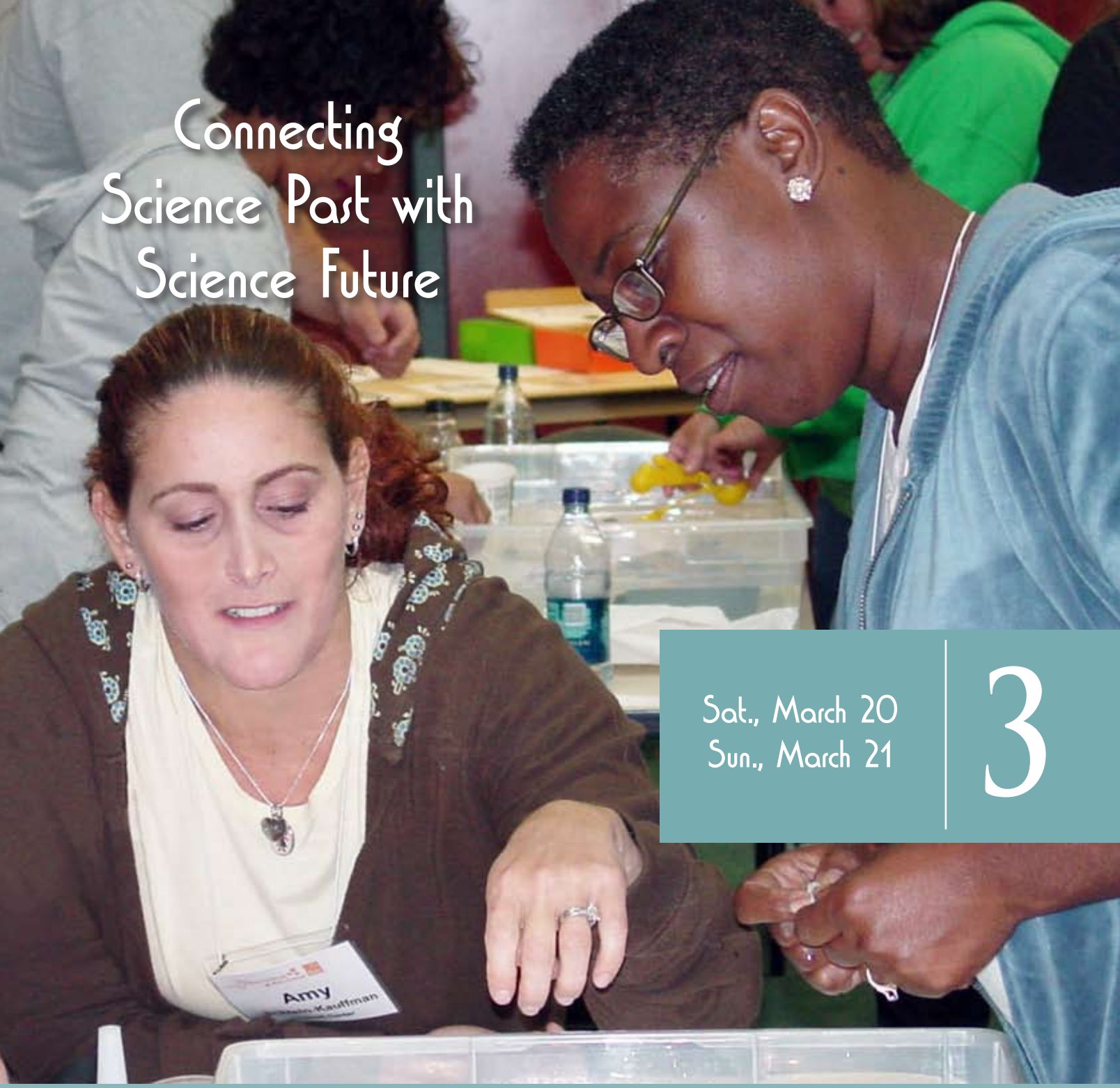

Connecting Science Past with Science Future

Sat., March 20
Sun., March 21

3

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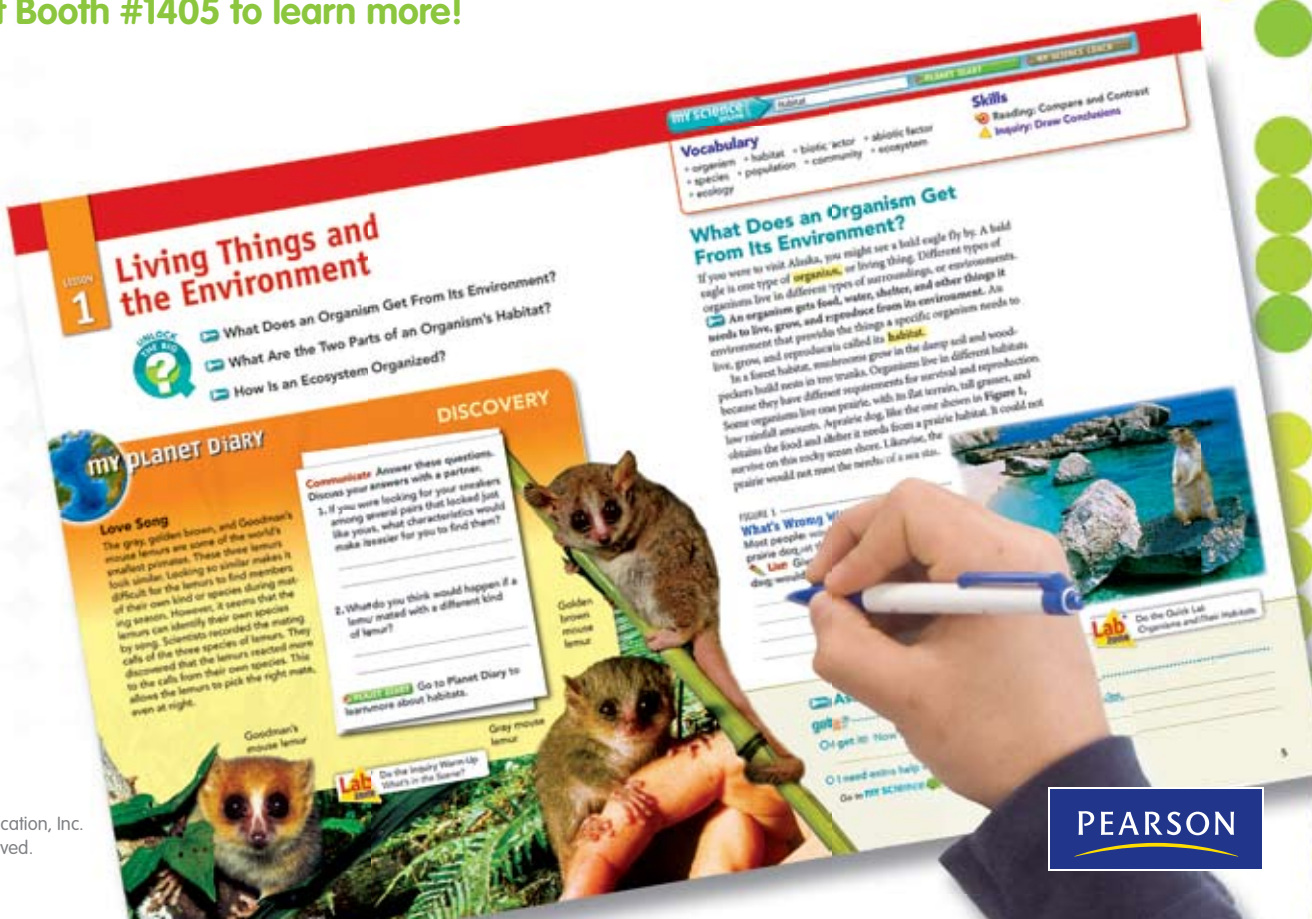

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NSTA National Science Teachers Association

NSTA 58th National Conference on Science Education

Philadelphia, Pennsylvania • March 18–21, 2010

Volume 3 Sat., March 20/Sun., March 21

Cover Photo
Workshop participants investigate water at The Franklin Institute.

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

The NSTA Science Bookstore has Professional Development Titles for Building Excellence

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Store Hours

Wednesday	5:00–8:00 PM
Thursday	7:00 AM–6:00 PM
Friday	7:00 AM–5:00 PM
Saturday	7:00 AM–5:00 PM
Sunday	7:30 AM–12 Noon

NSTA National Science Teachers Association

—Edward Savaria, Jr. /PCVB

Saturday, March 20

Sunday, March 21

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

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

✔ **Meeting the Unique Needs of Urban and Rural Science Learners**
Urban and rural environments are unique in many ways. It is important that teachers, administrators, and parents are collaboratively involved in helping students achieve their fullest potential in science. This strand will provide the participant with programs and teaching strategies that have demonstrated increased academic achievement, foster interest and participation in science, and employ exemplary science programs in urban and rural areas.

Connecting Content: Between, Within, and Among Subjects
In this day and age, the need for relevant connections within and between all subjects and all content is important in assisting students to become globally productive citizens. Providing opportunities for students to engage in developing and establishing integrative concepts is key. This strand will focus on sessions that demonstrate the interconnectedness of science topics with other subjects at varying grade levels.

Closing the Digital Generation Gap Between Teachers and Students
Students today are often advanced in the use of digital technology. How can teachers, many of whom are digital immigrants, become responsible digital educators? The understanding and use of technology are critical components of STEM education. The appropriate use of current technology supports the development of "21st Century Skills" such as real-world applications, creative problem solving, collaboration, and effective communication.

★ **Rekindling the Fires of Science Teaching and Learning**
This strand will provide exemplary programs, best practices, and strategies to increase teacher retention and renewal by focusing on such areas as professional learning communities, administrative and science leader support, professional development that focuses on both science content and pedagogy, mentoring programs, and collegial support strategies.

Meeting the Unique Needs of Urban and Rural Science Learners

Saturday, March 20

8:00–9:00 AM
¡Youth & the Ocean! (¡YO!): An Academic Achievement and Research Program for Underrepresented Middle School Students

9:30–10:30 AM
Meaningful Environmental Science for Urban Learners

11:00 AM–12 Noon
Interactive Science Notebooks for Inspiring Young Scientists

12:30–1:30 PM
ELD Strategies in Science

1:30–3:00 PM
Shell Science Seminar: Talent Knows No Color Line (Speaker: Garland L. Thompson)

2:00–3:00 PM
Applied Geosciences in the City for Middle School Students

3:30–4:30 PM
City Science: Using Your City as a Classroom

Sunday, March 21

8:00–9:00 AM
The Urban Advantage of Field Science Investigations

Connecting Content: Between, Within, and Among Subjects

Saturday, March 20

8:00–9:00 AM
Engaging Students, Developing Science Knowledge, and Teaching Science Literacy Skills with Quality Nonfiction Science Books

9:30–10:30 AM
Physics and Art

11:00 AM–12 Noon
The Making of Lava Lamps: An Interdisciplinary Project Supporting STEM Education

12:30–1:30 PM
Connecting Math, Science, and Literacy for the Good of All!

2:00–3:00 PM
Mitosis, DNA, and Me!

2:00–5:00 PM
Short Course: The Young Scientist: Engaging Three- to Five-Year-Old Children in Science (By Ticket: SC-16)

3:30–4:30 PM
Connecting Children to Nature with Growing Up WILD

5:00–6:00 PM
Infusing Energy Education into Science, Mathematics, and Social Studies

Closing the Digital Generation Gap Between Teachers and Students

Saturday, March 20

8:00–9:00 AM
Creating Science Media Collaboratively: Teacher/Student Science Documentaries

8:00–11:00 AM
Short Course: MESSENGER: Integrate Technology with Classroom Instruction That Works (By Ticket: SC-11)

9:30–10:30 AM
Taking a CHANCE: A New and Different Multimedia-based Pedagogical Tool for High-Impact Learning

12:30–1:30 PM
Using Students' Already-developed Technology Skills

Creating Biologically Realistic 3-D Animations to Encourage Inquiry in the Classroom

1:30–3:30 PM
Shell Science Seminar: Authentic Astronomical Data Analysis in Educational Settings (Speaker: Terry Matilsky)

2:00–3:00 PM
Teach Locally, Collaborate Globally

3:30–4:30 PM
Using Virtual Labs to Fuel Inquiry and Promote Student Achievement

Teaching Chemistry to High School Students at a Cyber Charter School

5:00–6:00 PM
Using a Social Media Tool to Motivate Learning

Tablet PCs Promote Classroom Interaction in Math and Science

Rekindling the Fires of Science Teaching and Learning

Saturday, March 20

8:00–9:00 AM
Living and Working in Space: A Simulation Adapted for Classroom Use

9:00 AM–12 Noon
Short Course: Expedition Earth and Beyond (By Ticket: SC-14)

9:30–10:30 AM
Edible Science: Science Good Enough to Eat!

11:00 AM–12 Noon
Mentoring for Success: Supporting the First-Year Science Teacher

Surviving Your First Year as a Science Chairperson

12:30–1:30 PM
Sticky Notes and Student Identification of Variables in Science Investigations

Accessing Chemistry: Reaching All Students

2:00–3:00 PM
Moving Beyond Retention: Setting the Stage for the Next Generation of Teacher Leaders

3:30–4:30 PM
Captivate Your Students with Magic!

5:00–6:00 PM
"Simple"y the Best Demos

NSTA/SCST College Symposium

The Future of Quality Waters: An Educational Symposium Jointly Sponsored by NSTA and SCST

Saturday, March 20, 8:00 AM–12 Noon

Commonwealth B, Loews

Water is the most plentiful molecule on Earth's surface, but only three milliliters out of every 100 liters are pure enough for humans to consume. The rest is contaminated by naturally occurring factors that are geological, climatological, biological, or human influences caused by the disposal of industrial, agricultural, and residential residues. Studies indicate that over eight million people around the world die from consuming contaminated water every year. Four highly regarded experts in the future of the world's waters will come together at this symposium to discuss the pressures of maintaining the quality of water today and share their predictions for the future. An agenda follows. *See the Saturday daily program for details.*

Saturday, March 20

8:00–8:15 AM	Introduction Walter S. Smith, NSTA Director, College Science Teaching, and Texas Tech University, Lubbock Tom Lord, Indiana University of Pennsylvania, Indiana
8:15–9:00 AM	Featured Speaker Dan Wible, Water Resource and Environmental Engineer, CH2M Hill and Associates, Englewood, Colo.
9:15–10:00 AM	Featured Speaker Charles Duhigg, Reporter and Author, *The New York Times,* New York, N.Y.
10:15–11:00 AM	Featured Speaker Kent Crawford, Water Quality Specialist, Pennsylvania Water Science Center, U.S. Geological Survey, New Cumberland
11:15 AM–12 Noon	Featured Speaker Christopher Gorthy, LEED Accredited Professional, DPR Construction, Inc., Falls Church, Va.

Following the symposium, don't miss the NSTA/SCST College Luncheon (Ticket M-10) from 12 Noon to 1:30 PM (see page 66). Also scheduled on Saturday afternoon is a field trip (Ticket S-6) to the Fairmont Water Works Interpretive Center (see Vol. 1, page 69).

NESTA Earth and Space Science Resource Day: Earth System Science and the Environment

Saturday, March 20, 7:00 AM–6:30 PM

Liberty A/B, Sheraton

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

Saturday, March 20

7:00–8:30 AM	NESTA Earth and Space Science Resource Day Breakfast *Logans 1, Sheraton* Featured Speakers Tanya Furman, Professor of Geosciences, The Pennsylvania State University, University Park Laura Gertin, Associate Professor of Earth Sciences, Penn State Brandywine, Media, Pa. *(This event was available from NESTA by preregistration only.)*
9:30–10:30 AM	NESTA Earth System Science and the Environment Share-a-Thon
11:00 AM–12 Noon	Advances in Earth and Space Science Lecture Richard D. Clark, Millersville University, Millersville, Pa.
12:30–1:30 PM	Advances in Earth and Space Science Lecture Robert M. Ross, Museum of the Earth, Ithaca, N.Y.
2:00–3:00 PM	Advances in Earth and Space Science Lecture Alexander Gates, Rutgers University, Newark, N.J.
3:30–5:00 PM	National Earth Science Teachers Association Rock and Mineral Raffle
5:00–6:30 PM	NESTA Annual Membership Meeting

The Centers for Ocean Sciences Education Excellence (COSEE) Program

Saturday, March 20, 8:00 AM–4:30 PM

Independence C, Sheraton

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

Saturday, March 20

8:00–9:00 AM	Bridge/COSEE NOW Activity: Can't Take the Heat?
9:00–10:00 AM	COSEE Alaska: Ways of Knowing Ocean Climate Change
	Culturally Relevant Ocean Sciences Education in Hawaii
10:00–11:00 AM	Scientist-Educator Partnerships to Enhance Rural Ocean Literacy
11:00 AM–12 Noon	Linking the Ocean to the Classroom
	The Smithsonian Ocean Portal, COSEE, and Encyclopedia of Life: Digital Media for Science Education
12 Noon–1:30 PM	COSEE Luncheon (By Invitation Only) Featured Speakers: Scott Glenn and Oscar Schofield, Institute of Marine and Coastal Studies, Rutgers University, New Brunswick, N.J.
1:30–2:30 PM	COSEE-West Online Workshops: Providing Access to Scientists and Enhancing Teachers' Skills in the Digital World
	COSEE SE: Broadening Participation of Rural Students with Estuarine Scientists
2:30–3:30 PM	The Ocean Literacy Scope & Sequence
3:30–4:30 PM	Practical Applications of the Ocean Literacy Principles Scope & Sequence

Teacher Researcher Day

Saturday, March 20, 8:30 AM–5:00 PM

Grand Salon E/F, Marriott

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

An agenda follows. *Teacher Researcher Day events are described throughout the Saturday daily program.*

Saturday, March 20

8:30–9:30 AM	Poster Session
9:30–10:30 AM	Presentation: *Co-generating Positive K–12 Science Learning Environments Through Dialogue*
10:30–11:00 AM	Concurrent Sessions
11:00 AM–12 Noon	Concurrent Sessions
12 Noon–12:30 PM	Science Inquiry Group Network
12:30–1:30 PM	Concurrent Sessions
1:30–2:00 PM	Concurrent Sessions
2:00–3:00 PM	Keynote Speaker
	The Pretzel Theory of Inquiry
	Douglas J. Llewellyn, St. John Fisher College, Rochester, N.Y.
3:30–4:30 PM	Concurrent Sessions
4:30–5:00 PM	Presentation: *Fostering Teacher Researcher Collaborations*

NSTA Press Sessions

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

Saturday, March 20

8:00–9:00 AM

Five Types of Teacher-Student Interactions That Promote Whole-Class Inquiry; page 22

9:00 AM–4:00 PM

Short Course (SC-15): Science Notebooks: Developing a Deeper Understanding *(Ticket Required);* page 39

9:30–10:30 AM

Spotlighting Books Co-published by NSTA and NSELA and How to Use Them to Inform Science Programs, K–16; page 43

11:00 AM–12 Noon

Teaching for Conceptual Change; page 59

12:30–1:30 PM

Making Science Reading Come Alive; page 76

2:00–3:00 PM

Planning and Designing Safe, Sustainable, and Flexible Facilities for Inquiry-based Science; page 83

Using Science Notebooks in the Elementary Classroom; page 85

3:30–4:30 PM

Outdoor Science Classroom; page 97

5:00–5:30 PM

The Biology Teacher's Handbook Is Here to Help You!; page 103

Sunday, March 21

9:30–10:30 AM

Extreme Science: Scales from Nano to Galactic; page 122

NSTA Avenue Sessions

Visit the NSTA Avenue, our marketplace in the Exhibit Hall, to learn about NSTA's products and services. Meet staff, register for the 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.

