involved in the manufacture of sports gear. Test a variety of polymeric materials used in helmets and identify their properties. Handouts and materials.

Astronomy at the Edge: Mysterious Black Holes Revealed (Earth)
(Middle Level–High School) 2210, Convention Center
Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador/Supai, Phoenix, Ariz.
Led by a NASA Educator Ambassador, we'll explore the properties and structures of galaxies and the awe-inspiring black holes at their centers. Take home a CD-ROM.

The Invisible Universe (Earth)
(Middle Level–High School) 2502A, Convention Center
Rae McEntyre *(rae.mcentyre@education.ky.gov),* Kentucky Dept. of Education, Frankfort
If we can't see it, does it really exist? We will explore the properties of light waves in an effort to answer this question. Free NASA materials!

Exploring the Moon and Solar System (Earth)
(General) 2503B, Convention Center
John A. Ross *(jross@fhsu.edu)* and **Paul E. Adams** *(padams@fhsu.edu),* Fort Hays State University, Hays, Kans.
"Exploring the Moon and Solar System" introduces attendees to materials based on space exploration and space technology that help students develop 21st-century skills.

Standards-based Active Learning: Protein Structure and Function **(Bio)**
(High School–College) *2504A&B, Convention Center*
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.

Facilitating Early Childhood Education with Project Learning Tree **(Env)**
(General) *2505B, Convention Center*
Al Stenstrup *(astenstrup@forestfoundation.org)* and **Jackie Stallard** *(jstallard@forestfoundation.org),* Project Learning Tree, Washington, D.C.
Laura Downey *(ldowney@kacee.org),* Kansas Association for Conservation and Environmental Education (KACEE), Manhattan
Learn some effective hands-on activities to introduce science concepts to young children using Project Learning Tree's (PLT) new early childhood curriculum. Each participant will receive PLT's *Environmental Experiences for Early Childhood* activity guide and accompanying music CD.

Forensics Science in Your Physics Classroom **(Phys)**
(High School) *3501C, Convention Center*
Jacklyn Bonneau *(bonneau@wpi.edu),* Massachusetts Academy of Math & Science, Worcester
Make physics topics interesting with forensics. Use these hands-on experiences with students at all levels.

Science Centers: Exposure, Exploration, Application **(Gen)**
(Elementary–Middle Level) *Count Basie A, Marriott*
LaShonette D. Kemp *(hasidyah777@gmail.com),* Allen Village School, Kansas City, Mo.
Discover tried-and-true and possibly brand-new science center ideas to ensure that your K–8+ classroom has the potential to provide students with science exposure/exploration.

Earth as a System Is Essential: Using Real-World Data in the Classroom **(Gen)**
(Middle Level) *Count Basie C, Marriott*
Joyce B. Tugel *(jtugel@mmsa.org),* Maine Mathematics and Science Alliance, Augusta
Learn how teachers in the Earth as a System Is Essential project use NOAA data to investigate weather and climate in students' "bigger backyard."

Using Biofuels from Feedstock to Tailpipe to Stimulate Inquiry **(Gen)**
(High School–College) *Julia Lee A&B, Marriott*
Claudia J. Bode *(bode@ku.edu),* and **Susan Williams** *(smwilliams@ku.edu),* University of Kansas, Lawrence
Lisa Blair *(lisa.blair@greenbush.org),* Southeast Kansas Education Service Center–Greenbus, Girard
Teachers in a summer program created activities that relate biofuels research to science concepts. These resources promote inquiry and connect science to the real world.

9:30–11:00 AM Exhibitor Workshop

Bio-Rad: ELISA and Swine Flu Workshop **(Bio)**
(Grades 7–College) *2202, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(essy_levy@bio-rad.com),* Bio-Rad Laboratories, San Diego, Calif.
What do pigs and people have in common? Swine flu is thought to be a rearrangement of four known strains of influenza A virus. An ELISA assay is a powerful diagnostic tool that enables the rapid detection of disease-causing agents such as H1N1. Discover how this disease is transmitted using a hands-on ELISA experiment and also learn how vaccinations work.

11:00 AM–12 Noon Presentations

SESSION 1

Using Live Wind Turbine Data in Your Classroom (Phys)

(High School) *2102A, Convention Center*

Michael Arquin *(michael@kidwind.org),* KidWind Project, St. Paul, Minn.

Use live wind data in your classroom to better understand the science and engineering of wind power.

SESSION 2

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

(Elementary–High School) *2505A, Convention Center*

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

Having students create multimedia digital stories about science concepts increases engagement, literacy, inclusion, and ownership of material. Learn story development, software, resources, and tips.

SESSION 3

Focusing On Student Learning Through Examining Student Work and Lesson Study (Gen)

(General) *3501B, Convention Center*

Sara S. Torres *(storres@columbia.k12.mo.us),* **Thuy Nguyen** *(tnguyen@columbia.k12.mo.us),* and **Sara Lyon** *(salyon@columbia.k12.mo.us),* Columbia (Mo.) Public Schools

Presider: Laura Zinszer *(lzinszer@columbia.k12.mo.us),* West Junior High School, Columbia, Mo.

Explore how a professional learning community can focus on student learning through an examination of student work and lesson study.

SESSION 4

Science Safety in Arkansas, Iowa, Kentucky, and Missouri: Tools and Reports (Gen)

(General) *Count Basie A, Marriott*

Jack A. Gerlovich *(jakel@netins.net),* Drake University, Des Moines, Iowa

I'll share some major published research studies (extending over a 20-year period) representing several states. I'll also conduct a demonstration of some CD-ROM tools designed to address specific safety issues in academic science settings. These tools have recently been recognized by the courts as the standard for safety in academic science programs.

11:00 AM–12 Noon Workshops

Be the Molecule! (Phys)

(General) *1501C, Convention Center*

Sheila A. Ferguson *(sferguso@lamar.colostate.edu),* and **Nisse A. Lee** *(missphizniss@gmail.com),* Colorado State University, Fort Collins

Join Little Shop of Physics for a lively kinesthetic workshop tackling abstract concepts—greenhouse gases, atmospheric pressure, phase changes, and radioactive decay. Free lessons and supplies!

Use Technology to Integrate Science and Math! (Bio)

(Middle Level–High School) *2101, Convention Center*

Jeff Lukens, Roosevelt High School, Sioux Falls, S.Dak.

Science and math should be natural curriculum partners. Technology can help bridge the gap between these two areas and bring relevance to each classroom.

Put the Greener "Corn" Plastic in a New Recycled Plastics Identification Scheme (Chem)

(Middle Level–High School) *2103C, Convention Center*

Mary E. Harris *(polymermary@gmail.com),* Polymer Ambassador, John Burroughs School, St. Louis, Mo.