Saturday, March 20

11:00 AM–12 Noon

Disney's Planet Challenge (DPC); page 55

2:00–3:00 PM

The Shell Science Teaching Award—Learn More, Be Successful; page 82

3:30–4:30 PM

Pete Conrad Spirit of Innovation Awards; page 94

Two essential professional development resources for symbiotic science and literacy learning

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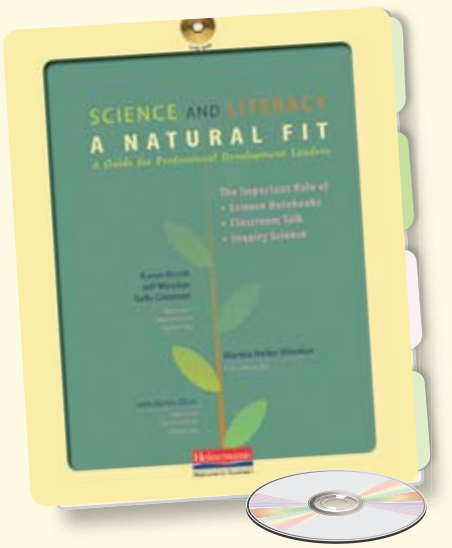
>
> *—Karen Worth*



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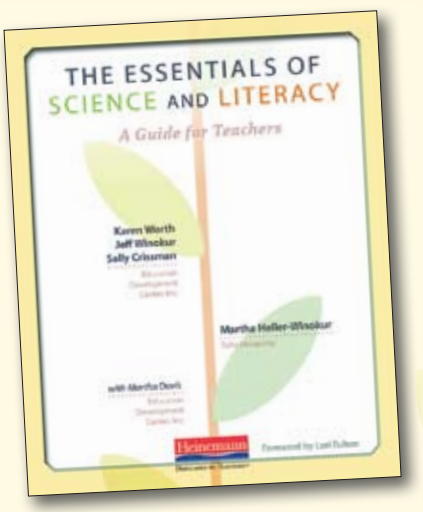

For individual teachers and book-study groups

Let ***Essentials of Science and Literacy*** inspire you to see the natural fit between your **inquiry science teaching** and your **balanced literacy instruction**. This highly readable and profoundly insightful book offers all the professional development readings that Karen Worth and her colleagues have collected for teachers. A study guide is also included, making this ideal for your next book study.

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Tickets, if still available, can be purchased at the Ticket Sales Counter in the NSTA Registration Area. Tickets must be purchased by close of registration on Friday, March 19.

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

Keeping Elementary Primary: Current Research and Best Practices for Quality Instruction

A Research Dissemination Conference for Elementary Teachers, Administrators, and Professional Development Providers (Ticket C-1)

Saturday, March 20 , 7:00 AM–3:30 PM
Franklin 11–13, Marriott

Engaging children in science education at an early age is critical. Our 2010 research dissemination conference is focused on current research and best practices in elementary science teaching for learning. Our program facilitators are Jo Anne Vasquez, 1996–1997 NSTA President, and Vice President and Program Director for Arizona Teacher and Curriculum Initiatives, Helios Education Foundation, and Stacey Greene, master teacher from Hopi Elementary School in Phoenix, Arizona. They will provide two views—national and classroom—on the challenges elementary science instruction faces and what is needed to help develop and support a highly effective teacher. The overall objectives of this daylong event are to:

- Disseminate current research on effective professional development for elementary science teachers to practitioners and policy makers;
- Emphasize results that address key issues and concerns—student achievement, teacher retention, scalability, and sustainability;
- Provide a forum for discussing issues and fostering ongoing collaboration in support of improving professional development for elementary teachers of science; and
- Allow teachers, administrators at school and district levels, and professional development providers to learn about the implications of researchers' work for classroom practice and professional development.

Agenda

7:00–7:55 AM	Continental Breakfast
8:00–8:15 AM	Welcome and Introductions Zipporah Miller, NSTA Associate Executive Director for Professional Programs and Conferences Francis Q. Eberle, NSTA Executive Director
8:15–9:00 AM	Plenary Session I: *Highly Qualified* vs. *Highly Effective Teachers: Is There a Difference?* Jo Anne Vasquez, 1996–1997 NSTA President, and Vice President and Program Director, Arizona Teacher and Curriculum Initiatives, Helios Education Foundation, Phoenix Stacey Greene, Master Teacher, Hopi Elementary School, Phoenix, Ariz.
9:05–10:35 AM	Breakout Block A
10:35–10:45 AM	Break
10:45 AM–12:15 PM	Breakout Block B
12:15 –1:00 PM	Lunch
1:00–2:30 PM	Breakout Block C
2:30–2:40 PM	Break
2:40–3:25 PM	Plenary Session II: *Reflection and Discussion* Jo Anne Vasquez, Stacey Greene
3:25 PM	Closing/Evaluation

Keeping Elementary Primary: Current Research and Best Practices for Quality Instruction

Breakout Session C-2

Research in Elementary Science Education: The Top 10 Articles to Read
Julie A. Luft, NSTA Director, Research in Science Education, and Arizona State University, Tempe

Breakout Session C-3

Seamless Assessment in Science
Sandra Abell and **Mark Volkmann,** Science Education Center, University of Missouri, Columbia

Breakout Session C-4

Gaps Between the Standards and the Curriculum: Which Gaps Need Bridging and How?
Joseph S. Krajcik and **LeeAnn M. Sutherland,** University of Michigan, Ann Arbor

Breakout Session C-5

Demystifying Data Through Claims, Evidence, and Reasoning: Bridging the Gap Between Elementary Science and Literacy
Katherine L. McNeill, Boston College, Chestnut Hill, Mass.
Dean Martin, Gardner Pilot Academy, Boston (Mass.) Public Schools

Breakout Session C-6

Writing in Science: Integration That Increases Achievement in Both Domains
Betsy Rupp Fulwiler, Seattle (Wash.) Public Schools

Breakout Session C-7

Moving Beyond Sharing Results to Constructing Evidence-based Explanations: Strategies for Effective Science Talks
Carla Zembal-Saul, The Pennsylvania State University, University Park
Kimberly Hershberger, Radio Park Elementary School, State College Area (Pa.) School District

Breakout Session C-8

Ready, Set, Science! A Model for K–8 Teacher Professional Development
Richard Duschl, The Pennsylvania State University, University Park
Margo Bartiromo, Merck Institute for Science Education, Rahway, N.J.
Brett Moulding, Utah Partnership for Effective Teaching and Learning
Leona Schauble, Vanderbilt University, Nashville, Tenn.
Heidi Schweingruber, National Research Council, Washington, D.C.

Breakout Session C-9

Evaluating and Adapting Elementary Science Curriculum Materials Using Reform-based Inquiry Frameworks

CANCELED

Breakout Session C-10

Redesigning Science Curricula to Leverage Students' Out-of-School Practices: An Interactive Session on Inquiry and Personally Relevant Science Instruction
Carrie Tzou, Philip Bell, Andrew Shouse, Suzanne Reeve, and **Giovanna Scalone,** University of Washington, Bothell
Elyse Litvack, Patricia Koeller, and **Marcia Ventura,** Maple Elementary School, Seattle (Wash.) Public Schools

Breakout Session C-11

Ideas, Evidence, and Argument in Science Education (The IDEAS Project)
Jonathan Osborne, Stanford University, Stanford, Calif.
Shirley Simon, Institute of Education, London, U.K.

Breakout Session C-12

Teaching and Assessing Scientific Inquiry and Nature of Science in Elementary Classrooms
Judith S. Lederman and **Norman G. Lederman,** Illinois Institute of Technology, Chicago

Breakout Session C-13

What Were They Thinking? Using Children's Ideas to Inform Teaching and Learning in the Physical Sciences
Page Keeley, NSTA Retiring President, and Maine Mathematics and Science Alliance, Augusta
Joyce Tugel, Maine Mathematics and Science Alliance, Augusta
Rand Harrington, Blake School, Minneapolis, Minn.

Breakout Session C-14

Integrating Science and Literacy to Read the Scientific World
Mark Enfield, Elon University, Elon, N.C.
Melony Allen and **Catherine Matthews,** The University of North Carolina at Greensboro
Allison Billman, University of California, Berkeley
Marco Bravo, Santa Clara University, Santa Clara, California
Gina Cervetti, University of Colorado at Boulder

Breakout Session C-15

Making Sense of Science Content Standards: Using a Heuristic to Develop Teachers' Conceptual Understanding of Science Literacy
Stephen Marlette, Jessica Krim, and **Kathy Costello,** Southern Illinois University, Edwardsville

Learn from the Past, Get Ready for the Future

Carolina Professional Development at the 2010 NSTA National Conference

Understand historic science discoveries. Learn today's best teaching practices. Explore the future of classroom instruction. Carolina's professional development sessions are taught by experienced presenters—classroom teachers, science coordinators serving as teaching partners, and our own staff scientists. Their training in the latest teaching techniques, national standards, and cutting-edge science topics means you'll receive concise, valuable information. See below for sessions, times, and locations. **Visit us in booth 1105!**

Session Schedule

Thursday, March 18, 2010

Time	Location	Grade*	Title
9:30 AM–11:00 AM	Room 201B	E	Inquiring Minds Want to Know: An Introduction to Inquiry
9:30 AM–11:00 AM	Room 204A	H	Need "Energy" in Your Environmental Classes? Learn About Carolina's New *Inquiries in Science*® Environmental Science Series
9:30 AM–11:00 AM	Room 204B	M, H	Comparative Vertebrate Anatomy with *Carolina's Perfect Solution*® Specimens
11:30 AM–1:00 PM	Room 201B	E	Setting the Standard for PreK Science
11:30 AM–1:00 PM	Room 204A	M, H	Strawberry DNA and Molecular Models
11:30 AM–1:00 PM	Room 204B	M, H	Comparative Mammalian Organ Dissection with *Carolina's Perfect Solution*® Specimens
1:30 PM–3:00 PM	Room 201B	M	Moving Cars, Driving Learning with the STC Program™
1:30 PM–3:00 PM	Room 204A	H	Energize Your Chemistry Students' Inquiry Skills with Carolina's *Inquiries in Science*® Chemistry Series
1:30 PM–3:00 PM	Room 204B	H	AUTOPSY: Forensic Dissection Featuring *Carolina's Perfect Solution*® Pigs
3:30 PM–5:00 PM	Room 201B	E	Science Libraries: Reading for Content
3:30 PM–5:00 PM	Room 204A	E, M, H	Creating Habitats in the Classroom
3:30 PM–5:00 PM	Room 204B	H	Forensics for the Biology Laboratory

Friday, March 19, 2010

Time	Location	Grade*	Title
8:00 AM–9:30 AM	Room 201B	E	Going the Distance in Math
8:00 AM–9:30 AM	Room 204A	E, M, H	Hands-On Science with Classroom Critters
8:00 AM–9:30 AM	Room 204B	H, C	Exploring Feline Anatomy with *Carolina's Perfect Solution*® Cats
10:00 AM–11:30 AM	Room 201B	E, M	Discover the Solar System and Beyond
10:00 AM–11:30 AM	Room 204A	H	Introduction to Protozoa
10:00 AM–11:30 AM	Room 204B	E, M	Carolina's Young Scientist Dissection Series
12:00 PM–1:30 PM	Room 201B	E	Science Notebooking: Integrating Writing and Science
12:00 PM–1:30 PM	Room 204A	E, M, H	Introduction to Wisconsin *Fast Plants*®
12:00 PM–1:30 PM	Room 204B	H	Amplify Your Genetics Teaching Skills with Carolina's New *Inquiries in Science*® Biology Units
2:00 PM–3:30 PM	Room 201B	E	Energy Works!
2:00 PM–3:30 PM	Room 204A	M, H	It's Alive! Carolina's Classroom Genetics
2:00 PM–3:30 PM	Room 204B	M, H	Take the Leap: *Carolina's Perfect Solution*® Frog Dissection
4:00 PM–5:30 PM	Room 201B	M	Creepy Crawlers in the Middle School Classroom
4:00 PM–5:30 PM	Room 204A	H, C	From Fast Gels to Fruit Flies
4:00 PM–5:30 PM	Room 204B	H	SQUID INK-UIRY: Inquiry-Based Invertebrate Anatomy Through Squid Dissection

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

Visit us in booth 1105!

See how much fun learning can be!

Saturday, March 20, 2010

Time	Location	Grade*	Title
8:00 AM–9:30 AM	Room 201B	E	Exploring the World Through the 5 Senses
8:00 AM–9:30 AM	Room 204A	H	Introduction to Electrophoresis
8:00 AM–9:30 AM	Room 204B	H, C	Think Mink! Exploring Mammalian Anatomy with *Carolina's Perfect Solution*® Mink
10:00 AM–11:30 AM	Room 201B	E	Do They Get It? Assessment Strategies for an Inquiry Classroom
10:00 AM–11:30 AM	Room 204A	H	Go APES! Explore Carolina's Quality AP® Environmental Science Series
10:00 AM–11:30 AM	Room 204B	H, C	Rats! Inquiry-Based Dissection with *Carolina's Perfect Solution*® Specimens
12:00 PM–1:30 PM	Room 201B	M	Hands-On, Minds-On Middle School Science
12:00 PM–1:30 PM	Room 204A	H, C	Teaching Genetics and Biotechnology with Carolina's Manipulative Kits
12:00 PM–1:30 PM	Room 204B	H	Molecular Models in the Classroom
2:00 PM–3:30 PM	Room 201B	E	1, 2, 3, 4 . . . Boost Your Students' Math Scores
2:00 PM–3:30 PM	Room 204A	H, C	Exploring Gene Function in *C. elegans*: Mutations and RNA Interference
2:00 PM–3:30 PM	Room 204B	E, M, H	Butterflies in Your Classroom

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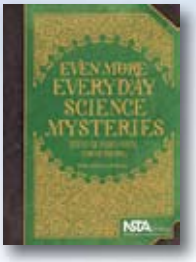
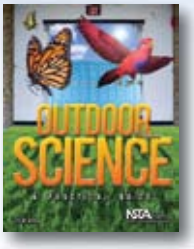


Even More Everyday Science Mysteries
Grades K–8
Member: $19.96
Nonmember: $24.95



Outdoor Science
Grades 3–8
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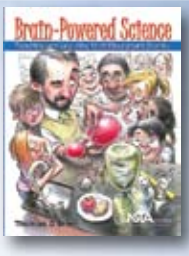
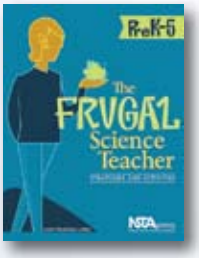
Nonmember: $24.95

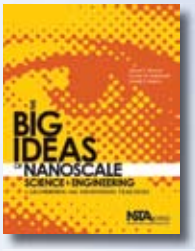


Brain-Powered Science
Grades 5–12
Member: $26.36
Nonmember: $32.95



The Frugal Science Teacher, PreK–5
Grades PreK–5
Member: $18.36
Nonmember: $22.95

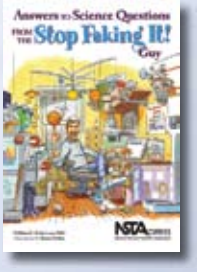
Science Education Leadership
Grades K–College
Member: $30.36
Nonmember: $37.95



The Big Ideas of Nanoscale Science and Engineering
Grades 7–12
Member: $22.36
Nonmember: $27.95

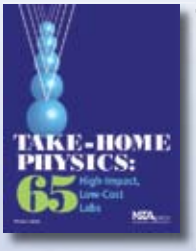
Lecture-Free Teaching
College
Member: $26.36
Nonmember: $32.95

Designing Effective Science Instruction
Grades K–12
Member: $24.76
Nonmember: $30.95



Answers to Science Questions From the *Stop Faking It!* Guy
Grades K–8
Member: $19.16
Nonmember: $23.95

Forestry Field Studies
Grades 9–12
Member: $19.96
Nonmember: $24.95



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Phone orders call **1-800-277-5300**.

Saturday, March 20

	Presentations/Workshops	General Sessions/Special Events	Shell Seminars	Exhibitor Workshops
8:00 AM				
9:00 AM		**NSTA/SCST College Symposium** 8:00 AM–12 Noon Commonwealth B, Loews		
10:00 AM				
11:00 AM		**Paul F-Brandwein Lecture** 11:00 AM–12 Noon 114, Conv. Center Speaker: Lynne Cherry	**Shell Science Seminars** 10:30 AM–12 Noon Room 201C, Conv. Ctr. Speaker: Haian Fu Room 204C, Conv. Ctr. Speaker: Neil Comins	
12 Noon				
1:00 PM		**Teacher Researcher Day Keynote Address** 2:00–3:00 PM Grand Salon E/F, Marriott Speaker: Douglas Llwellyn		
2:00 PM		**NSTA/ASE Honors Exchange Lecture** 2:00–3:00 PM Room 201C, Conv. Ctr. Speakers: Manoj Chitnavis and Annette Smith	**Shell Science Seminars** 1:30–3:00 PM Room 114, Conv. Ctr. Speaker: Garland L. Thompson Room 204C, Conv. Ctr. Speaker: Terry Matilsky	
3:00 PM				
4:00 PM	**NSTA ESP Symposium III** 3:30–5:30 PM Grand Salon K, Marriott	**Robert Karplus Lecture** 3:30–4:30 PM Room 201C, Conv. Ctr. Speaker: Reagan Flowers		
5:00 PM		**Featured Presentation** 3:30–4:30 PM Room 114, Conv. Ctr. Speaker: Glenn Schwartz		
6:00 PM				
7:00 PM		**Special Evening Session** 6:00 PM–12 Midnight Regency A, Loews *A Video Showcase of Inspiring Award-winning Teachers and Their Engaging Courses, Part 3*		
8:00 PM				

7:00–8:30 AM Breakfast

NESTA Earth and Space Science Resource Day Breakfast
(By Ticket Through NESTA) *Logans 1, Sheraton*
Join your earth and space science educator colleagues for this full breakfast with an earth science education presentation. Tickets are available at *www.nestanet.org.*

7:00 AM–3:30 PM Research Dissemination Conference

Keeping Elementary Primary: Current Research and Best Practices for Quality Instruction (C-1)
(Tickets Required: $295) *Franklin 11–13, Marriott*
The overall objective of this conference is to allow teachers, administrators at school and district levels, and professional development providers to learn about the implications of researchers' work for classroom practice and professional development. For description, see pages 12–13.

7:30–8:15 AM Breakfast

NSTA Past Presidents' Breakfast
(For NSTA Past Presidents Only) *Lescaze, Loews*

7:30–9:30 AM Breakfast

George Washington Carver Breakfast
(By Invitation Only) *Regency B, Loews*

8:00–8:30 AM Presentation

SESSION 1
Use of Guided Inquiry in Rural High School Physical Science Classrooms (Chem)
(High School) *305/306, Marriott*
Bonita E. Flournoy *(flournoy_bonita@colstate.edu),* Columbus State University, Columbus, Ga.
Presider: Jon E. Pedersen *(jep@unl.edu),* ASTE President, and University of Nebraska–Lincoln
Use guided inquiry in rural high school physical science classrooms to increase student interest and learning. I'll share labs, demos, and lessons developed and tested in rural high schools in West Georgia.

8:00–9:00 AM Coffee

NSTA Recommends Reviewer/Publisher Coffee
(By Invitation Only) *302, Marriott*

8:00–9:00 AM Presentations

SESSION 1
Creating Science Media Collaboratively: Teacher/Student Science Documentaries (Gen)
(General) *Hall D/Room 1, Convention Center*
Teresa Bender *(teresa.bender@ops.org),* King Science and Technology Magnet Middle School, Omaha, Neb.
Raquel Buckner, Morton Magnet Middle School, Omaha, Neb.
Sue Durfee, Alice Buffett Magnet Middle School, Omaha, Neb.
Students and teachers work as peers to develop science documentaries, strengthening their technology skills and creating products and processes for making science relevant.

SESSION 2
¡YOUTH & THE OCEAN! (¡YO!): An Academic Achievement and Research Program for Underrepresented Middle School Students (Env)
(General) *Hall D/Room 5, Convention Center*
Emily Landon Weiss *(weisse@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
¡YO! works with urban middle school students to build overall academic capacity while providing opportunities for service learning, research experiences, field trips, and family involvement in the ocean sciences.

SESSION 3
Project-Based Learning Through Children's Engineering (Gen)
(General) *Hall D/Room 11, Convention Center*
Erin Denniston, Kenan Fellows Program, Raleigh, N.C.
Alex Denniston *(alexdenniston@gmail.com),* Chapel Hill, N.C.
Project-Based Learning (PBL) and children's engineering allow students to accumulate and use the curriculum content and skills of various subjects in solving real-life problems.

SESSION 4

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

(General) *Hall D/Room 18, Convention Center*

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

Explore strategies to help your students read informational text, with a focus on outstanding science books. Handouts.

SESSION 5

Abstract Concepts for the Concrete Mind: Techniques and Lessons to Engage Middle School Students (Gen)

(Middle Level) *Hall D/Room 20, Convention Center*

Tracy M. Bratzke *(bratzke.tracy@d46.org)* and **Nicole McRee** *(mcree.nicole@d46.org),* Grayslake Middle School, Grayslake, Ill.

We will share a variety of units, lessons, and models in chemistry and life science that can be integrated into your current curriculum immediately or modified to fit the needs of your students.

SESSION 6

Engaging Classroom Science Centers for the Young Learners, K–1 (Gen)

(Preschool–Middle Level/Inf.) *Hall D/Room 23, Conv. Center*

Andrea Z. Andretta *(aandretta5@optonline.net),* Jefferson Science Magnet School, Norwalk, Conn.

Zackery Zdinak *(wildlife@lifedraw.com),* Life Drawing & Education, Flagstaff, Ariz.

Let's brainstorm what resources a hands-on science center would include. Then we'll take a practical look at the reasoning and logistics to setting up and managing the classroom science center.

SESSION 7

Using Diagnostic Assessment to Address Preservice Teachers' Science Misconceptions (Gen)

(General) *Hall D/Room 26, Convention Center*

Kathryn Silvis *(kathryn.silvis@laroche.edu),* La Roche College, Pittsburgh, Pa.

Learn how diagnostic assessment was used in an undergraduate science methods course to identify science misconceptions and to then create inquiry-based lessons to improve scientific understanding.

SESSION 8

Everybody's Twittering: Building Collaborative Scientific Communities via Technology (Gen)

(General) *Hall D/Room 27, Convention Center*

Matthew F. Anthes-Washburn *(mfa6@cornell.edu),* Denver East High School, Denver, Colo.

Wondering what a "twitter" is? Think you might need a "moodle?" Learn how to leverage Web 2.0 technologies to build scientific communities with your students.

SESSION 9

Some of the Above? Writing Good Science Multiple-Choice Questions (Gen)

(Middle Level–College) *Hall D/Room 29, Convention Center*

Israel Solon and **Beth Nichols** *(bnichols@ets.org),* Educational Testing Service, Princeton, N.J.

Presider: Irene Kijak *(ikijak@ets.org),* Educational Testing Service, Princeton, N.J.

Test developers from ETS will share what to consider when writing and evaluating multiple-choice questions for your classes. Take home guidelines and samples.

SESSION 10

NMLSTA Session: Classroom Demonstrations on a Budget (Gen)

(Middle Level) *Commonwealth D, Loews*

Kathleen Brooks, Walter C. Polson Middle School, Madison, Conn.

Develop inquiry skills with these inexpensive demonstrations exploring how one-way valves in the heart work, air pressure, electric circuits, the Coriolis effect, and much more.

SESSION 11

Knowing What They Know: Eliciting Student Thinking (Gen)

(Elementary–High School) *Congress A, Loews*

Melanie Taylor, Horizon Research, Inc., Chapel Hill, N.C.

Using authentic student responses (written and spoken), we will explore the importance of uncovering and eliciting student thinking.

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SESSION 12

Teaching Chemistry Through Guided Inquiry (Chem)

(High School–College) *Congress B, Loews*

Angy Stacy *(astacy@berkeley.edu),* University of California, Berkeley

Maximize student participation and promote understanding with these strategies for creating guided inquiry lessons for teaching chemistry.

SESSION 13

Fighting the Good Fight: Altering America's Perception of Evolution (Bio)

(High School–College) *Regency C1, Loews*

Ryan L. Stowe *(rls13@albion.edu),* Albion College, Albion, Mich.

Over half of America does not view evolutionary theory as a valid explanation for biodiversity. How can this be addressed through proper education?

SESSION 14 (two presentations)

(High School/Supervision) *Regency C2, Loews*

In-School Instructional Science Coaching: Experiences from the Field (Gen)

John F. Loehr *(jfloehr@cps.k12.il.us),* Chicago (Ill.) Public Schools

Learn about efforts of Chicago Public Schools to develop teacher capacity and improve students' educational experiences through collaborative, one-on-one professional development.

Rethinking Methods and Approaches to Science Teacher Professional Development (Gen)

Matthew J. Maurer *(maurerm@rmu.edu),* Robert Morris University, Moon Township, Pa.

Join a roundtable discussion of current approaches to K–12 science teacher professional development. We'll look at new ideas, trends, and examples.

SESSION 15

Implementing STEM: A Snapshot (Gen)

(High School) *Washington C, Loews*

Kathy D. Wright *(wrighka@cps-k12.org)* and **Kelly Obarski** *(kelly.obarski@uc.edu),* Hughes STEM High School, Cincinnati, Ohio

Presider: Kelly Obarski

Learn how we implemented a rigorous STEM curriculum in an urban district.

SESSION 16 (two presentations)

(High School) *303, Marriott*

Presider: Robert K. Ehrmann *(rke2@psu.edu),* Penn State University, University Park, Pa.

Fuel Cells and Nanotechnology (Gen) CANCELED

Elizabeth M. Potter-Nelson *(e.potter.nelson@gmail.com),* Lakes Community High School, Lake Villa, Ill.

Learn how fuel cells and nanotechnology can be used to teach key concepts in physics and chemistry through guided inquiry activities.

Making Our Students Competitive: Why Nanotechnology Literacy Is Crucial (Gen)

Robert K. Ehrmann *(rke2@psu.edu)* and **Amy Brunner** *(abrunner@engr.psu.edu),* The Pennsylvania State University, University Park

Nanotechnology is often seen as playing a key role in the next industrial revolution. Are your students prepared to participate?

SESSION 17

Using Global Projects to Create Inquiry-based Learning Programs (Gen)

(High School) *304, Marriott*

James Novotny, Livingston High School, Livingston, N.J.

Help students think about the science of our planet in a new way with global inquiry-based projects.

SESSION 18

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

(General) *308, Marriott*

Howard Wahlberg, Assistant Executive Director, Member, Chapter, and Customer Relations, NSTA, Arlington, Va.

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

SESSION 19

Cellulosic (Second-Generation) Ethanol Biofuel: The Science and Corresponding Learning Opportunities (Bio)

(Middle Level–College) *Franklin 2, Marriott*

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

Ethanol produced from cellulosic materials can be a sustainable alternative to gasoline. Come get an overview of biofuels evaluation and interdisciplinary curriculum potential.

SESSION 20

Exploring Body Systems Conceptually: How to Link Every Biology Unit to Human Body Systems (Bio)

(High School) *Franklin 6, Marriott*

Michael . Vieira Lazaroff *(mjvlazaroff@gmail.com),* Staples High School, Westport, Conn.

Time for body systems? Every unit can be reinforced by linking to the structure and function of body systems, making dissection a true culminating activity.

SESSION 21

KidWind Challenge (Phys)

(Middle Level–High School) *Franklin 7, Marriott*

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

Engage your students in science, math, and engineering through wind turbine design.

SESSION 22

MOSART: Assessing the Effects of Professional Development on Teacher and Student Content Knowledge (Phys)

(Middle Level–College/Supervision) *Grand Salon B, Marriott*

Philip M. Sadler *(psadler@cfa.harvard.edu)* and **Jaimie Miller** *(jmiller@cfa.harvard.edu),* Harvard-Smithsonian Center for Astrophysics, Cambridge, Mass.

We will share the results of NRC standards-based assessments of MSP programs related to teachers' understanding of student misconceptions and their effects on student learning.

SESSION 23

NSTA Press Session: Five Types of Teacher-Student Interactions That Promote Whole-Class Inquiry (Chem)

(General) *Grand Salon D, Marriott*

Dennis W. Smithenry *(dsmithenry@gmail.com),* Elmhurst College, Elmhurst, Ill.

Joan A. Gallagher-Bolos *(katiramom@gmail.com),* Glenbrook North High School, Northbrook, Ill.

Learn five ways in which you can interact with your students so that they take charge when challenged to conduct a whole-class guided inquiry.

SESSION 24

Creating a Cohesive Multi-Year High School Science Curriculum to Promote Student Understandings (Gen)

(High School) *Grand Salon G, Marriott*

Susan A. Else *(selse@hdsd.k12.nh.us),* **Katherine M. McCandless** *(kamccandless@hdsd.k12.nh.us),* **Elizabeth A. McNamara** *(lmcnamara@hdsd.k12.nh.us),* and **Brian C. McGinn** *(bmcginn@hdsd.k12.nh.us),* Hillsboro-Deering High School, Hillsborough, N.H.

We'll share a three-year, multidisciplinary high school science curriculum that emphasizes connections between biology, chemistry, and physics as well as the intertwining of earth and space science standards.

SESSION 25

Science Fiction Fantastics! (Chem)

(High School) *Grand Salon L, Marriott*

Mindy J. Bedrossian *(minjane@aol.com),* Strongville High School, Strongsville, Ohio

Science fiction can be the gateway between imagination and innovation in science. Light the fires of creativity using science fiction in your classroom.

SESSION 26

The College Moon Project (Earth)

(High School–College) *Freedom F, Sheraton*

Kate A. Baird *(kabaird@iupuc.edu),* NSTA Director, District X, and Indiana University-Purdue University, Columbus

Preservice teachers at three U.S. universities and one Australian university are making nightly observations of the moon and discussing them by e-mail.

SESSION 27

iEARN and Four Rivers One World (Env)

(General) *Freedom H, Sheraton*

Christine Kola, M.S. 45 Thomas C. Giordano School, Bronx, N.Y.

Learn how students and teachers from India, Nepal, Bangladesh, and the United States are brought together to collaborate on a project about protecting our local rivers.

SESSION 28

Connecting Climate to Curriculum (Earth)

(Middle Level–High School) *Independence B, Sheraton*

Annette L. Brickley, Challenger Learning Center of Maine, Mattapoisett, Mass.

The topic of climate change was integrated into the middle and high school curriculum as part of a Maine MSP project. I'll share workshop themes, strategies, and successes.

SESSION 29

Climate Change and Birds—It's Not Just Penguins Anymore! (Env)

(Informal Education) *Liberty C, Sheraton*

Jennifer Fee *(jms327@cornell.edu),* Cornell Lab of Ornithology, Ithaca, N.Y.

Katie Levedahl *(klevedahl@sciencenter.org),* Ithaca Sciencenter, Ithaca, N.Y.

Citizen science data may shed light on climate change and its effects on North American nesting birds. We invite you and your students to become involved—monitor nests this spring!

SESSION 30

The BioBlitz Program: Citizen Science and Biodiversity in the National Parks (Env)

(Middle Level–High School/Informal) *Salon 3/4, Sheraton*

Marie Studer *(mstuder@eol.org),* Encyclopedia of Life, Cambridge, Mass.

Anne Pollard Haywood *(ahaywood@ngs.org),* National Geographic Society, Washington, D.C.

Join the National Geographic/National Park Service "BioBlitz" program celebrating biodiversity and bringing field science to life for students. School groups, after-school programs, families, and others join scientists in national parks for a 24-hour inventory of every species. Find out how to involve your students in the 2010 event in Biscayne National Park, Florida, either directly or online, and get ideas for creating a BioBlitz for your school community.

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- ***NSTA Learning Center.*** Select high-quality online learning opportunities to build content knowledge. Use our suite of tools for self-assessment and to document your progress.
- ***Web Seminars.*** Update your content knowledge with these free, 90-minute, live online presentations. Voice questions and share in rich conversations with the presenters and other educators.
- ***SciGuides.*** Use these online resources, aligned with the national Standards, to locate lessons organized by grade level and specific content themes.

Expand Your Mind

- ***NSTA Press®*** publishes 25 new titles each year that offer professional development to science educators. Visit the Science Bookstore to view new releases, best sellers, and titles that help performance in the classroom. Connect with authors to have your new book signed. Submit your new book idea to *http://mc.manuscriptcentral.com/nstapress.*
- ***SciLinks®.*** Link to science resources on the internet, with sites recommended by science educators. Find accurate information and effective pedagogy—the best content available online.

Add Your Voice

- ***Science Matters*** is a major public awareness and engagement campaign designed to rekindle a national sense of urgency and action among schools and families about the importance of science education and science literacy.
- **The John Glenn Center for Science Education Campaign.** NSTA's five year, $43 million national campaign to make excellence in science teaching and learning a reality for all will fund a series of forward-thinking programs and a state of the art facility designed to promote leadership, learning, and advocacy in science education.

Distinguish Yourself

- ***NSTA Awards.*** 17 programs offer awards to science teachers, K–College.
- ***Toshiba/NSTA ExploraVision®*** is a team-based K–12 competition that awards up to $240,000 in savings bonds annually.
- ***Toyota TAPESTRY*** awards $550,000 in grants for science teachers, K–12, each year.
- ***THE DUPONT CHALLENGE© Science Essay Competition*** is for grades 7–12 with cash prizes and an expenses-paid trip to The Walt Disney World® Resort and the Kennedy Space Center.
- ***Siemens We Can Change the World Challenge,*** sponsored by Siemens, Discovery Education, and NSTA, offers a national student sustainability competition that encourages students to develop actionable local solutions for a "greener" world.
- ***Disney's Planet Challenge*** is a project-based environmental competition for grades 4–6 meant to empower students to make a difference in their homes, schools, and communities.
- The ***Conrad Foundation*** presents the ***2010 Spirit of Innovation Awards,*** a competition that challenges teams of high school students to create innovative products in four categories: aerospace exploration, space nutrition, renewable energy and green schools.
- The ***NSTA New Science Teacher Academy,*** co-founded by the Amgen Foundation, supports science teachers during the often challenging, initial teaching years by enhancing confidence, classroom excellence, and improving teacher content knowledge.

NSTA National Science Teachers Association

SESSION 31

Exploring Biofuels: Future Fuels from Forests? (Gen)

(Middle Level–High School) *Salon 10, Sheraton*

Joan Chadde *(jchadde@mtu.edu),* Michigan Technological University, Houghton

Melissa Jaeger, Lakeshore Middle School, Grand Haven, Mich.

Michele Huppert *(huppertm@springvalley.k12.wi.us),* Spring Valley Middle School/High School, Spring Valley, Wis.

Engage students in an exploration of the environmental, social, and economic considerations of using biofuels (corn, switchgrass, trees) to replace petroleum-based transportation fuels.

8:00–9:00 AM Workshops

★ **Living and Working in Space: A Simulation Adapted for Classroom Use (Earth)**

(Elementary–Middle Level) *Hall D/Room 7, Convention Center*

Bonnie P. Michael, Westtown School, Westtown, Pa.

Terri M. Wilson, The Ellis School, Pittsburgh, Pa.

Launch your students' imagination beyond the pull of gravity with these creative ideas and inexpensive activities inspired by life in space.

Go Green! Design an Electric Car (Phys)

(Elementary) *Hall D/Room 9, Convention Center*

James L. Neujahr *(jneujahr@ccny.cuny.edu),* City College of New York, N.Y.

Maureen Boler, P.S. 17, Henry D. Woodworth School, Brooklyn, N.Y.

Travis Sloane *(tsloane@schools.nyc.gov),* P.S. 163, Alfred E. Smith School, New York, N.Y.

Design, make, test, and troubleshoot a toy electric car using cheap or recycled parts. Learn how it works, identify variables, and plan a controlled experiment.

Butterfly Bonanza (Gen)

(General) *Hall D/Room 10, Convention Center*

Nancy R. Sale *(nancysale@dadeschools.net),* Lillie C. Evans Elementary School, Miami, Fla.

Presider: Karen Gant, Carol City Elementary School, Miami Gardens, Fla.

Butterfly Bonanza provides a roadmap to success for implementing a native butterfly habitat. Take home a starter kit that will enable you to immediately set up a habitat at your school. In addition, there will be door prizes and a DVD given with all materials.

FREE Guides and Online Professional Development for New and Experienced Elementary Teachers from PBS's *FETCH!* (Gen)

(Elementary) *Hall D/Room 14, Convention Center*

Susan Buckey *(susan_buckey@wgbh.org),* WGBH Educational Foundation, Boston, Mass.

Try new sound, light, and energy activities and let Ruff Ruffman issue the daily classroom challenge! Explore online training with tips for leading science inquiry.

Mathnificent Scientific Experience, Part 1 (Gen)

(Preschool–Middle Level) *Hall D/Room 15, Convention Center*

Shevinna M. Sims *(ssims2@cps.edu),* Johnnie Coleman Academy, Chicago, Ill.

CANCELED

Lorraine B. Wilson *(lbwilson@cps.edu),* Chicago (Ill.) Public Schools

These hands-on make and take math and science activities will motivate and engage your students.

Negotiation in Science for Early Elementary (Gen)

(Elementary) *Hall D/Room 16, Convention Center*

Lynn Hockenberry *(lhockenberry@aea13.org),* Loess Hills Area Education Agency 13, Atlantic, Iowa

Jay W. Staker *(jstaker@iastate.edu),* Iowa State University, Ames

Lori Norton-Meier *(lori.nortonmeier@louisville.edu),* University of Louisville, Ky.

Brian Hand *(brian-hand@uiowa.edu),* University of Iowa, Iowa City

Language is a powerful tool in learning science. The Science Writing Heuristic (SWH) approach uses negotiation in conjunction with reading and writing to learn science.

Making Connections Between Elementary Science in School and After-School Science Programs (Gen)
(Elementary–Middle Level/Inf.) Hall D/Room 21, Conv, Center
Charlie Hutchison and **Bernie Zubrowski** *(bzubrowski@edc.org),* Education Development Center, Inc., Newton, Mass.
We'll look at ways of linking the goals of formal and informal science experiences—without sacrificing the very informal nature of out-of-school programming.

Invention Convention (Gen)
(Elementary–Middle Level) Hall D/Room 22, Convention Center
Kim Strong *(kstrong@lejardinacademy.com),* LeJardin Academy, Kailua, Hawaii
Learn how to bring Invention Convention to your school. This program's main focus is science but it incorporates all content areas.

Science for All: Meaningful Science with Meaningful Inclusion (Gen)
(Elementary–Middle Level) Hall D/Room 25, Convention Center
Sara Aronin *(saronin8@hotmail.com),* University of Central Florida, Orlando
Participate in hands-on activities that allow students of all abilities to be included meaningfully in a science classroom as proven through professional development data.

Uncertainty in Scientific Inquiry: Using Information and Error in Decision Making (Gen)
(General) Hall D/Room 28, Convention Center
Robert E. Landsman and **Cindy Colomb,** ANOVA Science Education Corp., Honolulu, Hawaii
Irene H. Kamimura, Hawaii Dept. of Education, Honolulu
Presider: Irene H. Kamimura
Engage in a brief scientific inquiry to learn how to make decisions about an hypothesis based on data.

Brain Research and Science: Wiring Science into All Subject Areas (Gen)
(General) Hall D/Room 30, Convention Center
Arthur Lebofsky *(artsgnus@yahoo.com),* Science Education Services, Phoenixville, Pa.
Science gives other subjects something to talk about, and brain research offers the basis for this connection. I'll share simple, inexpensive activities that emphasize different learning processes, all of which are exemplified when interdisciplinary connections are made in all classrooms.