Sandra Van Natta, Intersociety Polymer Education Council, Hamilton, Ohio

Let Polymer Ambassadors help you identify greener "corn" plastic in a recycled plastics identification scheme intended for middle level and high school students.

Engaging Climate Change: Global Connections and Sustainable Solutions (Earth)

(Middle Level–High School/Informal) *2210, Convention Center*

Pamela Whiffen *(pwpwr@aol.com),* NASA Educator Ambassador/Supai, Phoenix, Ariz.

Experience hands-on lessons that demonstrate the interconnections between natural systems and human actions using carbon footprint, emissions trading, and energy policy. Free curriculum!

Cloudy Day Activities: Bridging Cloud Science, Literacy, and Art (Earth)
(Elementary–Middle Level) *2502B, Convention Center*
Becca Hatheway, University Corporation for Atmospheric Research, Boulder, Colo.
Roberta M. Johnson *(rmjohnsn@gmail.com),* National Earth Science Teachers Association, Boulder, Colo.
Explore hands-on and online activities that illustrate the processes of cloud formation and allow students to make observations of the sky. Handouts and CDs provided.

From Pixels to Images: Decoding Starlight (Earth)
(Middle Level–High School) *2503B, Convention Center*
Christine A. Royce *(caroyce@aol.com),* NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.
Doug Lombardi *(lombardi.doug@gmail.com),* Southern Nevada Regional Professional Development Program, North Las Vegas
Use the steps of a problem-based task to convert invisible X-ray energy into images of spectacular space objects.

Standards-based Active Learning: DNA, RNA, and Protein (Bio)
(High School–College) *2504A&B, Convention Center*
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 learning about the flow of genetic information using a series of innovative physical models of DNA, RNA, and proteins.

Environmental Education at Your Fingertips (Env)
(Elementary) *2505B, Convention Center*
Barbara Z. Tharp *(btharp@bcm.edu),* and **Michael Vu** *(mv12@bcm.edu),* Baylor College of Medicine, Houston, Tex.
K8science.org offers an entire series for grades 3–5 addressing the physical, life, and environmental science of air, water, and global issues. Units include integration of math, reading, and language arts.

NASA Brings You Newton's Laws of Motion (Phys)
(Middle Level–High School) *3501C, Convention Center*
David P. Beier *(dbeier@barstowschool.org),* The Barstow School, Kansas City, Mo.
A NASA Astrophysics Ambassador will walk you through more than 20 hands-on investigations. Fun and ready to use in your class next week! FREE NASA materials.

✔ **Enhancing Critical-thinking Skills Through Scientific Discrepant Events Instruction (Gen)**
(General) *3501D, Convention Center*
Emmett L. Wright *(birdhunt@ksu.edu),* Kansas State University, Manhattan
David A. Wright *(sowright@smsd.org),* Shawnee Mission South High School, Overland Park, Kans.
Engage in discrepant events from all the sciences, within the context of 5E instruction, to promote conceptual learning. Handouts.

Science and Math Lessons for the Physical Sciences (Gen)
(Middle Level) *Julia Lee A&B, Marriott*
Susan German *(sgerman@hallsville.org),* Hallsville Middle School, Hallsville, Mo.
Elizabeth O'Day *(boday@hallsville.org),* Hallsville Intermediate School, Hallsville, Mo.
These lessons illustrate how simple materials, formative assessments, and inquiry starters can be used to integrate math and science. Tips for differentiation will also be included.

Microscopes, Household Compounds, and Eco-Productive Data for Science in the Real World (Gen)
(Elementary) *Mary Lou Williams A&B, Marriott*
Ava F. Pugh *(apugh@ulm.edu),* The University of Louisiana at Monroe
Infuse literacy and mathematics into science using hands-on activities (create a homemade microscope, test household compounds, and integrate trade books).

11:00 AM–12 Noon Exhibitor Workshop

Bio-Rad Cloning and Sequencing Explorer Series (Bio)
(Grades 9–College) *2202, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(essy_levy@bio-rad.com),* Bio-Rad Laboratories, San Diego, Calif.
Get your students published in GenBank! In this unique modular lab series, students are guided through an innovative research workflow identical to those performed in genomics labs worldwide. Learn about this multiple-week lab course, where students combine traditional and cutting-edge molecular biology techniques and bioinformatics to clone, sequence, and analyze a housekeeping gene from a plant of your choice, ensuring each class produces unique and novel data.

Some exhibitors have classified their products by grade level and subject area. Subject areas are abbreviated here as follows:

Biology/Life Science	Bio
Chemistry/Physical Science	Chem
Earth/Space Science	Earth
Environmental Science	Env
Integrated/General Science	Gen
Physics/Physical Science	Phys

A foldout floor plan of the Exhibit Hall is available at Program Pickup.

3D Molecular Designs **#427**
1050 N. Market St. Bio, Chem
Suite CC130A 4–12, College
Milwaukee, WI 53202
Phone: 414-774-6562
E-mail: *herman@msoe.edu*
Website: *www.3dmoleculardesigns.com*

See our new and improved products and customers' favorites: Water Kit, DNA Discovery Kit, Amino Acid Starter Kit and paper bioinformatics and protein folding kits. 3D Molecular Designs and the MSOE Center for BioMolecular Modeling (CBM) have collaborated to provide molecular models and professional development. CBM is involved in designing physical molecular models and supporting curricula.

AIMS Education Foundation **#706**
1595 S. Chestnut Ave. Bio, Earth,
Fresno, CA 93702 Env, Gen
Phone: 888-733-2467 K–9
E-mail: *nradke@aimsedu.org*
Website: *www.aimsedu.org*

AIMS Education Foundation develops curricula for K–9 using hands-on activities. AIMS curricula focus on mathematics and science investigations. The AIMS Model of Learning provides a practical method for differentiating instructional strategies to meet the diverse needs of all students.

American Association of Physics Teachers **#521**
Phys
One Physics Ellipse 6–12, College
College Park, MD 20740
Phone: 301-209-3333
E-mail: *membership@aapt.org*
Website: *www.aapt.org*

Visit the AAPT booth to see our line of physics toys and gifts, first-time books from our physics store catalog, new and favorite T-shirts, and exciting giveaways. Be sure to pick up copies of AAPT's informational brochures on some of the leading physics education programs such as PTA and Physics Olympiad.

American Chemical Society **#420**
1155 16th St. NW Chem, Gen
Washington, DC 20036 K–12, College
Phone: 202-872-6269
E-mail: *p_isikoff@acs.org*
Website: *www.acs.org*

The American Chemical Society (ACS) is the world's largest scientific society. ACS will exhibit textbooks, reference materials, videos, and other materials to supplement the K–12 and college curricula. ACS will also provide information on programs for students and teachers.