Crime Pays Big Dividends in the Science Classroom (Gen)
(Middle Level–High School) Commonwealth A, Loews
Carol A. Ross *(cross@astate.edu)* and **Karen Yanowitz** *(kyanowit@astate.edu),* Arkansas State University, State University, Ark.
These hands-on lessons created at a CSI camp teach integrated science content in the context of "crime scenes."

Edgy Science 3 (Phys)
(High School–College/Informal) Commonwealth C, Loews
Randall H. Landsberg *(randy@oddjob.uchicago.edu),* University of Chicago, Ill.
Christopher M. Smith *(csmith@ctbp.ucsd.edu),* University of California San Diego, La Jolla
Jaya G. Yodh *(jyodh@illnois.edu),* University of Illinois at Urbana-Champaign, Urbana
Take a crash course in forefront science, from brains to the Big Bang, with the NSF Physics Frontier Centers. We'll share hands-on activities and summer opportunities.

***Ready, Set, SCIENCE!* The Four Strands of Science Learning (Gen)**
(Preschool–High School/Supervision) Regency A, Loews
Caroline Crew, North Penn School District, Lansdale, Pa.
Stacey Gruber *(stacey_gruber@merck.com),* Merck Institute for Science Education, Rahway, N.J.
Examine the four strands of science learning outlined in *Ready, Set, SCIENCE*, the practitioner's guide to the latest research into the teaching and learning of science.

Digital Immersive Science Learning: Meet the SCUBE! (Gen)
(Middle Level–High School) Washington A, Loews
Jacob Noel-Storr *(jake@cis.rit.edu)* and **Kevin L. Shimkus** *(k_shimkus@tamu.edu),* Texas A&M University, College Station
You and your students could be sitting inside anything from a monkey's brain to the whole universe using our easy-to-build digital immersive environment!

DuPont Presents—Polymers and Packaging (Gen)
(Middle Level–High School) 307, Marriott
Peggy Vavalla, DuPont Co., Wilmington, Del.
Learn innovative ways that polymers help us package consumer goods—food, heath aides, and cosmetics—for today's consumer.

Exploring the Connection Between Genetics and Natural Selection (Bio)
(High School) Franklin 1, Marriott
Hanz P. Litz *(hanzlitz@hotmail.com),* Johnstown High School, Johnstown, N.Y.
Explore natural selection and genetics with case studies ranging from the Spanish flu to the Humboldt squid.

Tactile Learning Curriculum Modules: Teaching with Models (Bio)
(Middle Level–High School) Franklin 4, Marriott
Karen DeBoer *(deboer@msoe.edu)* and **Tim Herman** *(herman@msoe.edu),* Center for BioMolecular Modeling, Milwaukee School of Engineering, Milwaukee, Wis.
Explore a series of core lessons that use physical models of molecular structures to teach biology at the high school level.

Teaching Genetics with Inquiry (Bio)
(Middle Level–College) Franklin 5, Marriott
Tammie J. Schrader *(tammiej@centurytel.net),* Cheney Middle School, Cheney, Wash.
Learn how to teach genetics using an inquiry-based model with Mendel as the inspiration.

Save the Dates!

NSTA Conferences on Science Education are coming to a city near you.

- Attend presentations, special programs, and workshops on relevant issues—literacy, assessment, inquiry, and more.
- Develop content knowledge.
- Build teaching skills with new strategies.
- Learn from experts and become inspired.
- Sessions for educators in every grade band and every discipline.

Kansas City, MO
October 28-30

Strands:

- Data-driven Learning
- Developing and Communicating Conceptual Understanding for All Students
- Scientific Innovation: Applying Science in the Real World

Baltimore, MD
November 11–13

Strands:

- Teaching Science in the 21st-Century Classroom
- Embracing the World from Our Own Backyard: Environmental Education
- Building Tomorrow's Work Force: Science, Technology, Engineering, and Mathematics (STEM)

Nashville, TN
December 2-4

Strands:

- Building Capacity to Lead Professional Learning
- The Brain-considerate Classroom
- Understanding a Designed World

Visit *www.nsta.org* for more information.

NSTA National Science Teachers Association

Oh, Nuts! The Role of Microbes in the Production of Peanuts and Other Legumes (Bio)
(Middle Level–College) *Franklin 9, Marriott*
Steve Wagner *(swagner@sfasu.edu),* Stephen F. Austin State University, Nacogdoches, Tex.
Presider: Mark Gallo *(mgallo@niagara.edu),* Niagara University, Niagara University, N.Y.
The symbiotic relationship of *Rhizobium/Bradyrhizobium* and legumes is an intriguing interplay of organisms, and not just in producing nuts!

Polymers: New Twists on Old Favorites (Chem)
(Middle Level–High School) *Grand Salon A, Marriott*
Debbie Goodwin *(nywin@hotmail.com),* Chillicothe High School, Chillicothe, Mo.
Andrew G. Nydam *(andrewnydam@hotmail.com),* Olympia High School, Olympia, Wash.
Enhance and deepen science and math concepts taught in traditionally "fun" polymer labs. Add more scientific processes to make them inquiry based. Complete handouts.

High School Nanotechnology Absorption (Phys)
(High School) *Grand Salon C, Marriott*
Joyce E. Hubert-Theriot *(jtheriot@wcasd.net),* Bayard Rustin High School, West Chester, Pa.
Barry Stein, Drexel University, Philadelphia, Pa.
James K. Murray *(jmurray@immaculata.edu),* Immaculata University, Malvern, Pa.
Presider: Jim Wakefield, Bayard Rustin High School, West Chester, Pa.
Engage high school students with Nanogold® and these simple techniques. We will describe a program that offers content and lab materials support as well as the remote use of university equipment to conduct nanotechnology investigations in the classroom. Handouts.

Graphing: Where Science, Math, and Literacy Intersect (Phys)
(Middle Level–High School) *Grand Salon J, Marriott*
Wayne Snyder *(wsnyder@caltech.edu),* Claremont Graduate University, Claremont, Calif.
Presider: Mehri Fadavi, Jackson State University, Jackson, Miss.
Do several physical science investigations, plot with graphing calculators, and translate between academic language, graphs, and mathematical relationships.

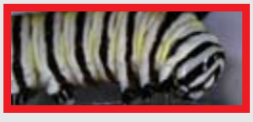
Free Telescope Access from NASA and the Fermi Space Telescope (Earth)
(Middle Level–College) *Freedom E, Sheraton*
Robert T. Sparks *(rsparks@noao.edu),* National Optical Astronomy Observatory, Tucson, Ariz.
Your students can use remote telescopes to take their own research-quality astrophotos—for free! Take home a teacher's guide and software.

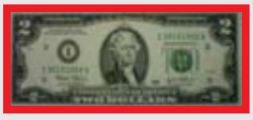
Data Puzzles: Using Math Skills and Scientific Data to Reason About Earth's Processes (Earth)
(Middle Level–High School) *Freedom G, Sheraton*
Kim A. Kastens and **Margie K. Turrin** *(mkt@ldeo.columbia.edu),* Columbia University, Palisades, N.Y.
Missy Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
In these minds-on activities, students use mathematical reasoning and authentic earth science data to extract fundamental insights about Earth and environmental processes.

COSEE Session: Bridge/COSEE NOW Activity: Can't Take the Heat? (Phys)
(Informal Education) *Independence C, Sheraton*
Christopher J. Petrone *(petrone@vims.edu),* Virginia Institute of Marine Science, Gloucester Point
Learn about heat capacity using real online scientific data. Work through this field-tested and classroom-ready activity created by COSEE NOW and the Bridge website *(www.marine-ed.org/bridge).*

Tackling the Global Warming Challenge in a Rapidly Changing World (Env)
(Middle Level–High School/Inf.) *Philadelphia South, Sheraton*
Lisa Gardiner *(egardine@ucar.edu),* **Dennis Ward** *(dward@ucar.edu),* and **Randy M. Russell,** University Corporation for Atmospheric Research, Boulder, Colo.
Help students develop critical-thinking skills, science understanding, and global warming solutions with these activities from Windows to the Universe. Handouts.

Hello **kena**™.





Come Play at Booth #1223

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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.

8:00–9:00 AM Exhibitor Workshops

Tough Topics in Earth Science: Plate Tectonics with My World GIS™ (Earth)
(Grades 6–12) *112A/B, Convention Center*
Sponsor: PASCO
Elizabeth Kennedy, PASCO, Roseville, Calif.
This session explores PASCO's state-of-the-art science solutions to one of the most comprehensive and important topics in earth science—plate tectonics. Participate in standards-based lab activities using My World GIS from PASCO's new earth science lab manual. Learn how to use My World GIS to analyze evidence supporting the theory of plate tectonics.

Advanced Placement® Physics: Momentum and Impulse (Phys)
(Grades 9–12) *113A, Convention Center*
Sponsor: PASCO
Geoffrey Clarion, Rocklin High School, Rocklin, Calif.
This session explores PASCO's state-of-the-art science teaching solutions to one of the toughest aspects of AP® physics investigations—momentum and impulse. Participate in a standards-based probeware lab activity from PASCO's new AP Physics lab manual that is focused on collisions, forces, and conservation laws. Be one of the first to see how SPARKscience™ can enhance your teaching practice and improve student understanding of core topics.

Physics for Everyday Thinking (PET) and Physical Science for Everyday Thinking (PSET) (Phys)
(College) *201A, Convention Center*
Sponsor: It's About Time
Fred Goldberg, San Diego State University, San Diego, Calif.
PET and PSET are one-semester guided inquiry courses for prospective and practicing elementary and middle school teachers and general education college students. These courses focus on the themes of interactions, conservation of energy, Newton's law, and (for PSET) atomic-molecular theory. They include Learning About Learning activities where students either reflect on their own learning, the learning of younger children (using elementary videos), or the learning of scientists (the history and nature of science).

8:00–9:30 AM Exhibitor Workshops

Bio-Rad—Microbes and Health: What Causes Yogurtness?™ (Bio)
(Grades 7–College) *103A, Convention Center*
Sponsor: Bio-Rad Laboratories
Essy Levy *(biotechnology_explorer@bio-rad.com)* and **Sherri Andrews** *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, Calif.
Introduce your students to microbiology using yogurt! In this lab, students isolate bacteria from yogurt on a petri dish, then use those strains to inoculate fresh milk to produce more yogurt. Learn about disease transmission and progression and apply Koch's postulates. Teach microbiology, microscopy, health science, and biology with one lab.

It's a GAS! (Env)
(Grades 5–9) *103B, Convention Center*
Sponsor: GASTEC Corp.
Joan C. Grimm *(joangrimm1@gmail.com),* Consultant, Portland, Ore.
In this curriculum-packed workshop, we'll conduct six inquiry-driven lab experiments that span the standards and connect content to the real world. From science as inquiry to science in personal and social perspectives, these labs allow students to explore several topics, including combustion, photosynthesis, respiration, global warming, indoor air quality, and the effects of cigarette smoke on personal health. We'll light things on fire and watch plants breathe. We make the invisible visible with an easy-to-use portable gas-sampling device that needs no calibration. Used in science classrooms throughout Japan and Asia, this unique piece of equipment will become as valuable as a beaker to you! Leave with curriculum ideas you can implement next week. Three sampling kits will be raffled off in the session.

A World In Motion: The Middle School Design Experience (Phys)
(Grades 6–8) *103C, Convention Center*
Sponsor: SAE International
Julie Nalducci, SAE International, Warrendale, Pa.
SAE International's A World In Motion (AWIM) program is a series of design challenges that incorporate math, science, and technology standards. Benchmarked to the national standards, each of the AWIM activities incorporates the laws of physics, motion, and flight into age-appropriate hands-on activities that reinforce classroom STEM (science, technology, engineering, and math) curricula.

Dissection Disco **(Bio)**
(Grades 8–12) *104A/B, Convention Center*
Sponsor: WARD's Natural Science
Disco Diva Tim Montondo *(tmontondo@vwreducation.com),* WARD's Natural Science, Tonawanda, N.Y.
Make the most out of specimen dissection with expert techniques and tips from teachers just like you and WARD's very own "dissection diva." Each participant will be offered the opportunity to dissect one of several specimens, including frogs, rabbits, pigs, and rats.

Using Your Public Lands as Outdoor Classrooms or Laboratories **(Gen)**
(Grades 4–College) *105A/B, Convention Center*
Sponsor: Bureau of Land Management, U.S. Dept. of the Interior
Bonnie Winslow *(bonnie_winslow@blm.gov* and *courtney_hoover@blm.edu),* National Landscape Conservation System, Bureau of Land Management, Washington, D.C.
The Bureau of Land Management (BLM) administers 256 million acres of public land, primarily in the western United States, which it offers as outdoor classrooms for scientific research and environmental education. We'll look at available educational opportunities supported by examples of developed curricula.

Stuck in the Middle with You **(Gen)**
(Grades 5–9) *106A/B, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Razzle Dazzle Patty Muscatello *(pmuscatello@vwreducation.com),* Science Kit & Boreal Laboratories, Tonawanda, N.Y.
Middle school science for today's students requires a good bit of dazzle. Discover how to dazzle your students with fresh, interactive activities that transform natural curiosity into science inquiry skills.

The BEST Buoyancy Experiment Ever! Understanding Archimedes's Principle and Density (Phys)
(Grades 5–12) *108A, Convention Center*
Sponsor: CPO Science, School Specialty Science
Erik Benton, CPO Science, School Specialty Science, Nashua, N.H.
Steel is denser than water. So how does a steel boat float? In this hands-on workshop, we'll use modeling clay and displacement tanks to discover how and why boats can be made of materials denser than water. Learn a practical, simple, quantitative, and instructional way to present density and buoyancy.

No Boundaries: NASA Career Exploration Competition (Earth)
(Grades 6–12) *109A/B, Convention Center*
Sponsor: NASA and *USA TODAY*
Bill Yucuis, Lyman High School, Longwood, Fla.
Opportunities in our nation's future workforce are limitless. No Boundaries encourages students to envision their future and chart a course to realize a potential career in STEM. Cross curricular, cooperative, and aligned to standards, No Boundaries includes rubrics and offers team competition cash prizes (up to $2,000) for both teacher and students.

Experience a Digital Physics Curriculum (Phys)
(Grades 9–College) *110A/B, Convention Center*
Sponsor: Kinetic Books
Mark Bretl *(markb@kbooks.com),* Kinetic Books, Seattle, Wash.
Learn how a fully integrated digital physics curriculum can aid your instruction. Application of multiple learning styles and inquiry-based learning in a self-paced package provides students with experimentation and involvement. Join us for an overview of the design and use of our products along with many subject highlights.

The Origin After 150 Years: Teaching the Science of Darwin's Great Idea in a Climate of Controversy (Bio)
(Grades 9–12) *113B, Convention Center*
Sponsor: Pearson
Kenneth Miller, Brown University, Providence, R.I.
Evolution remains a contentious part of the biology curriculum in many states and school districts. Having dealt with these issues as an author and expert witness in the Kitzmiller v. Dover trial, I will suggest ways in which teachers can present Darwin's great idea in this climate of controversy.

Exploring the World Through the Five Senses (Bio)
(Grades K–1) *201B, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Come explore the world through your five senses. Act out the parts of the ear and learn what makes us feel dizzy. Explore a new unit in the Building Blocks of Science® curriculum, which integrates fire safety, creates mystery mixtures, and explores 3-D glasses as tools to extend the senses.

Biology with Vernier (Bio)
(Grades 9–College) *202A, Convention Center*
Sponsor: Vernier Software & Technology
Mike Collins *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Experiments such as transpiration, cell respiration, and EKG from our popular *Biology with Vernier* and *Advanced Biology with Vernier* lab books will be performed in this hands-on workshop. Try these experiments using LabQuest and our new LabQuest Mini. See our new SpectroVis Plus Spectrophotometer and White Light Transilluminator in action!

Bring the Outside In: Take a New Look at the Environment (Env)
(General) *202B, Convention Center*
Sponsor: Forestry Suppliers, Inc.
Debra Raddin, Forestry Suppliers, Inc., Jackson, Miss.
Janet Ort, Hoover High School, Hoover, Ala.
Come discover classroom and field studies that address contemporary environmental issues and fulfill inquiry-based standards and objectives, including soil, water, and macroinvertebrate activities. Help students "see" their environment and collect meaningful data that paint the real picture of their world.

Integrating Video Games and Core Curriculum (Gen)
(Grades 6–9) *203A, Convention Center*
Sponsor: National Geographic–The JASON Project
Bill Jewell *(bjewell@jason.org),* Digital Media and Technology, Ashburn, Va.
Marjee Chmiel *(mchmiel@jason.org),* The JASON Project, Ashburn, Va.
While many educators have expressed interest in using video games to teach, few games have been designed as core curriculum with the educator in mind. This workshop illustrates The JASON Project's suite of standards-based games designed to be integrated directly into the middle school science curriculum.

Stream Ecology: Slimy Leaves for Clean Streams **(Env)**

(Grades 4–College) *203B, Convention Center*

Sponsor: LaMotte Co.

Kristen Travers, Stroud Water Research Center, Avondale, Pa.

Observe live aquatic macroinvertebrate specimens, conduct experiments, learn classification skills, and calculate a biotic index in this hands-on introduction to stream ecology. Learn from the Stroud scientists. Door prizes!

Introduction to Electrophoresis **(Bio)**

(Grades 9–12) *204A, Convention Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Explore the basics of electrophoresis. Separate brightly colored dyes on agarose gels to determine which dyes are present in an unknown mix. Gels are run using economical, sturdy gel boxes that can be powered by inexpensive power supplies or batteries. Come load your own gels and perform electrophoresis.

Think Mink! Exploring Mammalian Anatomy with Carolina's Perfect Solution® Mink **(Bio)**

(Grades 9–College) *204B, Convention Center*

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Often used in grades 9–college biology labs as a very inexpensive substitute for the cat, the mink allows students to study fully developed, sexually mature vertebrate anatomy of order Carnivora and class Mammalia. Ranch-raised minks are skinned and preserved in safe, nontoxic Carolina's Perfect Solution.

Science for Digital Natives **(Gen)**

(Grades K–12) *304, Convention Center*

Sponsor: Houghton Mifflin Harcourt

Don McBurney, Houghton Mifflin Harcourt, Austin, Tex.

Join Houghton Mifflin Harcourt to learn how you can motivate students who live in a connected and digital world. We will demonstrate techniques and activities that encourage curiosity, promote inquiry, and develop students' 21st-century skills.

NSTA Student Member Events

Friday, March 19

NSTA Student Chapter Faculty Advisor Roundtable
8:00–9:00 AM
Philadelphia Marriott
Grand Salon G

NSTA Student Chapter Action Session
9:30–10:30 AM
Philadelphia Marriott
Grand Salon G

Becoming an NSTA Student Chapter Leader
11:00 AM–12 Noon
Philadelphia Marriott
Grand Salon G

Getting Connected: NSTA Student Chapter Interactive Television (ITV) Meetings
12:30–1:30 PM
Philadelphia Marriott
Grand Salon G

Increase Science Enthusiasm on Your Higher Education Campus: Start an NSTA Student Chapter
2:00–3:00 PM
Philadelphia Marriott
Grand Salon G

Assisting Preservice Teachers in Presenting at NSTA and Other Science Conferences: An NSTA Student Chapter Roundtable
3:30–4:30 PM
Philadelphia Marriott
Grand Salon G

Student Chapter and Student Member Reception
5:30–7:00 PM
Philadelphia Marriott
Grand Salon G

Saturday, March 20

Starting an NSTA Student Chapter: Faculty and Student Perspectives
8:00–9:00 AM
Philadelphia Marriott, 308

NSTA National Science Teachers Association

Inquiry Teaching and Learning: Gas Exchange **(Bio)**

(Grades 6–8) *Hall D/Room 2, Convention Center*

Sponsor: LAB-AIDS, Inc.

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

How do your lungs work? This middle level activity series is taken from the Body Systems unit from the SEPUP Issues and Life Science course, developed with support from the National Science Foundation and used in classrooms across the country. Participants will use a weak base to titrate an acidic sample made by dissolving their exhaled breath into tap water to learn about gas exchange in the lungs, then examine ways to support the analysis questions, literacy, assessment, and technology associated with the activity. Take away handouts and materials to use in class next week!

8:00–10:00 AM SESD Science-abled Breakfast Meeting

Teaching Standards-based Science to Students with Disabilities

(By Ticket Through SESD) *Meeting Room 502, Marriott*

Trinell Bowman, Maryland State Dept. of Education, Baltimore

This breakfast meeting brings together teachers of disabled students, parents, science educators, and scientists. We will recognize the recipients of the Lifetime Service Award for Outstanding Contributions in Science Education for Students with Disabilities and the Lawrence Scadden Teacher of the Year Awards. We will also highlight educational experiences of students with disabilities and their contributions to science.

This year our featured speaker will be Trinell Bowman of the Maryland State Department of Education. Ms. Bowman will review strategies that have been implemented across the State of Maryland to assist special education teachers with teaching science content aligned to the State Content Standards.

8:00–10:00 AM Workshop

CESI Session: CESI Make 'n' Take **(Gen)**

(Elementary) *Millennium Hall, Loews*

Kay Atchison Warfield *(kaw@alsde.edu),* CESI President, and Alabama State Dept. of Education, Montgomery

Kathrine Ahlqvist *(kathrine.ahlqvist@edu.haninge.se),* Vendelsömalmsskolan, Haninge, Sweden

Kenneth W. Barlow, Jr. *(kwbarlow@olemiss.edu),* The University of Mississippi, Oxford

Anna Berg *(anna.berg@edu.haninge.se),* Förskolan Trombonen, Haninge, Sweden

Becky J. Cox *(beckyc@utm.edu),* The University of Tennessee at Martin

Betty Crocker *(crocker@unt.edu),* University of North Texas, Denton

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

Elisabeth Hagman *(elisabeth.hagman@edu.haninge.se),* Lundaskolan, Haninge, Sweden

Linda Karlsson *(linda.karlsson@edu.haninge.se),* Lida förskola, Haninge, Sweden

Mary Beth Katz *(mbkatz@bellsouth.net),* Alabama Science Teachers Association, Birmingham

Anna Lindblom *(anna.lindblom@edu.haninge.se),* Kvarnbäcksskolan, Haninge, Sweden

Virginia J. Moore *(vjmoore@olemiss.edu),* The University of Mississippi, Tupelo

Karen L. Ostlund *(klostlund@mail.utexas.edu),* Retired Professor, Austin, Tex.

Hans Persson *(hanper@hanper.se),* University of Stockholm, Sweden

Anneli Pettersson *(anneli.pettersson2@edu.haninge.se),* Brandbergsskolan, Haninge, Sweden

Sherry Smith *(sherrys@dawson.dsc.k12.ar.us),* Dawson Education Cooperative, Arkadelphia, Ark.

Kelle Sumrall *(sumrall@olemiss.edu)* and **William J. Sumrall** *(sumrall@olemiss.edu),* The University of Mississippi, University, Miss.

Cheryl White Sundberg *(sundbergrc@bellsouth.net),* The University of Alabama, Millbrook

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

K–8 teachers share ideas and integrated, inquiry-based science lessons.

8:00–10:30 AM Exhibitor Workshop

Introducing Science Notebooks with FOSS K–6 (Gen)

(Grades K–6) *107A/B, Convention Center*

Sponsor: Delta Education, School Specialty Science–FOSS

Ellen Mintz, Consultant, Charleston, S.C.

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

Learn the essential elements 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 materials provided.

8:00–11:00 AM Short Course

MESSENGER: Integrate Technology with Classroom Instruction That Works (SC-11)

(Middle Level–High School) *Maestro A/B, Doubletree*

Tickets Required: $40

Brenda Conway *(bconway@ms.spotsylvania.k12.va.us)* and **Dianne Clowes** *(dclowes@ms.spotsylvania.k12.va.us),* Ni River Middle School, Spotsylvania, Va.

Corey Peloquin *(corey.peloquin@technosavvyteacher.com)* and **Julie Ball** *(julie.ball@technosavvyteacher.com),* Techno Savvy Teacher Education Consultants, Tampa, Fla.

For description, see Volume 1, page 63.

8:00–11:00 AM Exhibitor Workshop

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

(Grades 7–12) *108B, Convention Center*

Sponsor: Water Environment Federation

Mike Kemp, Murray State University, Murray, Ky.

The Water Environment Federation presents hands-on chemical, biological, and geophysical assessment of stream water quality. Take home unit materials and supplies.

8:00 AM–12 Noon NSTA/SCST College Symposium

The Future of Quality Waters: An Educational Symposium Jointly Sponsored by NSTA and SCST (Env)
(General) *Commonwealth B, Loews*

Water is the most plentiful molecule on Earth's surface, but only three milliliters out of every 100 liters are pure enough for humans to consume. The rest is contaminated by naturally occurring factors that are geological, climatological, biological, or human influences caused by the disposal of industrial, agricultural, and residential residues. Studies indicate that over eight million people around the world die from consuming contaminated water every year. Four highly regarded experts in the future of the world's waters will come together at this symposium to discuss the pressures of maintaining the quality of water today and share their predictions for the future.

8:00–8:15 AM
Introduction
Walter S. Smith, NSTA Director, College Science Teaching, and Texas Tech University, Lubbock
Tom Lord, Indiana University of Pennsylvania, Indiana

8:15–9:00 AM
Sustainable Design of Future Water Systems

Dan Wible
Water Resource and Environmental Engineer
CH2M HILL and Associates
Englewood, Colo.

Hear about innovative storm water control and management practices and hydrologic analysis of water systems in the next decades. Dan Wible is an environmental engineer with CH2M HILL and Associates, one of the nation's most respected environmental consulting firms. He is best known and recognized as a LEED specialist in managing wastewaters in natural environments.

9:15–10:00 AM
Cleansing the Air at the Expense of the Nation's Water: What the EPA Is Doing About It and Other Serious Water Pollution Problems

Charles Duhigg
Reporter and Author
The New York Times
New York, N.Y.

Charles Duhigg will discuss the disregard of some current public officials to enforcing provisions of the Safe Drinking Water Act. Duhigg is an investigative reporter for *The New York Times* and author of the award-winning series "Golden Opportunities," for which he received the George Polk Award, the Sidney Hillman Award, and a Deadline Award among others.

10:15–11:00 AM
Emerging Contaminants in Pennsylvania Waters

Kent Crawford
Water Quality Specialist
Pennsylvania Water Science Center
U.S. Geological Survey
New Cumberland, Pa.

This presentation will focus on the significance of pharmaceutical compounds, antibiotics, hormones, and wastewater compounds in the local waterways. As a water-quality specialist for the Pennsylvania Water Science Center, Kent Crawford is responsible for technical oversight and water quality control and has over 30 years of experience in a variety of water-quality projects.

11:00 AM–12 Noon
Greening of the NSTA John Glenn Center for Science Education

Christoper Gorthy
(christopherg@dprinc.com)
LEED Accredited Professional
DPR Construction, Inc.
Falls Church, Va.

Learn how science plays a role in the greening of the John Glenn Center for Science Education, some of the basics of green building and the LEED ratings system, and the benefits for NSTA and its membership. Christopher Gorthy is the preconstruction manager for the mid-Atlantic region and East Coast sustainability manager for DPR Construction, that will build the new NSTA headquarters building.

8:00 AM–12 Noon Short Course

NASA's Space Weather Action Center (S.W.A.C.) (SC-12)

(Grades 4–12) *Rhapsody, Doubletree*

Tickets Required: $52

Elaine M. Lewis *(elaine.m.lewis@nasa.gov)* and **Troy Cline** *(troy.d.cline@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.

For description, see Volume 1, page 63.

8:15–9:15 AM Meeting

Past Presidents Advisory Board Meeting

Lescaze, Loews

8:30–9:00 AM Presentation

SESSION 1

TextBook 2.0 **(Gen)**

(General) *Hall D/Room 8, Convention Center*

Murugan Pal *(murugan@ck12.org),* CK–12 Foundation, Palo Alto, Calif.

High-quality educational webtexts can serve as both source materials for a student's learning and an adaptive environment that scaffolds the learner's journey as he or she masters a standards-based body of knowledge. We'll examine an open-source, web-based model termed the FlexBook.

8:30–9:30 AM Presentation

SESSION 1

Teacher Researcher Day Session: Poster Session for Teachers and Teacher Educators Inquiring into Science Learning and Teaching (Gen)

(General) *Grand Salon E/F, Marriott*

Emily H. van Zee *(vanzeee@science.oregonstate.edu),* Oregon State University, Corvallis

Claire G. Bové *(cgbove@flash.net),* Mills College, Oakland, Calif.

Yajaira Fuentes-Tauber *(yfuentes-tauber@hotmail.com),* Rivera High School, Brownsville, Tex.

What questions are teachers and teacher educators exploring in their own classrooms? Come enjoy an overview of studies being presented during Teacher Researcher Day.

8:30 AM–1:00 PM NSTA Symposium

Climate Change Here and Now: Forest Ecosystem Impacts (SYM-4)

(Grades 5–12) *Franklin 12, Marriott*

Tickets Required: $54

Victoria Arthur, USDA Forest Service, Washington, D.C.

Deborah Finch, Albuquerque Forestry Sciences Laboratory, USDA Forest Service, Albuquerque, N.Mex.

Karen Flammer, University of California, San Diego

Leesa Hubbard, Wilson Central High School, Lebanon, Tenn.

Steve McNulty, USDA Forest Service Southern Research Station, Raleigh, N.C.

For description, see Volume 1, page 58.

9:00–10:00 AM Presentations

SESSION 1 (two presentations)

(General) *Independence C, Sheraton*

COSEE Session: COSEE Alaska: Ways of Knowing Ocean Climate Change (Env)

Marilyn Sigman *(marilyn.sigman@uaf.edu),* University of Alaska Fairbanks, Anchorage

Nora L. Deans *(nora.deans@nprb.org),* North Pacific Research Board, Anchorage, Alaska

Explore scientific and culturally relevant educational strategies and resources focused on people, oceans, and climate in a region of dramatically accelerating change.

COSEE Session: Culturally Relevant Ocean Sciences Education in Hawaii (Earth)

Judith D. Lemus *(jlemus@hawaii.edu),* University of Hawaii, Kaneohe

The Hawaii-based COSEE collaborative discusses a new project that integrates traditional knowledge systems with Communicating Ocean Sciences courses in science pedagogy for young science professionals.

9:00 AM–12 Noon Short Courses

Making the Most of NSDL's Science Literacy Maps (SC-13)

(General) *Aria A/B, Doubletree*

Tickets Required: $42

Ted Willard *(twillard@aaas.org),* AAAS Project 2061, Washington, D.C.

For description, see Volume 1, page 63.

★ **Expedition Earth and Beyond (SC-14)**

(General) *Concerto A/B, Doubletree*

Tickets Required: $26

Paige Graff *(paige.v.graff@nasa.gov),* NASA Johnson Space Center/Jacobs Technology, Houston, Tex.

Tim McCollum, Charleston Middle School, Charleston, Ill.

Charles F. Lindgren, Retired Educator, Cohasset, Mass.

For description, see Volume 1, page 63.

9:00 AM–12 Noon Meeting

RAISE Meeting: Research About Science Teaching: Updates and Classroom Applications

Congress C, Loews

Learn and discuss the latest research on K–12 science teaching, with a special focus on how you can apply these research findings to your classroom.

9:00 AM–4:00 PM Short Course

NSTA Press: Science Notebooks: Developing a Deeper Understanding (SC-15)

(Grades K–12) *Ormandy West, Doubletree*

Tickets Required: $41

Trisha Herminghaus *(herminghaus_trisha@asdk12.org)* and **Texas Gail Raymond** *(raymond_gail@asdk12.org),* Anchorage (Alaska) School District

For description, see Volume 1, page 64.

9:00 AM–5:00 PM Exhibits

Exhibit 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.

9:00 AM–5:00 PM Meeting

NSTA International Lounge

Registration II, Marriott

Please stop by the NSTA International Lounge to relax or meet colleagues while you're at the conference.

9:30–10:00 AM Presentations

SESSION 1

Cycles and Spirals: Using Action Research to Improve Teacher and Student Understanding and Performance (Gen)

(Middle Level–College/Supervision) *Regency C2, Loews*

Maurella L. Cunningham, Stacy A. Ernst *(erns0039@umn.edu),* and **Mistilina Sato** *(msato@umn.edu),* University of Minnesota, Minneapolis

Presider: Mistilina Sato

The KNOWLES project brings formative assessment and action research into the forefront of practice for secondary school science educators.

SESSION 2

Research Experiences for Teachers: Transformative Professional Development (Gen)

(General) *Washington B, Loews*

Claire J. Duggan *(c.duggan@neu.edu)* and **Ryan Sauvé** *(r.sauve@neu.edu),* Northeastern University, Boston, Mass.

Rocco Cieri *(rcieri@medford.k12.ma.us),* Medford High School, Medford , Mass.

Learn firsthand about the National Science Foundation Research Experience for Teachers (RET) Program. We'll look at core components of the program and its impact on participants and their students.

9:30–10:30 AM Presentations

SESSION 1

Taking a CHANCE: A New and Different Multimedia-based Pedagogical Tool for High-Impact Learning (Bio)

(High School) *Hall D/Room 1, Convention Center*

Jacqueline S. McLaughlin *(jshea@psu.edu),* Penn State Lehigh Valley, Fogelsville, Pa.

Kathleen A. Fadigan *(kxf24@psu.edu),* Penn State Great Valley, Malvern, Pa.

Can technology change the way science is taught? You bet it can! Come learn how to use CHANCE research modules, customized multimedia-learning tools that integrate real-world research data with information from animations, videos, and virtual explorations.

SESSION 2

Meaningful Environmental Science for Urban Learners (Env)

(General) *Hall D/Room 5, Convention Center*

Mary F. Legoria *(mgutierrez@ebrschools.org),* Westdale Heights Academic Magnet School, Baton Rouge, La.

Presider: Pam Fry, Westdale Heights Academic Magnet School, Baton Rouge, La.

Students today are experiencing what Richard Louv describes as "nature deficit disorder." Explore methods for filling nature deficit gaps in your students.

SESSION 3

Physics and Art (Phys)

(Middle Level–College) *Hall D/Room 6, Convention Center*

Christopher M. Smith, University of California San Diego, La Jolla

Learn how physics concepts and research have contributed to the development of new art.

SESSION 4

The Design and Evaluation of an Urban Watershed Education Program (Env)

(Elementary/Informal Ed) *Hall D/Room 9, Convention Center*

David M. Christopher *(dchristopher@aqua.org),* National Aquarium in Baltimore, Md.

The National Aquarium partnered with inner-city schools in Baltimore to increase student interest in the environment and science. I'll share the program structure, evaluation, and results.

SESSION 5 (two presentations)

(General) *Hall D/Room 11, Convention Center*

Managing Inquiry: What Does It Take to "Pull It Off"? (Gen)

Jerrid W. Kruse, South Sioux City Middle School, South Sioux City, Neb.

Inquiry-based science brings excitement and fear to teachers' faces. Share your tips and strategies to control the ambiguity and freedom of the inquiry environment.

Classroom Management Hints from Science Teachers and Research Findings (Gen)
Scott B. Watson, Liberty University, Lynchburg, Va.
Explore effective ways of preparing science teachers for issues related to classroom management, including suggestions from successful teachers and from research.

SESSION 6
The Effective Teacher—From Good to Great! (Gen)
(Elementary) Hall D/Room 14, Convention Center
Linda M. Scott, Aldine Independent School District, Houston, Tex.
I'll share tools and techniques that propel teachers from good to great through a continual improvement process.

SESSION 7
The Elements Unearthed: Documenting the History of Chemistry Through Student-created Vodcasts (Gen)
(Informal Education) Hall D/Room 17, Convention Center
David V. Black *(elementasunearthed@gmail.com),* Orem, Utah
You and your students can document the history of chemistry in your community and integrate science with history, geography, and writing to produce video podcasts.

SESSION 8
Strengthening NBPTS Inquiry Entries Using Nature of Science (Gen)
(Middle Level–College) Hall D/Room 26, Convention Center
Cheryl Young *(cdyoung@atlanta.k12.ga.us),* Benjamin Mays High School, Atlanta, Ga.
Erin E. Peters *(epeters1@gmu.edu),* George Mason University, Fairfax, Va.
Learn how to establish learning environments where students conduct rich scientific inquiry and how this process directly relates to National Boards for Professional Teaching Standards (NBPTS) portfolios.

SESSION 9
Become an Einstein Fellow! (Gen)
(Elementary–High School) Hall D/Room 27, Convention Center
Liz Burck, Triangle Coalition for Science and Technology Education, Arlington, Va.
Become an Einstein Fellow and spend a year in Washington, D.C., working on national education programs.

SESSION 10
AMSE Session: What's the Case? Using Case Studies to Maximize Instruction with Diverse Populations (Bio)
(High School) Commonwealth D, Loews
Chelia McCoo Dogan *(chelia.mccoo@aliefisd.net),* Elsik High School, Houston, Tex.
Case studies are a powerful tool for enhancing science instruction, allowing students to become part of the scientific process. We'll share conceptual resources, particularly websites, that support this type of instruction.

SESSION 11
NSELA Session: Leading for Science Learning (Gen)
(General) Congress A, Loews
Janis Slater, University of Oklahoma, Norman
School administrators play a vital role in instructional reform. Come learn and share ideas for structuring science communities of practice through leadership development.

SESSION 12 (two presentations)
(High School–College) Congress B, Loews
Bridging the Gap Between Education and Industry: The Introduction of Real-Life Experience into the High School Classroom (Chem)
Elizabeth I. Ashforth, Marlborough School, Los Angeles, Calif.
A cross-functional approach in science education leads to a better appreciation of career options. I will outline a successful merger of industry experience with traditional pedagogy using a multidisciplinary approach in a college preparatory setting.

Simple Chemistry Experiments Using Spreadsheets (Chem)
Ramiro E. Domínguez-Danache *(ramirodominguez@yahoo.com)* and **Carlos M. Castro-Acuña** *(castroacuna02@yahoo.com),* National Autonomous University of Mexico, Mexico City
These simple experiments are useful and easy to understand with the use of spreadsheets.

SESSION 13 (two presentations)
(High School–College) *Regency C1, Loews*

Science Teachers' Drawings of What is Inside the Human Body (Bio)
Patricia Patrick *(ppatrick@bennett.edu),* Bennett College, Greensboro, N.C.
Sue Dale Tunnicliffe *(lady.tunnicliffe@mac.com),* University of London, U.K.
This study identifies science teachers' understandings of the internal structures of the human body. Teachers were able to draw organs but not organ systems.

World Disease: Learning Without Borders (Bio)
Joyce A. Shaw *(jshaw@endicott.edu),* Endicott College, Beverly, Mass.
Making connections between biology and other disciplines such as sociology, politics, and economics is easy when the subject is world disease. I'll share some internet resources for teaching biology.

SESSION 14
Creating a Transdisciplinary STEM Curriculum (Gen)
(High School) *Washington C, Loews*
Kathy D. Wright *(wrighka@cps-k12.org)* and **Kelly Obarski** *(kelly.obarski@uc.edu),* Hughes STEM High School, Cincinnati, Ohio
Presider: Kelly Obarski
Learn how we created a transdisciplinary STEM curriculum for an urban high school.