American Lab Design **#316**
PO Box 2351 Bio, Chem,
Daytona Beach, FL 32115 Earth, Phys
Phone: 800-494-3237 12, College
E-mail: *mikelee6677@aol.com*

American Meteorological Society **#526**
1120 G St. NW, Suite 800 Earth, Env
Washington, DC 20005 K–12, College
Phone: 202-737-1043
E-mail: *amsedu@ametsoc.org*
Website: *www.ametsoc.org/amsedu*

The AMS Education Program offers content-rich professional development courses and training workshops for teachers in the geosciences. Along with workshops in meteorology (Project Atmosphere) and oceanography (Maury Project), the AMS guides local implementation teams throughout the U.S. to offer DataStreme Atmosphere, DataStreme Ocean, and DataStreme Earth's Climate System (ECS).

American Nuclear Society **#723**
555 N. Kensington Ave. Gen
La Grange Park, IL 60526 5–12
Phone: 708-352-6611
E-mail: *outreach@ans.org*
Website: *www.ans.org*

The American Nuclear Society exhibit offers teachers free, classroom-ready resources for teaching about nuclear science and technology. Educators may preview teacher handbooks offered through ANS workshops and K–4 teachers receive a copy of the *Atoms Family* coloring book.

Exhibitors

Apperson Education Products **#710**
851 SW 34th St., Bldg. B — All
Renton, WA 98057 — K–12, College
Phone: 800-827-9219
E-mail: *dspaulding@appersonprint.com*
Website: *www.appersonedu.com/go/nsta-mw*

Apperson offers test-scoring solutions for both the classroom and district level. Combine any Apperson scanner with our FREE DataLink software and gain immediate access to data-rich reports. Contact us to register for a free, no-risk 30-day trial.

Aquatic Eco-Systems, Inc. **#519**
2395 Apopka Blvd., Ste. 100 — Bio
Apopka, FL 32703 — K–12, College
Phone: 407-886-3939
E-mail: *aes@aquaticeco.com*
Website: *www.aquaticeco.com*

Aquatic Eco-Systems is the world's largest distributor of educational materials for teaching aquaculture, hydroponics, aquaponics, and other related subjects. The company has been in business for more than 30 years and has a technical staff of 20 experienced biologists. Aquatic Eco-Systems also provides designs and installation of fully equipped facilities.

Arbor Scientific **#410**
PO Box 2750 — Chem, Gen, Phys
Ann Arbor, MI 48106-2750 — 4–12, College
Phone: 800-367-6695
E-mail: *mail@arborsci.com*
Website: *www.arborsci.com*

Arbor Scientific works with science teachers to develop educational science supplies, science instruments, and physics lab equipment that make learning fun for students of all ages. Try the most dynamic hands-on methods that demonstrate key concepts and principles of physical science, physics, and chemistry and preview the latest software.

Astronomy To Go **#326**
1115 Melrose Ave. — All
Melrose Park, PA 19027 — PreK–12, College
Phone: 215-831-0485
E-mail: *astro2go@aol.com*
Website: *www.astronomytogo.com*

As a nonprofit education organization, we fund our traveling astronomy programs through our traveling museum shop, which carries a large assortment of astronomy and science-related T-shirts, books, teaching aids, and gifts, as well as an extensive collection of meteorites and tektites. We also carry the full line of Giant Microbes.

Bedford, Freeman & Worth Publishers and W.H. Freeman **#618**
4B Cedarbrook Dr. — All
Cranbury, NJ 08512 — 9–12, College
Phone: 866-843-3715
E-mail: *cweiss@bfwpub.com/highschool*
Website: *www.bfwpub.com/highschool*

W.H. Freeman of Bedford, Freeman & Worth (BFW) Publishers is the prestigious publisher of several groundbreaking texts, software, and instructor materials. Visit our booth to preview the resources. You may also peruse our website to request complimentary consideration copies: *www.bfwpub.com/highschool.*

Bio-Rad Laboratories **#311**
6000 James Watson Dr. — Bio
Hercules, CA 94547 — 7–12, College
Phone: 510-741-1000
E-mail: *biotechnology_explorer@bio-rad.com*
Website: *http://explorer.bio-rad.com*

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CAM Publishing Group, Inc. **#416**
Science Weekly — Gen
2141 Industrial Pkwy., Suite 201B — K–6
Silver Spring, MD 20904

Science Weekly is a curriculum supplement that offers a differentiated (grade-level specific) and interdisciplinary approach to teaching science to elementary and middle school students. Fundamental concepts and basic facts are highlighted within a real-world, age-appropriate context and presented with a full-color, easy-to-manage, biweekly "worksheet-style" curriculum for grades K–6. Each issue is supported with comprehensive Teaching Notes.

Carolina Biological Supply Co. **#301**
2700 York Rd. — All
Burlington, NC 27215 — K–12, College
Phone: 800-334-5551
E-mail: *carolina@carolina.com*
Website: *www.carolina.com*

Carolina Biological Supply Company is a worldwide leader in providing top-quality, innovative science and math materials for educators. Carolina serves the K–12 and college market with everything needed to equip a science laboratory or classroom. A complete catalog, Carolina™ Science, is also available free to educators and health professionals.

Carolina Curriculum **#401**
2700 York Rd. — Bio, Chem, Earth,
Burlington, NC 27215 — Gen, Phys
Phone: 800-334-5551 — K–8
E-mail: *carolina@carolina.com*
Website*: www.carolinacurriculum.com*

Carolina has the results-driven curriculum and literacy resources you need to meet assessment standards and help you and your students succeed. Stop by our booth to learn more about our new literacy resources and more. Also get your copy of the 2010 Carolina™ Curriculum catalog.

Catalyst Learning Curricula AP Science Daily Lesson **#505**
59 Clemmons St. — Bio, Earth,
Asheville, NC 28801 — Env, Gen
Phone: 828-687-0807 — 9–12
E-mail: *kristen.dotti@catalystlearningcurricula.com*
Website: *www.catalystlearningcurricula.com*

Providing hands-on engagement activities for teachers of AP and pre-AP science through year-long curricula and teacher training that is 100% experientially based. Sequential daily lesson plans curricula that exceed the national and state standards are currently available for high school biology and environmental science courses.

Civil Air Patrol National Headquarters #321 Earth
105 S. Hansell St. K–12, College
Montgomery, AL 36112
Phone: 334-953-7748, x-409
E-mail: *ddahl@capnhq.gov*
Website: *www.gocivilairpatrol.com*

The Civil Air Patrol exhibit booth will demonstrate easy aerospace classroom activities and provide information on how to receive free flights, programs, and more than 20 educational products to help educators inspire students toward STEM curricula and careers.

CNL World #228 Env
343 Morehead St. 6–12, College
Chadron, NE 69337
Phone: 308-221-1143
E-mail: *lockwoodc@cnlworld.org*
Website: *www.cnlworld.org*

CNL World is a nonprofit education outreach and professional development resource group for environmental and Earth sciences. WET-MAAP, a CNL World program, provides basic training in ecological concepts, technological skills, and interpretation methods for understanding and assessing wetland and upland habitat change for grades 6–12 and college formal and informal educators.

Construction Challenge #716 Gen, Phys, Tech
1111 S. Union Ave. 9–12
Cherry Hill, NJ 08002
Phone: 856-324-4685
E-mail: *jbatchelor@dihq.org*
Website: *www.constructionchallenge.org*

Construction Challenge is an innovative career-education initiative designed to engage high school students with real-world hands-on experiences in the construction industry, while preparing students for entry into the 21st-century construction workforce.

CPO Science/School Specialty Science #600 Phys
80 Northwest Blvd. 6–12
Nashua, NH 03063
Phone: 800-932-5227
E-mail: *customerservice.cpo@schoolspecialty.com*
Website: *www.cposcience.com*

CPO Science provides all the essential components for an inquiry-based science program for grades 6–12. Our teaching and learning systems include student texts and investigations manuals, hands-on equipment, integrated technology, and complete teacher resources, including professional development opportunities. Our programs are ideal for differentiated instruction and meet state and national standards.

Crow Canyon Archaeological Center **#322**
Gen
23390 Road K
4–12, College
Cortez, CO 81321
Phone: 970-565-8975
E-mail: *dmiller@crowcanyon.org*
Website: *www.crowcanyon.org*

At Crow Canyon Archaeological Center, we offer an optimal educational environment that encourages students to actively participate in the learning process through hands-on activities and group discussion. We believe the goal of education is to give students the intellectual tools they need to explore the world and think critically.

Cyber-Anatomy, Inc. **#623**
1910 S. Gilbert St.
Bio, Earth,
Iowa City, IA 52240
Chem, Gen
Phone: 319-354-2555
K–12, College
E-mail: *alisha@cyber-anatomy.com*
Website: *www.cyber-anatomy.com*

Cyber-Anatomy, a small Iowa-based company, develops interactive anatomy and science content. Our initial product (Cyber-Anatomy) is an award-winning immersive 3-D model of the human anatomy. Our Cyber-Science 3-D product line is a growing library of simulations in the areas of human anatomy, zoology, botany, biology, Earth science, paleontology, and chemistry.

Delta Education/School Specialty Science **#601**
Gen
80 Northwest Blvd.
PreK–8
Nashua, NH 03063
Phone: 800-442-5444
E-mail: *customerservice.delta@deltaeducation.com*
Website: *www.deltaeducation.com*

Delta Education is the publisher of a complete line of hands-on inquiry-based science programs, including FOSS®, DSM™, and Seeds of Science/Roots of Reading® for grades K–8. In addition, we offer high-quality informational texts that complement your reading programs and help students understand key science content.

Dinah-Might Adventures, LP **#617**
PO Box 690328
Gen
San Antonio, TX 78269
K–12
Phone: 800-993-4624
E-mail: *dma@dinah.com*
Website: *www.dinah.com*

Dinah-Might Adventures is an educational publishing and consulting company owned by author/speaker Dinah Zike. Her books are known for their innovative ways to use Foldables® in teaching all subjects and grade levels.

Discovery Scope and Associates **#630**
3202 Echo Mountain Dr.
Bio, Earth,
Kingwood, TX 77345
Env, Gen
E-mail: *dscopes@aol.com*
K–12, College
Website: *www.discoveryscope.com*

Discovery Scope is a handheld, wide-field microscope with special features for viewing a hidden world of living things. Made in the United States, the microscope is very durable, portable, and user friendly. It is simply the easiest way to observe living things.

Discovery Student Adventures **#527**
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Website: *www.discoverystudentadventures.com*

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The DuPont Challenge **#221**
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Wilmington, DE 19898
Phone: 302-695-2554
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Website: *www.epa.gov/sunwise*

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American Nuclear Society (Booth #723)

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Bio-Rad Laboratories (Booth #311)

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LAB-AIDS, Inc., cont.

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Biology/Life Science

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12 Noon–1:15 PM	9–12	2206, Conv. Center	Introduction to Electrophoresis (p. 88)
12 Noon–1:15 PM	9–12	2207, Conv. Center	SGI Biology: Putting the Life Back in Life Science! (p. 88)
12:30–1:30 PM	G	2101, Conv. Center	NABT Session: The Evolutionary History of Life on Earth (in Less Than an Hour) (p. 90)
12:30–1:30 PM	6–8	2103B, Conv. Center	There's More to Project-Based Inquiry Science Than Just a Project (p. 92)
12:30–1:30 PM	H	3501B, Conv. Center	Tools for Data-driven Biology Teaching (p. 90)
1:00–2:30 PM	9–C	2202, Conv. Center	Bio-Rad: Enzymes and Biofuels—Go from Grass to Gas! (AP Lab 2) (p. 93)
2:00–3:00 PM	M–H	2101, Conv. Center	Plier Birds (p.95)
2:00–3:00 PM	H	2201, Conv. Center	The Case of the Circling Mouse: Animal Models, Human Disease, and Modes of Inheritance (p. 93)
2:00–3:00 PM	H	2504A&B, Conv. Center	Bioinformatics and Challenging Darwin's Common Ancestor Inference: A 5E Lesson (p. 95)
2:00–3:15 PM	9–12	2206, Conv. Center	Amplify Your Genetics Teaching Skills with Carolina's Inquiries in Science™ Biology Units (p. 97)
3:30–4:30 PM	M–H	2101, Conv. Center	Using Inquiry-based Instructional Strategies to Teach Osmosis and Diffusion to High School Biology Students (p. 100)
3:30–4:30 PM	M–H	3501D, Conv. Center	Concept Mapping and the Learning Cycle: The Dynamic Duo of Achievement (p. 99)
3:30–4:45 PM	7–C	2202, Conv. Center	Bio-Rad: Light Up Your Classroom with pGLO™ Transformation (p. 101)
4:00–5:15 PM	9–12	2104B, Conv. Center	Biology in the Real World (p. 102)
4:00–5:15 PM	6–12	2206, Conv. Center	Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (p. 102)