SESSION 15
NSTA International Professional Development: Changing Teaching Behaviors, Attitudes, and Perspective (Bio)
(General) *303, Marriott*
Sandy Doss, Holbrook Global Field Expeditions, Gainesville, Fla.
Join a lively group of NSTA delegates as we explore the changes in outcomes, behaviors, and perspective of the 2009 NSTA International Study Expedition to Costa Rica. This session includes captivating imagery and a comprehensive look at the value of global education on behalf of professional development. Join us as we discuss how to make this your 2010 reality!

SESSION 16
DOE's Academies for Creating Teacher Scientists: They're Worth Every Penny (Gen)
(Middle Level–High School) *304, Marriott*
Dan Andrews *(dandrews@ames.k12.ia.us),* Ames Middle School, Ames, Iowa
Margaret Sue Hicks *(mhicks01@topeka.k12.ks.us),* Eisenhower Middle School, Topeka, Kans.
Karen J. Shepherd *(k95j@aol.com),* Oliver Hazard Perry School, Cleveland, Ohio
The Department of Energy's Academies for Creating Teacher Scientists (ACTS) program is worth every penny (over 2,500,000 of them)…and they give them all to you! Join the ACTS program to renew your enthusiasm, learn from experts, and become eligible for thousands of dollars for materials and additional professional development.

SESSION 17 (two presentations)
(Middle Level–High School) *305/306, Marriott*

We're Learning This to Do…WHAT?? (Chem)
Mason Pyper and **Linda Rush** *(lrush@fortsmithschools.org),* Southside High School, Fort Smith, Ark.
Demonstrate cross-curricular methods to connect science with real-world applications, creating opportunities for all students to analyze current scientific research.

Twenty Science Questions Teenagers Frequently Ask (Gen)
William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.
John E. Penick *(john.penick@sangari.com),* 2003–2004 NSTA President, and Sangari, USA, Cary, N.C.
A survey of U.S. teenagers reveals some surprising science questions. What are they and what are some answers? What does this suggest to science teachers?

SESSION 18
Addressing Barriers for Students with Disabilities (Gen)
(General) *Franklin 2, Marriott*
Greg P. Stefanich *(stefanich@uni.edu),* University of Northern Iowa, Cedar Falls
The presentation will share elements of successful practice research relating to students with disabilities, along with resources for obtaining adaptive equipment and supplies.

SESSION 19

Exploring Genetically Modified Crops in Food Products (Bio)

(General) *Franklin 3, Marriott*

Barbara J. Nealon *(nealon@lvc.edu),* Susquehannock High School, Jacobus, Pa.

How can biotechnology advance agricultural production? I'll share resources, activities, lesson plans, and assessments that address this question.

SESSION 20

NASA eClips for Secondary Students: Using Video Segments to Engage Millennial Learners (Bio)

(General) *Franklin 6, Marriott*

Rebecca Jaramillo *(rebecca.jaramillo@nianet.org),* National Institute of Aerospace, Hampton, Va.

NASA eClips are short educational video segments designed to inspire students. Learn how to integrate NASA eClips content into standards-based curriculum, highlighting real-world applications of science, technology, engineering, and mathematics (STEM).

SESSION 21

Powerful, Free Simulations for Physics Teaching (Phys)

(Middle Level–High School) *Franklin 7, Marriott*

Chad W. Dorsey *(cdorsey@concord.org),* The Concord Consortium, Concord, Mass.

Add a new dimension to your physics teaching. Discover a huge library of free NSF-funded models, simulations, and curricula from The Concord Consortium. Take home a free CD and resources. Bring your laptop if you like.

SESSION 22

Food Safety 101: What You Need to Know to Avoid the Onset of One-Bucket or Two-Bucket Disease (Bio)

(General) *Franklin 9, Marriott*

John B. Luchansky *(john.luchansky@ars.usda.gov),* USDA Eastern Regional Research Center, Wyndmoor, Pa.

Presider: Mark Gallo *(mgallo@niagara.edu),* Niagara University, Niagara University, N.Y.

I'll share selected technologies and accomplishments to find, characterize, and control pathogens to lessen the likelihood and severity of food-borne disease.

SESSION 23

NSTA Press Session: Spotlighting Books Co-published by NSTA and NSELA and How to Use Them to Inform Science Programs, K–16 (Gen)

(General) *Grand Salon D, Marriott*

Jack Rhoton *(rhotonj@etsu.edu),* East Tennessee State University, Johnson City

Pat Shane *(pshane@email.unc.edu),* NSTA President, and The University of North Carolina at Chapel Hill

We will examine the six books that have been co-published by NSTA and NSELA, focusing on how these resources can be used to inform existing K–16 science education programs and with a special spotlight on the newest NSTA/NSELA book.

SESSION 24

Virtual Reality Study Buddies: Filling the Digital Generation Gap (Gen)

(Middle Level–High School) *Grand Salon G, Marriott*

Cliff Cockerham *(clifford.cockerham@mnps.org),* Whites Creek Comprehensive High School, Whites Creek, Tenn.

Experience "teachable-agents"—virtual reality study buddies who simulate learning and raise achievement. Take it home for free.

SESSION 25

NSTA-CBC Outstanding Science Trade Books (Gen)

(General) *Grand Salon H, Marriott*

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

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

Cindi Smith-Walters *(csmithwa@mtsu.edu),* Middle Tennessee State University, Murfreesboro

Kristin T. Rearden *(krearden@utk.edu),* University of Tennessee, Knoxville

Diana Wiig *(dwiig@uwyo.edu),* University of Wyoming, Laramie

Nancy McDonough *(nancy_mcdonough@yahoo.com),* Walter Stillman School, Tenafly, N.J.

Presider: Mike Szydlowski *(szydlowskimichael@rockwood.k12.mo.us),* Rockwood School District, Eureka, Mo.

Join the NSTA committee and hear about the 2009 Outstanding Science Trade Books and learn how to make best use of trade books for your classroom. Join us for a chance to win free books!

SESSION 26

Stoichiometry the D2UM2 Way (Chem)

(High School) *Grand Salon L, Marriott*

Harvey Gendreau *(hgendreau@rcn.com),* Laboratory Safety Institute, Natick, Mass.

For your math-challenged students who can't seem to understand stoichiometry, this method may be a way to help them solve these problems.

SESSION 27 (two presentations)

(General) *Freedom F, Sheraton*

Astronomy Conversations: A Partnership Between University of Chicago and Adler Planetarium (Earth)

Randall H. Landsberg *(randy@oddjob.uchicago.edu),* University of Chicago, Ill.

Larry A. Ciupik *(lciupik@adlerplanetarium.org),* Alder Planetarium and Astronomy Museum, Chicago, Ill.

This program brings research scientists and their data into a format and setting where the public can share in the excitement of discovery.

Close Enough: A Journey into Solar System Modeling for Hands-On Thinking (Earth)

Martin G. Horejsi *(martin.horejsi@umontana.edu),* The University of Montana, Missoula

The Close Enough models use rounding, approximations, generalizations, relationships, and classroom objects and materials to simulate scale and other physical parameters of the solar system.

SESSION 28

Investigate the State: Collaborating to Study Science Issues Through Local Inquiry (Env)

(Middle Level–High School) *Freedom H, Sheraton*

Stephen Best, University of Michigan, Ann Arbor

See how both rural and urban students investigate local phenomena such as water quality or weather, and then collaborate with other Michigan classrooms to share and analyze data.

SESSION 29

Using Google Earth to Investigate Energy Resources (Env)

(Middle Level) *Liberty C, Sheraton*

Violet A. Kulo *(violet.kulo@lehigh.edu),* **Alec M. Bodzin** *(amb4@lehigh.edu),* and **Tamara E. Peffer** *(tep205@lehigh.edu),* Lehigh University, Bethlehem, Pa.

These inquiry-based activities use Google Earth to promote student learning of the world's energy resources. Students explore worldwide energy sources and production facilities, and analyze their relation to population centers.

SESSION 30

Connecting Students to Real-World Science Issues with National Geographic's Online Resources (Gen)

(General) *Salon 3/4, Sheraton*

Mary Crooks *(mcrooks@ngs.org)* and **Patricia Norris** *(pnorris@ngs.org),* National Geographic Society, Washington, D.C.

Presider: Patricia Norris

Learn how to leverage National Geographic's renowned research, exploration, and media resources to engage students in real-world applications of scientific investigation.

9:30–10:30 AM Workshops

★ **Edible Science: Science Good Enough to Eat! (Gen)**
(Elementary–Middle Level) Hall D/Room 7, Convention Center
Patricia A. DeCoster, Cooperative Educational Services, Trumbull, Conn.
Learn how to use food to teach concepts such as plate tectonics, physical/chemical changes, cell structure, density, and atoms, and take home lessons, recipes, and assessment ideas. Science never tasted so good!

Discovery Tree: Teaching Preschoolers Ecology by Connecting Literature and Visual Models (Bio)
(Preschool) Hall D/Room 8, Convention Center
Emily M. Ford *(emilyford@virginia.edu)* and **Lisa Green** *(lcg8w@virginia.edu),* State Arboretum of Virginia, Boyce
Presider: Candace Lutow-Felling, State Arboretum of Virginia, Boyce
The State Arboretum of Virginia's Plants and Trees program integrates early childhood science literature with a unique 3-D tree model to encourage aural, visual, and kinesthetic learning.

Dancing Lights: Exploring the Aurora Through Art and Writing (Earth)
(Elementary) Hall D/Room 10, Convention Center
Erin L. Wood *(erin.wood@lasp.colorado.edu),* Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder
Presider: Neil Marks, Laboratory for Atmospheric and Space Physics, University of Colorado, Boulder
Dancing Lights is a science-in-literacy program about the aurora for grades 3–5. Students write down and illustrate their perceptions, ideas, and facts pertaining to auroral science.

Mathnificent Scientific Experience, Part 2 (Gen)
(Preschool–Middle Level) Hall D/Room 15, Convention Center
Shevinna M. Sims *(ssims2@cps.edu),* Johnnie Coleman Academy, Chicago, Ill.
Lorraine B. Wilson *(lbwilson@cps.edu),* Chicago (Ill.) Public Schools
CANCELED
Experience hands-on, make-and-take math and science activities that motivate and engage students.

Concept Mapping with Young Learners (Gen)
(Preschool–Elementary) Hall D/Room 16, Convention Center
Carol A. Brennan *(carolb@hawaii.edu),* University of Hawaii, Honolulu
Work with others to construct a variety of concept maps designed to address the learning characteristics of young children.

Aerodynamics: Balloon Rocketry (Phys)
(Elementary–Middle Level) Hall D/Room 19, Convention Center
Bob Neudel *(neudelb@albanyacademies.org),* Albany Academies, Albany, N.Y.
Presider: Fred L. Pidgeon, SUNY Cobleskill, N.Y.
Combine physics/math with simple experiments using balloons, string, and excitement. Working collaboratively, your students explore the physics of flight.

Afterschool Science Plus! (Gen)
(Elementary–Middle Level/Inf.) Hall D/Room 21, Conv. Center
Maryann Stimmer *(mstimmer@aed.org),* Educational Equity Center at AED, New York, N.Y.
Linda Colón, Academy for Educational Development, New York, N.Y.
Learn some strategies for reaching groups traditionally underrepresented in science through fun, hands-on/minds-on, equity-based science activities from Afterschool Science PLUS, an informal science curriculum.

Literacy Across the Curriculum: "Cubing" Lets You Think Outside the Box! (Gen)
(Middle Level) Hall D/Room 22, Convention Center
Elizabeth Morales *(elizabeth_morales@nbps.k12.nj.us),* New Brunswick (N.J.) Public Schools
Presider: Margaret Morales, Acelero Learning, Hazelton, N.J.
Cubing originated as a writing strategy used to explore topics or subjects from a variety of dimensions. A concrete visual of a cube is used to consider these multiple dimensions.

Activity + Reflection = Learning (Gen)
(Middle Level) Hall D/Room 23, Convention Center
Kevin M. McShane *(kevinmmcshane@gmail.com),* Profile School, Bethlehem, N.H.
Use these activities to engage the minds and bodies of your students.

Beat the Science Blues! Transform Activities into Inquiry (Gen)
(Elementary–Middle Level) Hall D/Room 25, Convention Center
Nancy M. Williams *(nancym.williams@slps.org),* St. Louis (Mo.) Public Schools
Wanicha Disharoon *(wanicha.disharoon@slps.org)* and **Frank Neal** *(frank.neal@slps.org),* Jefferson Elementary School, St. Louis, Mo.
Jazz up your elementary science classroom with our proven strategies to involve students in authentic science inquiry, notebooking, and conferencing without changing your curriculum materials. Handouts!

Developing Differentiated Science Lesson Plans (Gen)
(General) Hall D/Room 28, Convention Center
Marcia Fetters *(marcia.fetters@wmich.edu),* Western Michigan University, Kalamazoo
Explore strategies for helping preservice and practicing teachers develop tiered science lessons for middle and high school students.

Thinking Like a Scientist (Gen)
(General) Hall D/Room 30, Convention Center
Gene L. Easter *(gleaster@sbcglobal.net),* Kent State University, Kent, Ohio
Presider: Linda Easter, Brushfire Science Consultants, Tallmadge, Ohio
Explore the nature of science and inquiry with these effective, easy, inexpensive, and fun strategies that create a real science experience for your students.

The Dead T-Shirt Contest! (Gen)
(Middle Level–High School) Commonwealth A, Loews
Michael J. Vieira Lazaroff *(mjvlazaroff@gmail.com)* and **David Rollison,** Staples High School, Westport, Conn.
Determine the cause, mechanism, and manner of death in this activity in which students act as both victim and forensic pathologists.

NMLSTA Session: HOP 2: A Scientific Investigation (Chem)
(Middle Level) Commonwealth C, Loews
Rebecca H. Knipp, NMLSTA President, and Sunman-Dearborn Intermediate School, West Harrison, Ind.
Annette Barzal *(abarzal@earthlink.net),* Science Adventures, Medina, Ohio
Presider: Annette Barzal
This kit includes a learning cycle of activities using all six recycled resins as well as background reading on the chemistry and history of plastics. Experience some activities, including investigating the density of the plastic resins. A sample kit will be given to each participant.

Work Smarter, Not Harder! Compacting Literacy and Science with Your Inquiry Science Program (Gen)
(Elementary–Middle Level/Supervision) Regency A, Loews
Kathleen K. Blouch *(kkblouch@aol.com),* Elizabethtown College, Elizabethtown, Pa.
Elizabethtown College Students from Science Methods Class
Presider: Knancie Griffing, Amherst, N.H.
Learn how we were able to teach communication arts and science content with inquiry science programs.

Using Neuroscience to Support Science Learning (Gen)
(General) Washington A, Loews
Carolyn A. Hayes *(caahayes@comcast.net),* Indiana University School of Medicine, Indianapolis
Explore how discoveries in cognitive neuroscience are applied to the NSES teaching standards and the principles underlying students' learning of science. We'll also engage in a 5E science lesson that illustrates how the brain processes learning.

Exploring Bioethics: A New Model for High School Instruction (Bio)
(High School) Franklin 1, Marriott
Dave Vannier *(vannierd@od.nih.gov),* National Institutes of Health, Bethesda, Md.
Engage students in a new approach to examining biomedical practices, such as genetic testing and developing their own well-justified positions on the ethical issues involved.

A Deep Understanding of Cladograms…with Candy? (Bio)
(Middle Level–High School) *Franklin 4, Marriott*
Katherine A. Larson, East High School, Des Moines, Iowa
Scott M. Moore, Ankeny High School, Ankeny, Iowa
Learn how to use candy to teach fundamental ideas about cladograms in a biology classroom. Candy and handouts provided!

Using an Inquiry-based Approach to Improve Students' Performance in Biology (Bio)
(Middle Level–College) *Franklin 5, Marriott*
Alfred Porter *(apporter12@aol.com),* Atlanta (Ga.) Public Schools
An inquiry-based approach to learning science aims to enhance learning based on increased student involvement, multiple ways of knowing, and sequential phases of cognition.

What's the Point? Helping Students Understand What They Learn (Bio)
(Middle Level–High School) *Franklin 8, Marriott*
Anne Westbrook, BSCS, Colorado Springs, Colo.
Learn strategies for helping students made sense of scientific content and express their understanding.

Solution to Solutions (Chem)
(Middle Level–High School) *Grand Salon A, Marriott*
Deborah Campbell *(dcampbel@houstonisd.org),* Houston (Tex.) Independent School District
Presider: Cheryl Heitzman *(cherylheitzman@gmail.com),* Perspectives/IIT Math and Science Academy, Chicago, Ill.
Let's investigate characteristics and behaviors of solutions in this activity-based inquiry session that is structured using the 5E model.

Sensors, Control Technology, and Robotics (Phys)
(General) *Grand Salon C, Marriott*
Taunya M. Sweet *(tms56@psu.edu),* The Pennsylvania State University, University Park
Tibisay Marin *(ltmarin2009@gmail.com),* NASA Dryden Flight Research Center, Palmdale, Calif.
Explore the world of robotics in this hands-on session and learn the science behind the sensors that make them work.

Teacher Researcher Day Session: Co-generating Positive K–12 Science Learning Environments Through Dialogue (Gen)
(Elementary–High School) *Grand Salon E/F, Marriott*
Sonya N. Martin *(sonya.martin@drexel.edu),* Drexel University, Philadelphia, Pa.
Michele J. Dixon *(michelejoandixon@yahoo.com),* Penn Alexander School, Philadelphia, Pa.
Michelle Vigil Thornton, School District of Philadelphia/Penn STI, Philadelphia, Pa.
Presider: Christina Siry *(christina.siry@uni.lu),* University of Luxembourg, Walferdange
Examine the use of co-generative dialogue and video analysis as tools to transform science teaching and learning experiences.

Next Stop: The Moon! (Phys)
(Informal Education) *Grand Salon J, Marriott*
Denise Miller *(denise.miller@nasa.gov)* and **Stephanie Wilson** *(stephanie.l.wilson@nasa.gov),* NASA Marshall Space Flight Center, Huntsville, Ala.
NASA has 1,500+ free educational products to engage the next generation of explorers. Learn how to obtain and use these products. Rockets and free materials!

Technology Binds Mathematics and Science (Chem)
(Middle Level–High School) *Grand Salon K, Marriott*
Greg Dodd *(gbdodd@gmail.com),* George Washington High School, Charleston, W.Va.
These hands-on activities integrate mathematics and science using the multiple representations provided by technology. Multiple representations allow students to truly understand science concepts through links between data and graphical representations.

Sometimes It's Okay to Divide by Zero (Earth)
(Informal Education) *Freedom E, Sheraton*
Jeff Adkins *(astronomyteacher@mac.com),* Deer Valley High School, Antioch, Calif.
Bruce H. Hemp *(bhemp@ntelos.net),* Fort Defiance High School, Fort Defiance, Va.
Learn how to use black holes to teach concepts of density and gravity. Free NASA materials.

Exploring Sea Floor Spreading with Data from the Integrated Ocean Drilling Program (IODP) (Earth)
(Middle Level–High School) Freedom G, Sheraton
Barbara J. Simon-Waters *(barbarawaters@hotmail.com),* East Carteret High School, Beaufort, N.C.
Experience The Race Is On…with Sea Floor Spreading, an activity developed during The Deep Earth Academy workshop.

Cloudy Day Activities Bridging Cloud Science, Literacy, and Art (Earth)
(Elementary–Middle Level/Informal) Independence A, Sheraton
Becca Hatheway and **Lisa Gardiner,** University Corporation for Atmospheric Research, 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.