Saturday

8:00–9:00 AM	M–H	2201, Conv. Center	Inquiry for Everyone (Really) (p. 105)
8:00–9:00 AM	7–C	2202, Conv. Center	Bio-Rad Genes in a Bottle™ Kit (p. 107)
8:00–9:00 AM	H	2504A&B, Conv. Center	Hands-On Learning Activities for AP Biology (p. 106)
9:30–10:30 AM	M–H	2101, Conv. Center	Glass Jars, Gum Drops, and Big Boxes: Teaching Big Concepts with Everyday Materials (p. 108)
9:30–10:30 AM	G	2201, Conv. Center	English Language Learners Find Identity in "Places and Plants" (p. 108)
9:30–10:30 AM	H–C	2504A&B, Conv. Center	Standards-based Active Learning: Protein Structure and Function (p. 110)
9:30–10:30 AM	M–H	3501D, Conv. Center	Using Concept Cartoons to Address Misconceptions in Biology (p. 108)
9:30–11:00 AM	7–C	2202, Conv. Center	Bio-Rad: ELISA and Swine Flu Workshop (p. 110)
11:00 AM–12 Noon	M–H	2101, Conv. Center	Use Technology to Integrate Science and Math! (p. 111)
11:00 AM–12 Noon	9–C	2202, Conv. Center	Bio-Rad Cloning and Sequencing Explorer Series (p. 112)
11:00 AM–12 Noon	H–C	2504A&B, Conv. Center	Standards-based Active Learning: DNA, RNA, and Protein (p. 112)

Chemistry/Physical Science

Thursday

8:00–8:30 AM	M–H	2102B, Conv. Center	Introducing Chemistry with *An Inconvenient Truth* (p. 41)
8:00–9:00 AM	I	2103C, Conv. Center	Squeezing GLUE-GOO into the National Science Education Standards (p. 43)
10:00–11:15 AM	9–12	2103A, Conv. Center	Flinn Scientific Presents Best Practices for Teaching Chemistry™: Experiments and Demonstrations (p. 46)
10:00–11:15 AM	9–12	2104A, Conv. Center	It's Here! The All-new Pearson *Chemistry* ©2012 (p. 46)

10:00–11:15 AM	7–C	2203, Conv. Center	Using Modern Molecular Modeling Techniques in Middle and High School Science Classrooms (p. 46)
12:30–1:30 PM	M–C	2102B, Conv. Center	Teaching Chemistry Using Modeling Instruction (p. 49)
12:30–1:30 PM	M–H/I	2103C, Conv. Center	Polymerically Perfect Sodas: Teaching the Science and Technology of Plastics (p. 51)
2:00–3:00 PM	E–M	2102B, Conv. Center	Inquiry Matters: Incorporating Inquiry into Elementary and Middle School Physical Science (p. 56)
2:00–3:00 PM	H	2103C, Conv. Center	Corrosion Is Everywhere: Use It to Make Chemistry Relevant and Fun (p. 54)
2:15–3:30 PM	9–12	2104A, Conv. Center	If You Teach AP Chemistry, You Gotta Get This! (p. 58)
2:15–3:30 PM	9–12	2203, Conv. Center	Living by Chemistry: What Shape Is That Smell? (p. 59)
3:30–4:30 PM	H	2102B, Conv. Center	NanoTeach: Helping Students Understand Nanoscience (p. 61)
3:30–4:30 PM	M–H	2103C, Conv. Center	Polymers: New Twists on Old Favorites (p. 62)
4:00–5:15 PM	6–12	2204, Conv. Center	ScholAR Chemistry In-the-Bag Inquiry (p. 63)
4:00–5:15 PM	9–12	2206, Conv. Center	Energize Your Chemistry Students' Inquiry Skills with Carolina's Inquiries in Science™ Chemistry Series (p. 63)
5:00–5:30 PM	M–H	3501C, Conv. Center	Students' Inquiries About the Ideal Gas Law (p. 65)
5:00–6:00 PM	M–H	2102B, Conv. Center	Fossil Fuels to Products (p. 66)
5:00–6:00 PM	H	2103C, Conv. Center	Basic Polymer Chemistry for the High School Classroom (p. 65)

Friday

8:00–9:00 AM	M	2102B, Conv. Center	ACS Middle Level Session: Solids, Liquids, and Gases: The Kinetic Theory of Matter (p. 70)
8:00–9:00 AM	6–8	2103B, Conv. Center	Project-Based Inquiry Science (PBIS): The Next Generation of Middle School Programs (p. 72)
8:00–9:00 AM	H	2103C, Conv. Center	ACS Session One: What's Matter Made Of? (p. 70)
8:00–9:00 AM	H	3501C, Conv. Center	Solids: The Neglected "State" of Chemistry (p. 69)
8:00–9:15 AM	9–12	2203, Conv. Center	Living by Chemistry: Feeling Under Pressure (p. 73)
8:00–9:15 AM	6–12	2204, Conv. Center	ScholAR Chemistry In-the-Bag Inquiry (p. 73)
8:00–9:15 AM	6–8	2207, Conv. Center	Fast and Furious: Force and Motion for Middle School! (p. 73)
9:30–10:30 AM	M	2102B, Conv. Center	ACS Middle Level Session: Heat Transfer and Changes of State (p. 79)
9:30–10:30 AM	H	2103C, Conv. Center	ACS Session Two: What Holds Molecules Together? (p. 79)
9:50–10:10 AM	G	Yardbird B, Marriott	SCST Session: Teaching Organic Chemistry Through Group Problem Solving with Maximum Guidance and Minimal Lecturing (p. 81)
10:00–11:15 AM	9–C	2203, Conv. Center	Teaching AP Chemistry with Molecular-Level Visualization and Simulation Tools (p. 82)
11:00 AM–12 Noon	M	2102B, Conv. Center	ACS Middle Level Session: Density (p. 86)
11:00 AM–12 Noon	H	2103C, Conv. Center	ACS Session Three: Why Is Water Different? (p. 86)
11:00 AM–12 Noon	6–12	2208, Conv. Center	Discovery-based Chemistry with SPARKscience: States of Matter (p. 87)
12:30–1:30 PM	M	2102B, Conv. Center	ACS Middle Level Session: The Periodic Table, Energy Levels, and Bonding (p. 91)
12:30–1:30 PM	H	2103C, Conv. Center	ACS Session Four: Bond Connections in More Complex Molecules (p. 91)
2:00–3:00 PM	M	2102B, Conv. Center	ACS Middle Level Session: Polarity of the Water Molecule and Dissolving (p. 95)
2:00–3:00 PM	9–12	2103B, Conv. Center	Active Chemistry (p. 96)
2:00–3:00 PM	H	2103C, Conv. Center	ACS Session Five: Chemistry of Aqueous Solutions of Gases (p. 95)
2:00–3:15 PM	9–12	2207, Conv. Center	What Is the Difference Between Heat and Temperature? (p. 97)
3:30–4:30 PM	M	2102B, Conv. Center	ACS Middle Level Session: Chemical Change and Energy (p. 100)
3:30–4:30 PM	6–12	2103B, Conv. Center	Fourier Probeware and Nova5000 (p. 101)
3:30–4:30 PM	H	2103C, Conv. Center	ACS Session Six: Coupled Reactions, Energetics, and Chemical Bonds (p. 100)
3:30–4:30 PM	M/I	3501C, Conv. Center	City of Materials: Connecting Science to the "Stuff" in Kids' Lives (p. 101)
4:00–5:15 PM	9–12	2207, Conv. Center	Real Chemistry for All Students…But How? (p. 102)