NESTA Session: National Earth Science Teachers Association Earth System Science and the Environment Share-a-Thon (Earth)
(Elementary–High School) Liberty A/B, Sheraton
Michelle C. Harris *(michelle_harris@apsva.us),* Wakefield High School, Arlington, Va.
Michael J. Passow *(michael@earth2class.org),* Dwight Morrow High School, Englewood, N.J.
Roberta M. Johnson *(rmjohnsn@ucar.edu),* University Corporation for Atmospheric Research, Boulder, Colo.
Wendy DeMers *(ydnew2@earthlink.net),* Hynes Charter School, New Orleans, La.
Louise T. Huffman *(lhuffman@andrill.org),* ANDRILL, Naperville, Ill.
Sylvia K. Petersen *(sylvia_petersen@ipsd.org),* Crone Middle School, Naperville, Ill.
Betty Trummel *(boop82@aol.com),* Husmann Elementary School, Crystal Lake, Ill.
Ron Fabick *(rfabick@zoominternet.net),* NESTA, Medina, Ohio
Alan Gould *(agould@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Dorian Gohr *(gohrd78@yahoo.com),* Northern Illinois University, Dekalb
Pamela Harman, SETI Institute, Mountain View, Calif.
Lynne H. Hehr *(lhehr@uark.edu),* University of Arkansas, Fayetteville
Teresa J. Kennedy and **Nandini McClurg,** University of Texas at Tyler
Carol Landis, The Ohio State University, Columbus
Susan W. Moore *(susan.w.moore@nasa.gov),* SSAI/NASA Langley Research Center, Hampton, Va.
Robert Myers *(bob_myers@strategies.org),* Institute for Global Environmental Strategies, Arlington, Va.
William L. Romine *(wlr7b2@mail.mizzou.edu)* and **Dane Schaffer** *(dlszh3@mail.missouri.edu),* University of Missouri, Columbia
Join NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

UMass STEM Polar Connections: Using Polar Studies for Cross-Disciplinary Investigations in the Middle and High School Classroom (Env)
(Middle Level–High School) Philadelphia South, Sheraton
Robert Snyder and **Morton Sternheim,** University of Massachusetts, Amherst
Engage in physical and biological climate change and polar science modules developed in the NSF STEM Polar Connections project at UMass.

9:30–10:30 AM Exhibitor Workshops

Advanced Placement® Biology: Investigating Mitochondrial Genetics, A Novel Approach to AP® Biology Lab 6 (Bio)

(Grades 9–12) *112A/B, Convention Center*

Sponsor: PASCO

Ryan Reardon, Alabama School of Fine Arts, Birmingham

During this session you will participate in a standards-based lab activity from PASCO's new AP biology lab manual, *Mitochondrial Genetics and Biotechnology.* We will explore the connections between mitochondrial DNA, the electron transport chain, and human health and disease, and you will take part in an inquiry-based investigation of mitochondrial genetics that fuses modern molecular biology and traditional pedigree analysis.

Tough Topics in Earth Science: Greenhouse Gases (Earth)

(Grades 6–12) *113A, Convention Center*

Sponsor: PASCO

Elizabeth Kennedy, PASCO, Roseville, Calif.

This session explores PASCO's state-of-the-art science teaching solutions to one of the toughest aspects of earth science investigations—the greenhouse effect. In this hands-on workshop you will model and measure the atmosphere as a "greenhouse" and explore how human-made gasses (chlorofluorocarbons) are part of the issue. Participate in a standards-based SPARKlab and experience how SPARKscience™ can enhance your teaching practice and improve student understanding of core topics.

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

(Grades 9–12) *201A, Convention Center*

Sponsor: It's About Time

Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts, Boston

In this workshop we will 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 the students' work when they take ownership of real-world scientific challenges that matter to them. Leave with a practical hands-on activity that you can do in your classroom. We will also focus on how differentiated instructions can make physics accessible to those with higher math and reading levels, as well as those who have difficulties in these activities.

9:30–11:00 AM Meeting

***Science Matters* Leadership Meeting**

(By Invitation Only) *Grand Salon I, Marriott*

10:00–11:00 AM Presentation

SESSION 1

COSEE Session: Scientist-Educator Partnerships to Enhance Rural Ocean Literacy (Earth)

(Elementary–HighSchool/Informal) *Independence C, Sheraton*

Medea H. Steinman *(medea.steinman@maine.edu),* COSEE-Ocean Systems, Walpole, Maine

Annette V. deCharon *(annette.decharon@maine.edu),* University of Maine, Walpole

Amy H. Cline, University of New Hampshire, Durham

Learn how rural educators can create lasting partnerships with ocean-climate researchers to make the ocean more relevant to students using interactive online concept-mapping tools.

10:00–11:00 AM Exhibitor Workshop

Bio-Rad Genes in a Bottle™ Kit (Bio)

(Grades 7–College) *103A, Convention Center*

Sponsor: Bio-Rad Laboratories

Sherri Andrews *(biotechnology_explorer@bio-rad.com)* and **Essy Levy** *(biotechnology_explorer@bio-rad.com),* Bio-Rad Laboratories, Hercules, 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!

10:00–11:30 AM Exhibitor Workshops

Top 10 STEM Resources (Gen)
(Grades 3–12) *103B, Convention Center*
Sponsor: Discovery Education
Brad Fountain *(brad_fountain@discovery.com),* Discovery Education, Silver Spring, Md.
Do you want to get started with STEM, but you have no idea where to begin? Help has arrived! Come explore 10 great websites to help get you started on your way to making STEM part of your everyday classroom. Participants will also learn about the Siemens STEM Academy. For more information, visit *www.siemensstemacademy.com.*

Promote Inquiry Using Chemistry Demonstrations (Chem)
(Grades 9–12) *103C, Convention Center*
Sponsor: Flinn Scientific, Inc.
Irene Cesa, Flinn Scientific, Inc., Batavia, Ill.
Looking for new ways to incorporate more inquiry-based experiments in your chemistry classroom? Asking questions is the heart of inquiry, and there is no better way to get students to ask questions than by presenting exciting, engaging demonstrations! Join us as we present classic demonstrations and describe a series of inquiry-based activities based on these demonstrations. We will model the inquiry process, sharing a strategy that is used in the Flinn ChemTopic™ Labs series to integrate inquiry into every core curriculum topic. Take home a complimentary copy of *Oxidation and Reduction,* Volume 16 in the series.

Gettin' Funky with the Fundamentals of Physics (Phys)
(Grades 7–12) *104A/B, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Matty-Matt Benware *(mbenware@vwreducation.com),* Science Kit & Boreal Laboratories, Tonawanda, N.Y.
Get down with the basics of physical science while you groove along with gravity, mechanics, conservation of energy, and more. Fun, new, innovative, and affordable, these middle/high school physical science experiments and demonstrations offer a fresh way to teach physics. Test-drive the systems yourself and learn how to use them for teaching physics at different levels.

A Showcase of BIOZONE's Latest Workbooks and Presentation Media for Grades 9–12 (Bio)
(Grades 9–College) *105A/B, Convention Center*
Sponsor: BIOZONE International Ltd.
Richard Allan *(richard@biozone.co.nz),* BIOZONE International Ltd., Hamilton, New Zealand
BIOZONE's acclaimed biology student workbooks (grades 9–12) and presentation media (editable PowerPoint slides) will be showcased. Suitable for any biology program, including AP and IB, BIOZONE products are renowned for their impressive graphics and for encouraging critical thinking. Also, learn about our 10 modular workbook titles, including *Anatomy & Physiology* and *Environmental Science.* Learn how these cost-effective resources can make a difference in your teaching program. FREE books for each attendee.

Sing Along with Safety in the Science Classroom (Gen)
(Grades 6–12) *106A/B, Convention Center*
Sponsor: Sargent-Welch
Musical Mark Meszaros *(mark_meszaros@vwr.com),* Sargent-Welch, Buffalo, N.Y.
Learn all the lyrics you need to reduce accidents and improve the safety in your science classroom. An introductory safety workshop for all science teachers, this workshop covers teacher liability, creating a safer environment, preventing common accidents, understanding your role in safety, and safely teaching using hands-on and inquiry-based science activities.

Race into Physics with the CPO Science Energy Car (Phys)
(Grades 5–12) *108A, Convention Center*
Sponsor: CPO Science, School Specialty Science
Patsy Eldridge, CPO Science, School Specialty Science, Nashua, N.H.
Explore the concepts of velocity, force, mass, and acceleration with this exciting equipment. Friction, momentum, efficiency, potential energy, kinetic energy, and energy transformations are made simple with the Energy Car. If you want your students to learn how to measure, hypothesize, graph, predict, and perform repeatable experiments, this is for you!

Celebrating 20 Years of Hubble **(Earth)**
(Grades 6–College) *109A/B, Convention Center*
Sponsor: NASA, *USA TODAY,* and IGES
Nancy Gromen, *USA TODAY,* McLean, Va.
Celebrate the Hubble Space Telescope's 20th Anniversary. Learn about national recognition, cash awards, exemplary program resources, free lessons, and program grants. These engaging programs are all designed to enhance STEM knowledge and 21st-Century Skills, and encourage critical thinking and career exploration. Learn about *Hubble 3D IMAX.*

AeroLab **(Phys)**
(Grades 6–12) *110A/B, Convention Center*
Sponsor: Academy of Model Aeronautics
Gordon Schimmel, Academy of Model Aeronautics, Muncie, Ind.
Flight is always a topic of curiosity, offering opportunities for strong student interest. AeroLab lessons using simple foam and balsa aircraft are unique tools for teaching Newton's laws and centripetal force and for practicing important math skills such as determining average speed and acceleration. All labs are geared to national and state science standards. Participants will build and fly a model aircraft suitable for use in middle and high school physical science classrooms—flying models with lessons you can use on Monday!

What's Up with the Flu? The Ecology and Evolution of Infectious Disease Come to Life **(Bio)**
(Grades 9–12) *113B, Convention Center*
Sponsor: Pearson
Joseph Levine, Author, Concord, Mass.
Get an update on the latest developments around swine influenza, and learn how the threat presented by this strain is related to "bird flu." This presentation will help you use breaking news stories to teach core concepts in evolution, ecology, and immunology, and teach students how strains like these arise and why they pose a constant threat.

Do They Get It? Assessment Strategies for an Inquiry Classroom **(Bio)**
(Grades K–5) *201B, 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, you'll 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.

Physics with Vernier **(Phys)**
(Grades 9–College) *202A, Convention Center*
Sponsor: Vernier Software & Technology
Rick Sorensen *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Experiments such as sound waves, motion of a cart on a ramp, and video analysis from our popular *Physics with Vernier* lab book will be performed in this hands-on workshop. A variety of new physics accessories will be available to try as well. Conduct these experiments using LabQuest and our new LabQuest Mini.

Tapping *The Music Instinct* **(Gen)**
(Grades 6–9) *202B, Convention Center*
Sponsor: WNET.ORG
Andrew Yamato, WNET.ORG, New York, N.Y.
An introduction to the PBS series *The Music Instinct* and the online and print educational resources WNET.ORG has developed to help teachers bring it into their classrooms.

The JASON Project **(Phys)**
(Grades 6–8) *203A, Convention Center*
Sponsor: National Geographic–The JASON Project
Peter Haydock *(phaydock@jason.org),* The JASON Project, Ashburn, Va.
The JASON Project embeds the cutting-edge research of its partners—National Geographic Society, NOAA, and NASA—into core science curricula and professional development. This workshop will explore three standards-based curricula—Operation: Monster Storms, Operation: Resilient Planet, and Operation: Infinite Potential—and include hands-on demonstrations of lab activities that can be done in a classroom with minimal preparation and maximum results. Participants will analyze balloon rockets to determine the relationship between potential and kinetic energy transformations. Additional hands-on activities will allow participants to explore cutting-edge research in weather dynamics.

CSI: Climate Status Investigations (Earth)
(Grades 5–12) *203B, Convention Center*
Sponsor: The Keystone Center
Wendi Liles and **Larry Jozwik,** The Keystone Center, Keystone, Colo.
Learn how to introduce your middle and high school students to the topic of global climate change. Provide new ways of thinking about the problem and potential solutions through an exploratory, interdisciplinary curriculum module developed by The Keystone Center in partnership with the U.S. Department of Energy and the National Energy Technology Laboratory.

Go APES! Explore Carolina's Quality AP® Environmental Science Series (Env)
(Grades 9–12) *204A, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
What do water quality, air quality, and soil quality have in common? All three topics are explored in Carolina's newly revised, exciting AP lab series kits. Join us and gain hands-on experience working with activities from these easy-to-use materials. Door prize!

Rats! Inquiry-based Dissection with Carolina's Perfect Solution® Specimens (Bio)
(Grades 9–College) *204B, 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. Come study the external anatomy of the rat and explore its major internal organs and organ systems through inquiry-based dissection. Exclusively from Carolina, these preserved rat specimens are nontoxic and the most lifelike available.

Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (Gen)
(Grades K–8) *304, 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 can be used to correct students' misunderstandings.

Inquiry Teaching and Learning: The Full Course (Bio)
(Grades 6–8) *Hall D/Room 2, Convention Center*
Sponsor: LAB-AIDS, Inc.
Mark Koker, LAB-AIDS, Inc., Ronkonkoma, N.Y.
Why take all your medications, even if you feel better after a few days? This middle level activity series is taken from the Cell Biology unit from the SEPUP Issues and Life Science course, developed with support from the National Science Foundation and used in classrooms across the country. Participants will model and graph the action of antibiotics on a population of bacteria in a human body, then examine ways to support the analysis questions, literacy, assessment, and technology associated with the activity. Take away handouts and materials to use in class next week!

10:30–11:00 AM Presentations

SESSION 1
Teacher Researcher Day Session: Developing a Collaborative Mentoring Relationship Between New Science Teachers (Gen)
(Middle Level–High School) *Grand Salon E/F, Group 1, Marriott*
Erin McCamish *(erin.mccamish@gmail.com),* Ithaca, N.Y.
Heather Buskirk *(heather.buskirk@gmail.com),* Johnstown High School, Johnstown, N.Y.
Learn how two physics teachers supported by the Knowles Science Teaching Foundation developed a collaborative long-distance mentoring relationship.

SESSION 2
Teacher Researcher Day Session: Effective Inquiry in a Middle School Science Classroom (Gen)
(Middle Level) *Grand Salon E/F, Group 2, Marriott*
Matt Cieslik *(mcieslik@chclc.org),* Rosa International Middle School, Cherry Hill, N.J.
Explore strategies for facilitating effective inquiry-based activities in a middle school science classroom.

SESSION 3

Teacher Researcher Day Session: Self-Study of the Evolution of a "Deferred Judgment Questioning" Discussion Mode (Sounding) in a Middle School Science Teacher (Gen)

(Elementary–High School) Grand Salon E/F, Group 3, Marriott

Norman T. Price *(normprice@gmail.com),* Amherst Regional Middle School, Amherst, Mass.

In this self-study, I describe how I progressed from lecture and "fishing" to a deferred judgment discussion mode that I call "sounding." I used this term by analogy to how ships use sonar to gain information about unseen features below the surface of the water (student ideas) and then use that information to navigate (reach content goals).

SESSION 4

Teacher Researcher Day Session: Effects of the Modeling Approach on Student Learning in a Ninth-Grade Physics Course (Phys)

(High School) Grand Salon E/F, Group 4, Marriott

Kathy L. Malone *(kmalone@shadysideacademy.org),* Shady Side Academy, Pittsburgh, Pa.

We made an item analysis comparison of the scientific reasoning ability and energy understanding of students enrolled in a modeling freshman physics course and students enrolled in a freshman biology course using a BSCS curriculum.

SESSION 5

Teacher Researcher Day Session: Building a Community of Science Learners (Gen)

(Middle Level–High School) Grand Salon E/F, Group 5, Marriott

Amy Lauer, Fredonia (N.Y.) Central Schools

Presider: Michael Jabot, SUNY Fredonia, N.Y.

We'll examine how to use the local community as a source of science learning.

10:30 AM–12 Noon Shell Science Seminar

Collision of Chemical and Biological Space: The Emergence of Cross-disciplinary Fields for Individualized Medicine (Gen)

(General) 201C, Convention Center

Haian Fu, Professor of Pharmacology, Hematology, and Medical Oncology, Dept. of Pharmacology, Emory University School of Medicine, Atlanta, Ga.

Presider: Keith Butler *(keith.butler2@verizon.net),* PSTA President Elect, Whitehall, Pa.

Connecting early science education to new advances that transform our daily lives enriches both learning and teaching experiences. The decoding of the human genome has opened up a new dimension of biological space that reveals numerous intricately connected molecular interactions and exposes mis-wired biological networks that trigger various human diseases. This understanding has propelled both academic and industry efforts to identify molecules from the vast chemical space that can specifically target and correct the altered biological system. I will use cancer as a disease example to illustrate how genomic advances have led to the unraveling of new genetic changes that cause cancer, the emergence of chemical biology for mechanistic understanding and new drug discovery, and the trend for individual patient-based treatment strategies.

Dr. Haian Fu, Professor of Pharmacology, Hematology, and Medical Oncology at Emory University School of Medicine, serves as Director of the Emory Chemical Biology Discovery Center and co-directs the Discovery and Developmental Therapeutics Program at the Emory Winship Cancer Institute. Dr. Fu's research focuses on protein-protein interactions in the signal transduction pathways that control cell survival and death in normal and cancer cells. His team, in collaboration with chemists and physician scientists, targets protein interactions that are dysregulated in cancer for drug discovery and translational research. In his research, robotic-based high-throughput screening technologies are used to identify small molecule modulators for chemical biology studies and for potential drug discovery. In this capacity, he serves as a principal investigator of the Emory Chemical Biology Discovery Center in the National Cancer Institute's Chemical Biology Consortium, a nationwide initiative for new cancer drug discovery.

10:30 AM–12 Noon Shell Science Seminar

Misconceptions About Science (Especially Astronomy), Their Origins, and Ways to Deal with Them (Gen)

(General) *204C, Convention Center*

Neil Comins *(galaxy@maine.edu),* Professor of Physics and Astronomy, University of Maine, Orono

Presider: Linda Smith *(lsmith@paulsboro.k12.nj.us),* Elementary Science Resource Specialist, Loudenslager Elementary School, Paulsboro, N.J.

With the help of over 10,000 students, I have identified nearly 2,000 commonly held misconceptions about astronomy and physics and have determined a variety of ways these deep-seated incorrect beliefs develop. I will share examples of misconceptions, their origins, and methods that work (at least for a while) to replace them with correct science. This work was published in the book *Heavenly Errors* (2001, Columbia University Press).

Neil Comins is an astrophysicist, astronomer, and professor of physics and astronomy at the University of Maine, where he began his teaching career in 1978. He has several areas of astronomical research, including astronomy education, general relativity, observational astronomy, and computer models of galaxies like our Milky Way.

After graduating from Cornell with a degree in engineering physics, he earned a masters degree in physics at the University of Maryland, assisting in experiments associated with Einstein's general relativity. In the 1970s, as a graduate student studying general relativity at University College, Cardiff, Wales, he did work on the properties of neutron stars, some of which was cited in Subramanyan Chandrasekhar's Nobel Prize lecture.

Comins's first trade book, What If the Moon Didn't Exist, *has been used as the basis of television, radio, and planetarium shows, as well as the theme for Mitsubishi's pavilion at the 2005 World Expo in Japan. In 1995 Comins took over writing the college and high school textbook* Discovering the Universe *(with William Kaufmann III). The success of this first edition led to several more editions and two alternative versions. These revisions continue today.*

Based on his teaching throughout the 1980s and 1990s, Comins became acutely aware that the hundreds of thousands of students taking astronomy courses around the world have many preconceived notions about nature that are incorrect, making it difficult for them to understand and believe the correct science. He has identified over 1,700 astronomy-related misconceptions, learned where they came from, found ways to undo them, and shared that knowledge.

11:00–11:30 AM Presentations

SESSION 1

Creating an Educational Experience Through Cutting-Edge Video Ride Simulation (Bio)

(Elementary–Middle Level/Inf.) *Hall D/Room 18, Conv. Center*

Kate Thompson *(kate.thompson@noaa.gov)* and **Michiko J. Martin** *(michiko.martin@noaa.gov),* NOAA Office of National Marine Sanctuaries, Silver Spring, Md.