Saturday

8:00–9:00 AM	M–H/I	2103C, Conv. Center	Polydensity Tube: Make–Learn–Take = Serious Fun with a Dense Subject (p. 106)
8:00–9:00 AM	M–H	2503B, Conv. Center	What's Your Cosmic Connection to the Elements? (p. 106)
9:30–10:30 AM	M–H	2102B, Conv. Center	Use Polymers to Teach Chemistry (p. 108)
9:30–10:30 AM	M	2103C, Conv. Center	The Impact of Polymers on Impact Sports (p. 109)
11:00 AM–12 Noon	M–H	2103C, Conv. Center	Put the Greener "Corn" Plastic in a New Recycled Plastics Identification Scheme (p. 111)

Earth/Space Science

Thursday

8:00–9:00 AM	E–H	2502A, Conv. Center	NASA CERES S'COOL Project: Be a S'COOL Cloud Observer! (p. 41)
8:00–9:00 AM	E–M	2502B, Conv. Center	Bringing Glaciers into the Classroom (p. 43)
12:30–1:30 PM	M	2502A, Conv. Center	MoonKAM: Exploring Lunar Images (p. 51)
12:30–1:30 PM	E–H	2502B, Conv. Center	Activities from Across the Earth System (p. 51)
12:30–1:45 PM	5–12	2204, Conv. Center	The Sky Through the Ages (p. 53)
2:00–3:00 PM	M	2502B, Conv. Center	Earth Science: Can You Dig It? (p. 54)
2:15–3:30 PM	5–12	2204, Conv. Center	The Layered Earth (p. 59)
3:30–4:30 PM	I	2502A, Conv. Center	Free Planetarium Simulators and Lessons (p. 60)
3:30–4:30 PM	E	2502B, Conv. Center	Temperature and Weather (p. 62)
5:00–6:00 PM	E–M	2101, Conv. Center	Glacier Dynamics: The Science and Activities (p. 66)
5:00–6:00 PM	M–H/I	2502A, Conv. Center	Your Life Is Full of Space: How Space Science Impacts Your Daily Life (p. 66)
5:00–6:00 PM	G	2502B, Conv. Center	JetStream: An Online School for Weather (p. 65)

Friday

8:00–9:00 AM	M–H	2502A, Conv. Center	Cosmic Times: Relating Astronomy History to Science Inquiry (p. 70)
8:00–9:00 AM	G	2502B, Conv. Center	Ocean Cores: Window to the Past (p. 69)
8:00–9:00 AM	S	2505A, Conv. Center	A "Mission to Mars" STEM Robotics Field Experience for Students (p. 69)
8:00–9:15 AM	K–8	2104A, Conv. Center	The Science Behind Climate Change: What Every Student (and Teacher) Should Know (p. 72)
9:30–10:30 AM	G	2102A, Conv. Center	AAPT AOK Session: Using the Galileoscope in Introductory Astronomy Classes (p. 79)
9:30–10:30 AM	M–H	2502A, Conv. Center	MY NASA DATA: Your Students Can Be Earth Scientists! (p. 78)
9:30–10:30 AM	M–C	2502B, Conv. Center	When Teaching About Earthquakes, Don't Forget About New Madrid (p. 80)
9:30–10:30 AM	H	2503B, Conv. Center	Remote Sensing: Mapping the Ice Sheets in Greenland and Antarctica (p. 80)
10:00–11:15 AM	3–8	2205, Conv. Center	Discover the Solar System and Beyond (p. 82)
10:00–11:15 AM	6–8	2207, Conv. Center	Teaching About the Rock Cycle and Earth Time (p. 82)
11:00 AM–12 Noon	9–12	2103B, Conv. Center	NEW! *Investigating Astronomy* from TERC/*EarthComm* from AGI (p. 87)
11:00 AM–12 Noon	G	2502B, Conv. Center	Hazardous Weather: Thunderstorms, Tornadoes, Hurricanes, and Snowstorms (p. 86)
11:00 AM–12 Noon	M–H	2504A&B, Conv. Center	Stellar Life Cycles (p. 86)
11:00 AM–12 Noon	E–M	3501C, Conv. Center	Small Bodies, Big Concepts: Planetary Science (p. 86)
12 Noon–1:15 PM	5–12	2204, Conv. Center	The Layered Earth (p. 88)
12:30–1:30 PM	H–C	2102A, Conv. Center	AAPT AOK Session: So You Want a School Observatory—What Comes Next? (p. 90)
12:30–1:30 PM	G	2502A, Conv. Center	NASA's High-Energy Vision: Chandra and the X-ray Universe (p. 90)
1:00–2:00 PM	6–12	2208, Conv. Center	Discovery-based Middle School Science with Sally Ride Science and SPARKscience (p. 92)
2:00–3:00 PM	E–H	1501B, Conv. Center	National Earth Science Teachers Association Earth Science Share-a-Thon (p. 95)

2:00–3:00 PM	E–M	2502A, Conv. Center	Engaging Upper Elementary and Middle School Students in International Science Inquiry (p. 93)
2:00–3:00 PM	H	2502B, Conv. Center	Ice Core Records—From Volcanoes to Stars (p. 95)
2:00–3:15 PM	K–12	2203, Conv. Center	Master of Science in Geosciences via Distance Learning from Mississippi State University (p. 96)
3:30–4:30 PM	G	1501B, Conv. Center	National Earth Science Teachers Association Rock and Mineral Raffle (p. 100)

Saturday

8:00–9:00 AM	E–H	2502B, Conv. Center	Teaching About Corals: Using NOAA Resources (p. 105)
8:00–9:00 AM	I	2503A, Conv. Center	Radiation Storm *vs.* Magnetic Shield: Superheroes of Magnetism and Space Weather Education (p. 106)
9:30–10:30 AM	M–H	2210, Conv. Center	Astronomy at the Edge: Mysterious Black Holes Revealed (p. 109)
9:30–10:30 AM	M–H	2502A, Conv. Center	The Invisible Universe (p. 109)
9:30–10:30 AM	G	2502B, Conv. Center	Using NOAA's Climate Change Resources in Your Classroom (p. 108)
9:30–10:30 AM	G	2503B, Conv. Center	Exploring the Moon and Solar System (p. 109)
11:00 AM–12 Noon	M–H/I	2210, Conv. Center	Engaging Climate Change: Global Connections and Sustainable Solutions (p. 111)
11:00 AM–12 Noon	E–M	2502B, Conv. Center	Cloudy Day Activities: Bridging Cloud Science, Literacy, and Art (p. 112)
11:00 AM–12 Noon	M–H	2503B, Conv. Center	From Pixels to Images: Decoding Starlight (p. 112)

Environmental Science

Thursday

8:00–9:00 AM	M–H	2505A, Conv. Center	Climate Change Projections Using Online Water Budget Modeling (p. 42)
8:00–9:00 AM	M–H	2505B, Conv. Center	Environmental Science in a World of Seven Billion (p. 44)
10:00–11:15 AM	9–12	2206, Conv. Center	Need "Energy" in Your Environmental Classes? Learn About Carolina's Inquiries in Science™ Environmental Series (p. 47)
12:30–1:30 PM	M–C	2505A, Conv. Center	Rated MPG for Confusion: Using Gas Mileage to Learn Data Analysis Skills (p. 50)
12:30–1:30 PM	G	2505B, Conv. Center	Teaching Environmental Awareness Through Geocaching (p. 52)
2:00–3:00 PM	M–H/I	2505B, Conv. Center	Climate Change: Classroom Tools to Explore the Past, Present, and Future (p. 56)
3:30–4:30 PM	G	2505A, Conv. Center	How Healthy Is Our Water? (p. 60)
3:30–4:30 PM	M–H/I	2505B, Conv. Center	Tackling the Global Warming Challenge in a Rapidly Changing World (p. 62)
3:30–4:30 PM	M–H	3501C, Conv. Center	Real-World Environmental Education Through Community Partnerships (p. 62)
5:00–6:00 PM	M–H	2505A, Conv. Center	Start a Wind Energy Challenge in Your State (p. 65)
5:00–6:00 PM	H	2505B, Conv. Center	Hands-On Learning Activities for AP Environmental Science (p. 66)

Friday

8:00–9:00 AM	E–M/I	2505B, Conv. Center	Teaching Science Outdoors and Making Local Connections (p. 70)
9:30–10:30 AM	M–C	2505A, Conv. Center	Developing an Alternative Energy Resources Lab at Your School (p. 78)
9:30–10:30 AM	E–M	2505B, Conv. Center	The Forest Ecosystem (p. 80)
11:00 AM–12 Noon	G	2201, Conv. Center	U.S. Regional GLOBE Networking Session (p. 84)
11:00 AM–12 Noon	M	2505A, Conv. Center	Connecting Drug Education, Environmental Science, and Technology: The Game Is On! (p. 84)
11:00 AM–12 Noon	E	2505B, Conv. Center	How Do Natural Disasters Affect People? A Project-based Learning Lesson (p. 84)
12:30–1:30 PM	E–M	2503A, Conv. Center	NSTA Press Session: Outdoor Science: A Practical Guide (p. 91)
12:30–1:30 PM	I	2505A, Conv. Center	Environmental Stewardship: Awards, Recognition, and Grants (p. 90)

12:30–1:30 PM	I	2505B, Conv. Center	Global Connections: Forests of the World (p. 92)
2:00–3:00 PM	G	2505A, Conv. Center	"No Child Left Inside" Educational Innovation (p. 94)
2:00–3:00 PM	G	2505B, Conv. Center	GreenSchools! (p. 95)
2:00–3:00 PM	M–H	3501C, Conv. Center	EPA Tools for Teachers for Air Quality and Climate Change Education (p. 94)
2:30–4:00 PM	6–12	2208, Conv. Center	Renewable Energy Exploration—Solar, Wind, and Hydrogen Fuel Cells (p. 98)
3:30–4:30 PM	I	2201, Conv. Center	Ethnobotany in the Classroom: Integrating Wild Plants into Science and Environmental Studies (p. 99)
3:30–4:30 PM	H	2505A, Conv. Center	Field Biology: An Outdoor Summer Enrichment Course (p. 99)
3:30–4:30 PM	E–H	2505B, Conv. Center	Open Doors to Nature (p. 101)

Saturday

8:00–8:30 AM	G	2505A, Conv. Center	Science Saves Football Field (p. 105)
8:00–9:00 AM	G	2102B, Conv. Center	Developing Awareness of Individual Impact on the Environment Through Activities (p. 106)
8:00–9:00 AM	H–C	2505B, Conv. Center	Biotechnology and Environmental Risk: Project Learning Tree's New Secondary Program (p. 106)
8:30–9:00 AM	I	2505A, Conv. Center	Developing Problem-solving and Mathematical Skills to Quantify the Environmental Impact of Individual Recycling Efforts (p. 105)
9:30–10:30 AM	G	2505B, Conv. Center	Facilitating Early Childhood Education with Project Learning Tree (p. 110)
11:00 AM–12 Noon	E–H	2505A, Conv. Center	Give Science a Voice! Digital Storytelling in the Science Classroom (p. 111)
11:00 AM–12 Noon	E	2505B, Conv. Center	Environmental Education at Your Fingertips (p. 112)

Integrated/General

Thursday

8:00–9:00 AM	E–H	3501B, Conv. Center	Using "Clickers" to Guide Instruction in the Science Classroom (p. 42)
8:00–9:00 AM	G	3501C, Conv. Center	Metric Week (p. 44)
8:00–9:00 AM	M–H	Andy Kirk A&B, Marriott	Finding New Levels of Achievement Through Standards-based Grading (p. 42)
8:00–9:00 AM	G	Colonial Ballroom, Marriott	Science Notebooking in 3-D (p. 44)
8:00–9:00 AM	E	Count Basie A, Marriott	NASA Education Resources: Going Beyond Space Sciences (p. 44)
8:00–9:00 AM	G	Count Basie C, Marriott	Is This Your First NSTA Conference? (p. 42)
8:00–9:00 AM	E–H	Julia Lee A&B, Marriott	Get That Textbook Out of My Classroom! How to Integrate Young Adult Literature in the Science Classroom (p. 42)
8:00–9:00 AM	G	Lester Young A, Marriott	Insider Tips: Resources and Field Trips to Informal Science Centers (p. 42)
8:00–9:00 AM	M	Mary Lou Williams A&B, Marr.	Using Toys to Teach Science (p. 42)
8:00–9:15 AM	5–8	2104A, Conv. Center	Inquiry in the Classroom (p. 44)
8:00–9:15 AM	7–10	2208, Conv. Center	Introducing Inquiry Investigations™: Hands-On Inquiry Activities Focusing On Technology (p. 44)
8:00–9:15 AM	K–6	2209, Conv. Center	Experimental Design (p. 44)
8:00–9:30 AM	5–12	2215A, Conv. Center	Chemistry and the Atom: Fun with Atom Building Games! (p. 45)
8:00–10:00 AM	5–8	2210, Conv. Center	Using Science Notebooks with FOSS Middle School (p. 45)
9:00–11:00 AM	2–5	2207, Conv. Center	Innovative Science and Literacy Integration: Seeds of Science/Roots of Reading® (p. 45)
9:15–10:30 AM	G	3501 E–H, Conv. Center	General Session: Science Education: Conceptual Understanding at an Emotional Level (Speaker: Jeff Goldstein) (p. 46)
10:00–11:15 AM	7–10	2208, Conv. Center	Inquiry Investigations™ Forensics Science Curriculum Module and Kits (p. 47)
10:00–11:15 AM	K–8	2209, Conv. Center	Introducing the Delta Science Module Program (p. 47)
10:00–11:30 AM	5–12	2215A, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 47)

11:00 AM–1:30 PM	5–8	2210, Conv. Center	A Sneak Preview of the New Planetary Science Middle School Course from FOSS (p. 48)
11:30 AM–1:30 PM	2–5	2207, Conv. Center	Innovative Science and Literacy Integration: Seeds of Science/Roots of Reading® (p. 48)
12 Noon–1:15 PM	5–C	2208, Conv. Center	Educational Science Lab Design and Implementation for the 21st Century Made Easy (p. 48)
12 Noon–1:30 PM	5–12	2215A, Conv. Center	CPO SmartTrack with Velocity Sensor and Energy Car (p. 48)
12:30–1:30 PM	S	2503A, Conv. Center	NSTA Press Session: So You Want New Science Facilities? (Science Facilities 101) (p. 51)
12:30–1:30 PM	H	3501B, Conv. Center	Creating Effective Science Literacy Assessments (p. 52)
12:30–1:30 PM	G	3501D, Conv. Center	Use a Three-Prong Approach to Develop Conceptual Understanding (p. 52)
12:30–1:30 PM	E–H	Andy Kirk A&B, Marriott	The Science of Bread Making (p. 50)
12:30–1:30 PM	E–H	Colonial Ballroom, Marriott	Get SIMulated! (p. 50)
12:30–1:30 PM	M–H	Count Basie A, Marriott	Modeling the Spectrum (p. 52)
12:30–1:30 PM	G	Julia Lee A&B, Marriott	NSELA Session: Tools and Ideas for Leaders (p. 50)
12:30–1:30 PM	G	Lester Young A, Marriott	Before and After Retirement: Practicalities and Possibilities (p. 51)
12:30–1:30 PM	G	Mary Lou Williams A&B, Marr.	"Literacy" *vs.* "literacy"—What's the Difference? (p. 51)
12:30–1:45 PM	9–12	2104A, Conv. Center	The Next Generation of Science Virtual Labs—No Cleanup Required (p. 52)
12:30–1:45 PM	K–8	2104B, Conv. Center	Effective STEM Challenges for the Classroom (p. 52)
1:00–2:30 PM	K–8	2209, Conv. Center	What's Going on in There? Inquiry Science for Supervisors, Teacher Trainers, and Teachers (p. 53)
2:00–2:30 PM	I	Mary Lou Williams A&B, Marr.	Making the Real-World Connection to Science (p. 55)
2:00–3:00 PM	M–H	2102A, Conv. Center	Paperless Integrated Math and Science Instruction (p. 56)
2:00–3:00 PM	G	2105, Conv. Center	Featured Presentation: Science Education Partnerships: Lessons from the K-State Olathe Innovation Campus (Speaker: Lisa C. Freeman) (p. 53)
2:00–3:00 PM	G	2503A, Conv. Center	NSTA Press Session: The Architects Have Started Without Me! What Do I Do Now? (Science Facilities 102) (p. 56)
2:00–3:00 PM	M–H	3501B, Conv. Center	Impact of Standards-based Grading on Student Learning (p. 54)
2:00–3:00 PM	E–M	3501D, Conv. Center	Science + Writing + Learning (p. 57)
2:00–3:00 PM	E–M	Andy Kirk A&B, Marriott	Science Showcase Night: More Than Your Average Fair (p. 54)
2:00–3:00 PM	G	Colonial Ballroom, Marriott	Engaging Students, Developing Science Knowledge, and Teaching Science Literacy Skills with Quality Nonfiction Science Books (p. 54)
2:00–3:00 PM	M–H	Count Basie A, Marriott	The Station Approach: Using Learning Centers to Teach with Limited Resources (p. 57)
2:00–3:00 PM	P–M	Count Basie C, Marriott	CESI Session: Get the Scoop: A Wealth of Resources for the K–8 Teacher (p. 54)
2:00–3:00 PM	G	Julia Lee A&B, Marriott	NSELA Session: NSELA Working Groups—Network with Science Education Leaders (p. 54)
2:00–3:00 PM	G	Lester Young A, Marriott	Starting an NSTA Student Chapter: Faculty and Student Perspectives (p. 55)
2:00–3:15 PM	10–12	2208, Conv. Center	Bring Your Science Lab into the 21st Century Using iNeo/SCI™ Virtual Science Solutions (p. 57)
2:00–3:30 PM	5–12	2215A, Conv. Center	Springs and Swings: Harmonic Motion and Hooke's Law (p. 57)
2:00–4:00 PM	G	2503B, Conv. Center	NSTA ESP Symposium I: ESP: Unique Features of Programs That Meet "More Emphasis" Features in the NSES (p. 58)
2:15–3:30 PM	6–8	2103A, Conv. Center	Hands-On Integrated Science Activities for Middle School (p. 58)
2:30–3:00 PM	G	Mary Lou Williams A&B, Marr.	Using and Creating Geotagged Media (p. 55)
2:30–4:30 PM	K–6	2210, Conv. Center	Using Science Notebooks with FOSS K–6 (p. 60)
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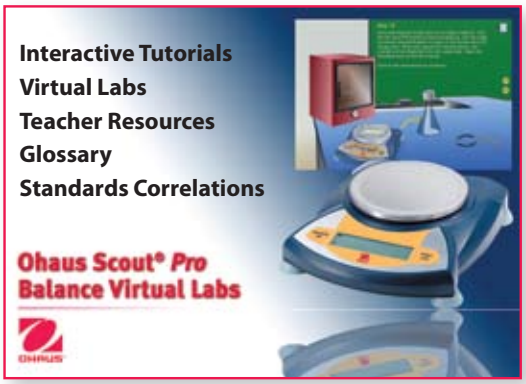

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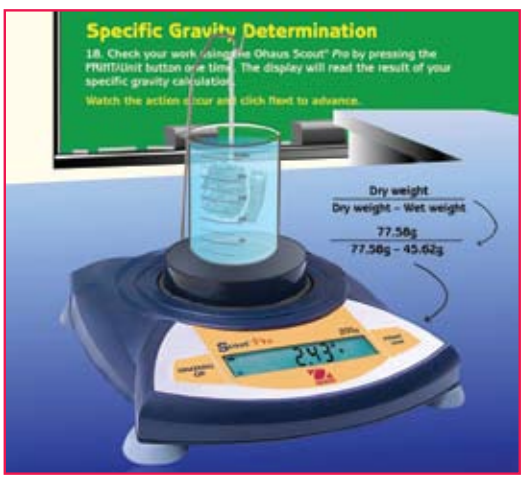

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