Rob Lloyd *(rlloyd@etcusa.com),* Entertainment Technology Corp., Southampton, Pa.

Learn about new education technology by taking a ride to the deep ocean! Free education materials.

SESSION 2

Integrating with Science: Strategies and Models for the K–12 Classroom (Gen)

(General) *Hall D/Room 27, Convention Center*

Issam H. Abi-El-Mona *(abi-el-mona@rowan.edu),* Rowan University, Glassboro, N.J.

Explore two models and various effective strategies used by K–12 preservice teachers in planning and implementing integrated sessions.

SESSION 3

Science Teacher Efficacy as a Predictor of High School Biology Test Scores (Gen)

(General) *Hall D/Room 29, Convention Center*

Julie Angle *(julie.m.angle@gmail.com),* Oklahoma State University, Stillwater

Explore how expectations that a teacher holds for student success are related to test scores.

SESSION 4

Teacher Researcher Day Session: Motivating the Unmotivated Child (Gen)

(Middle Level–High School) *Grand Salon E/F, Group 2, Marriott*

Cynthia M. Brauer *(cynthia.brauer@bsd.k12.de.us),* Talley Middle School, Wilmington, Del.

Bonnie Wilson *(bonnie.wilson@bsd.k12.de.us),* Brandywine High School, Wilmington, Del.

What about the small percentage of students who don't care? Learn strategies for motivating students to want to learn and achieve.

11:00 AM–12 Noon Paul F-Brandwein Lecture

Young Voices on Climate Change: Empowered and Inspired Youth Find Global-warming Solutions (Gen)

(General) *114, Convention Center*

Sponsored by The Paul F-Brandwein Institute, Inc.

Lynne Cherry, Author/Illustrator and Filmmaker, Thurmont, Md.

Presider: Marily DeWall *(mdewall@cox.net),* Science Consultant, Newport News, Va.

Lynne Cherry, author/illustrator of the rain forest classic *The Great Kapok Tree,* will talk about developing environmental values and a scientific way of thinking through children's literature and films. Now a movie producer, Lynn will preview some of her short films—*Young Voices on Climate Change*—which present compelling and inspiring stories of empowered young people who have reduced the carbon footprint of their homes, schools, communities, and states. Two of these films screened at the American Museum of Natural History in conjunction with their climate exhibit last year.

Lynne Cherry is the author and illustrator of over 30 award-winning books for children. Teaching children a respect for Earth, her best-selling books such as The Great Kapok Tree *and* A River Ran Wild *have sold over a million copies and are translated into many languages. She is also a filmmaker and has produced and directed seven short movies,* Young Voices on Climate Change. *Lynne's film project* (youngvoicesonclimatechange.com) *is designed to create a paradigm shift in the way that society views, and acts to abate, global warming.*

Lynne's book awards are too many to list but can be seen on her website (http://lynnecherry.com). *Her most recent book* How We Know What We Know About Our Changing Climate: Scientists and Kids Explore Global Warming, *co-authored with photojournalist Gary Braasch, is the winner of the 2009 AAAS/Subaru Best Science Book Award, NSTA Recommends, and 13 other awards.*

11:00 AM–12 Noon Presentations

SESSION 1

NSTA Avenue Session: Disney's Planet Challenge (DPC) (Env)

(Elementary–Middle Level) *307, Convention Center*

Sylvia Rodriguez, Phoebe Hearst Elementary School, Sacramento, Calif.

Join the 2008 DPC grand prize winner who will present ideas for developing project-based and environmental service learning lessons and integrating academic learning standards while guiding students through classroom projects that empower children to become a positive change in society. Learn ideas for developing a standards-based curriculum that speaks to the hearts, minds, and hands of children; tips for funding projects; and ways to implement the activities.

SESSION 2 (two presentations)

(Supervision) *Hall D/Room 7, Convention Center*

Presider: Theresa Curry *(theresa_curry@manhasset.k12.ny.us),* Manhasset Secondary School, Manhasset, N.Y.

Mentoring for Success: Supporting the First-Year Science Teacher (Gen)

Patreka J. Wood-Blain *(patreka.wood@gmail.com),* Boston (Mass.) Public Schools

Mentors and administrators can use these strategies to support new science teachers during their most challenging year.

Surviving Your First Year as a Science Chairperson (Gen)

Mary L. Loesing *(mloesing@ccsdli.org),* Connetquot Central School District, Bohemia, N.Y.

Two experienced chairpersons will lead this roundtable discussion for new science chairs. Learn how to energize your department and bridge the gap between new and experienced teachers.

SESSION 3

Using a Biomaterials Nanotechnology Problem to Teach Biology and Chemistry Concepts (Gen)

(General) *Hall D/Room 11, Convention Center*

Debra Brockway *(debra.brockway@stevens.edu),* Stevens Institute for Technology, Hoboken, N.J.

These curriculum modules in biology and chemistry are based on a multidisciplinary research project involving the biomaterials issue of infections in joint replacement procedures.

SESSION 4

Anatomy of a Lesson: Using Technology to Enhance Planning (Gen)

(Informal Education) *Hall D/Room 17, Convention Center*

Steve Canipe *(steve.canipe@waldenu.edu),* Walden University, Minneapolis, Minn.

Learn how to select and use the appropriate tool set to create those memorable "killer lessons" that engage techno-savvy students.

SESSION 5

The Science and Math of Hurricanes (Gen)

(Middle Level) *Hall D/Room 20, Convention Center*

Sherry S. Herron *(sherry.herron@usm.edu),* , The University of Southern Mississippi, Hattiesburg

Shelia A. Brown *(shelia.brown@usm.edu),* Marine Education Center, The University of Southern Mississippi, Ocean Springs

Learn how to integrate the science and math of hurricanes using graphing calculators, spreadsheets, an interactive white board, and hands-on activities.

SESSION 6

Podcasts: Assessments That Students Beg for More Of! (Gen)

(General) *Hall D/Room 26, Convention Center*

Lara K. Smetana *(smetanal1@southernct.edu),* Southern Connecticut State University, New Haven

Learn the basics of student-created podcasts and how they can transform assessment in your classroom.

SESSION 7

AMSE Session: How Urban Children Construct Their Concepts of Ecosystems: A Two-Year Field-based Study of a Salt Marsh (Env)

(Preschool–Middle Level) *Commonwealth D, Loews*

Susan Wu *(swu@bankstreet.edu)* and **Maggie Martinez-DeLuca** *(magbsc@msn.com),* Bank Street College of Education, New York, N.Y.

This two-year inquiry-based marsh study integrated interdisciplinary classroom work and outdoor hands-on investigations in which children created their own in-depth science investigations.

SESSION 8

Inquiry Skills and Experimental Design: What Best Prepares Students for Success in High School and Beyond? (Gen)

(Elementary–High School) *Congress A, Loews*

Amy L. Moore *(almoore@henrico.k12.va.us),* Deep Run High School, Glen Allen, Va.

Sara D. Moore *(smoore@etacuisenaire.com),* ETA/Cuisenaire, Vernon Hills, Ill.

William P. Bintz, Kent State University, Kent, Ohio

Explore strategies for teaching process skills in elementary grades, including award-winning children's literature, through the eyes of a high school science department chair.

SESSION 9 (two presentations)

(High School–College) *Regency C1, Loews*

Using Cell Phones to Develop a Learning Community in Undergraduate Science Instruction (Bio)

David P. Pursell *(dpursell@ggc.usg.edu),* Georgia Gwinnett College, Lawrenceville

Students of science traditionally use paper flashcards. Learn how to use cell phone flashcards for instructors and students. We'll examine attitudes and performance data.

Scientific Inquiry with Virtual Laboratories in Diverse School Environments (Bio)

Eva Toth, Duquesne University, Pittsburgh, Pa.

Explore the instructional design, implementation, and assessment results of inquiry skill learning using a virtual laboratory in biology classrooms.

SESSION 10 (two presentations)

(Middle Level–College/Supervision) *Regency C2, Loews*

Supporting AP Initiatives in Urban Classrooms: The Role of University STEM Graduate Students (Gen)

Claire J. Duggan *(c.duggan@neu.edu),* **Kelly Malanych** *(k.malanych@neu.edu),* and **Brendan Hall,** Northeastern University, Boston, Mass.

Northeastern University's NSF GK–12 program has supported STEM AP efforts in the Boston Public Schools for four years. Graduate fellows attended College Board teacher institutes, assisted in the coordination and delivery of Summer Bridge Programs offered at university campuses, and worked in collaboration with cooperating teachers throughout the academic year.

An Urban University Teacher Preparation Program in a Nonurban Environment (Gen)
William Hunter *(whunter@ilstu.edu),* Illinois State University, Normal
Illinois State University has made several strategic steps over the past decade to become an urban teacher education institution despite not being in an urban setting. Learn how we did it and share your suggestions.

SESSION 11
Improving Science Teaching and Learning Through Informal/Formal Education Partnerships (Gen)
(General) *Washington B, Loews*
John A. Craven III *(jcraven@fordham.edu),* Fordham University, New York, N.Y.
Jennell Ives *(jives@wcs.org),* Wildlife Conservation Society, Bronx, N.Y.
Hudson Roditi *(hroditi@amnh.org),* American Museum of Natural History, New York, N.Y.
Kristen Lewis *(lewis.kristen@phillyzoo.com),* Philadelphia Zoo, Philadelphia, Pa.
Tracy Hogan *(hogan@adelphi.edu),* Adelphi University, Garden City, N.Y.
Presider: Tracy Hogan
Representatives from Fordham University, the Bronx Zoo, Philadelphia Zoo, and the American Museum of Natural History share design features of exemplary partnership professional development programs for science teachers.

SESSION 12
High School STEM Redesign with a Modeling Instruction Twist (Gen)
(High School) *Washington C, Loews*
Rick Vanosdall *(vanosdal@mtsu.edu),* Middle Tennessee State University, Murfreesboro
Presider: Xan Simonson *(xsimonson@gmail.com),* Mesa Biotechnology Academy, Mesa, Ariz.
Learn about statewide efforts to implement freshman physics, followed by redesigned courses in sophomore chemistry and junior biology, all incorporating modeling instruction pedagogy.

SESSION 13 (two presentations)
(Middle Level–High School) *303, Marriott*
Middle and High School Science and Special Education: How to Make It Work **(Gen)**
Kathleen Brooks, Walter C. Polson Middle School, Madison, Conn.
Elizabeth Battaglia *(ebattaglia@crec.org),* Capital Region Education Council, Orange, Conn.
We'll share strategies for meeting the needs of special education students and suggestions for co-teaching with a special ed teacher that will improve overall instruction.

Differentiation in the Secondary Science Classroom: It Can Be Done! **(Gen)**
Amy Alexander *(edn_aca_aa@nwoca.org),* Edon High School, Edon, Ohio
I will present a tiered instruction model that allows students to choose activities based on learning style, ability level, and interest.

SESSION 14
Teaching the Nature of Science: Modeling Inquiry and the Enterprise of Science **(Gen)**
(High School) *304, Marriott*
Kathleen R. Markiewicz *(kmarkiewicz@boston.k12.ma.us),* Boston Latin School, Boston, Mass.
Learn how I developed learning communities in my classroom to promote the ideas of inquiry and social collaboration in science.

SESSION 15
A New National Collaboration Will Create Framework to Guide K–12 Science Standards **(Gen)**
(General) *305/306, Marriott*
Francis Q. Eberle *(feberle@nsta.org),* Executive Director, National Science Teachers Association, Arlington, Va.
Thomas E. Keller *(tkeller@nas.edu),* National Academy of Sciences, Washington, D.C.
NSTA has been focused on the urgent and compelling need for new science standards that are clear, coherent, and manageable. NSTA is collaborating with the National Research Council on a project to develop a framework based on the concept of disciplinary and cross-disciplinary core ideas for K–12 science standards. Other partners include Achieve and AAAS. The NRC-led project will develop a draft conceptual framework, gather feedback from a range of stakeholders, and write a final report. NSTA will take the lead role in engaging the science education community during the public vetting process. This session will provide an overview of this effort, timeline for the work, and how science educators will be involved in the review process. It also will review the work of NSTA's Science Anchors that is contributing to this new effort.

SESSION 16
Before and After Retirement: Practicalities and Possibilities **(Gen)**
(General) *308, Marriott*
Howard Wahlberg, Assistant Executive Director, Member, Chapter, and Customer Relations, NSTA, Arlington, Va.
Annette Barzal *(abarzal@earthlink.net),* Science Adventures, Medina, Ohio
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 17
ZAP! It's Electrifying! **(Phys)**
(Middle Level–High School) *Franklin 7, Marriott*
Al Guenther, Retired Educator, Palos Verdes Estates, Calif.
Experience an hour of amazing, attention-grabbing electrical demonstrations designed to construct concepts and stimulate inquiry. Detailed handouts, so you can do these with your own classes.

SESSION 18
Innovative Teaching and Learning of Physics in Secondary Schools in Mauritius **(Phys)**
(Middle Level–College/Supervision) *Grand Salon B, Marriott*
Yashwantrao Ramma and **Hyleen Mariaye,** Mauritius Institute of Education, Reduit
Teaching and learning physics using ICT in an integrated way enables students to revisit their prior knowledge and leads them to develop critical thinking. We'll share the results of our data logging project.

SESSION 19

NSTA Press Session: Teaching for Conceptual Change (Gen)

(Elementary–Middle Level) *Grand Salon D, Marriott*

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

Richard Konicek-Moran *(konmor@comcast.net),* Retired Educator, Amherst, Mass.

Learn about conceptual change teaching strategies that combine the use of formative assessment probes from the *Uncovering Student Ideas in Science* series and inquiry-based stories from *Science Mystery Stories.*

SESSION 20

Teacher Researcher Day Session: Inquiry Does Work: Using Backward Design and Alternative Assessments in Biology (Bio)

(Middle Level–High School) *Grand Salon E/F, Group 3, Marriott*

Donniell K. Cooke *(donniellcooke@chadmail.com),* Charter High School for Architecture + Design, Philadelphia, Pa.

Jennifer L. Geist *(jhillemann@philasd.org),* Bodine High School for International Affairs, Langhorne, Pa.

Lindsey Meckley, Mechanicsburg Area Senior High School, Mechanicsburg, Pa.

Sonya N. Martin *(sm655@drexel.edu),* Drexel University, Philadelphia, Pa.

Three science teachers explore student learning using the 5E inquiry method to conceptually teach urban high school biology students the process of the cell cycle.

SESSION 21 (two presentations)

(High School) *Grand Salon E/F, Group 4, Marriott*

Teacher Researcher Day Session: Differences in Learning Outcomes Between a Nonmodeling Instruction and a Modeling Instruction Chemistry Curriculum (Chem)

Kathy L. Malone *(kmalone@shadysideacademy.org)* and **Sarah Cudney** *(scudney@shadysideacademy.org),* Shady Side Academy, Pittsburgh, Pa.

We compared the conceptual understanding and scientific reasoning ability of grade 10 students enrolled in a modeling instruction chemistry course to that of students enrolled in a traditional chemistry course.

Teacher Researcher Day Session: The Effects of a Modeling Approach on Student Learning in a Grade 11 Biology Course (Bio)

Kathy L. Malone *(kmalone@shadysideacademy.org)* and **Anita Schuchardt** *(aschuchardt@shadysideacademy.org),* Shady Side Academy, Pittsburgh, Pa.

We will analyze students' conceptual and factual knowledge and scientific reasoning skills following modeling instruction in a grade 11 biology course.

SESSION 22 (two presentations)

(General) *Grand Salon E/F, Group 5, Marriott*

Presider: Michael Jabot, SUNY Fredonia, N.Y.

Teacher Researcher Day Session: School/Home Science Connections: Take-Home Science Journals (PreK–6) (Gen)

Ellen Foley, Fredonia (N.Y.) Central Schools

Scott Foley *(sfoley@slcr.wnyric.org)* and **Chris Prevet** *(cprevet@slcr.wnyric.org),* Silver Creek (N.Y.) Central Schools

Dan Tomaszewski, Silver Creek High School, Silver Creek, N.Y.

Journaling is a way to connect learning in the classroom to learning at home and in the community. We'll share teachers' ideas and student samples.

Teacher Researcher Day Session: Amusement Park Physics Unit Using Video and Data Analysis (Phys)

Greg Lauer *(glauer@fscd.wnyric.org),* Fredonia (N.Y.) Central Schools

Teach students to analyze motion graphs and video collected from real roller coasters. Students then design and create their own model roller coaster, construct graphs, and perform calculations based on their creation.

SESSION 23

Understanding But Not Necessarily Believing: Teaching Evolution to Religious Students (Gen)

(Middle Level–High School) *Grand Salon G, Marriott*

Lee Meadows *(lmeadows@uab.edu),* The University of Alabama at Birmingham

Explore an approach that respects students' religious beliefs, engaging them in the evidence while minimizing conflict.

SESSION 24

K–12 Share Session with a Multicultural Flair (Gen)

(General) *Grand Salon H, Marriott*

Jean Tushie *(jtushie@comcast.net),* NSTA Director, High School Science Teaching, and Eden Prairie High School, Eden Prairie, Minn.

In this session, K–12 teachers will share how science concepts can spiral from elementary to high school. Additionally, multicultural topics and connections will be discussed. Take home CDs of exemplary lessons.

SESSION 25

Copper Extraction and the Power of Story (Chem)

(Middle Level–High School) *Grand Salon L, Marriott*

Charles J. Hill *(chill@edc.org),* Education Development Center, Inc., Newton, Mass.

A compelling story captures students' interest and curiosity about copper extraction, after which they design the method and do the experiment.

SESSION 26

Interdisciplinary Space Exploration Using the WorldWide Telescope (Earth)

(Elementary–High School) *Freedom F, Sheraton*

Mari Westerhausen *(mari@azlearns.com),* Desert Shadows Middle School, Mesa, Ariz.

With WorldWide Telescope (WWT), terabytes, and soon petabytes, of high-resolution images from the world's foremost ground- and space-based telescopes and latest astronomical data are presented in a media-rich, immersive, seamless environment that transforms your desktop into a virtual observatory. It's like navigating a spaceship, traveling at warp speed through the cosmos! Come explore interdisciplinary space units that integrate science, math, language arts, and even social studies using Microsoft's WorldWide Telescope.

SESSION 27

Using the Integrated Data Viewer Software to Promote Scientific Inquiry (Earth)

(High School) *Independence B, Sheraton*

William T. Yarnell *(bill.yarnell@pennmanor.net)* and **David M. Bender** *(david.bender@pennmanor.net),* Penn Manor High School, Millersville, Pa.

Integrate students' prior knowledge of meteorology, collaborative learning, and 21st century skills through the use of the IDV software.

SESSION 28 (two presentations)

(Middle Level–College) *Independence C, Sheraton*

COSEE Session: Linking the Ocean to the Classroom (Env)

Liesl A. Hotaling, Beacon Institute for Rivers and Estuaries, Beacon, N.Y.

Janice McDonnell *(mcdonnel@marine.rutgers.edu),* Rutgers University, New Brunswick, N.J.

Explore internet-based, ocean-themed learning resources and materials designed for classroom instruction.

COSEE Session: The Smithsonian Ocean Portal, COSEE, and Encyclopedia of Life: Digital Media for Science Education (Bio)

Marie Studer *(mstuder@eol.org),* Encyclopedia of Life, Cambridge, Mass.

Elizabeth Ban, Smithsonian's National Museum of Natural History, Washington, D.C.

The Smithsonian Ocean Portal, COSEE and Encyclopedia of Life websites deliver the latest vetted scientific information and multimedia educational resources related to oceans and biodiversity.

SESSION 29

NESTA Session: Advances in Earth and Space Science Lecture: Meteorology Drives Everything: The Sensitivity of Pollution Episodes to Atmospheric Conditions in the Mid-Atlantic Region (Earth)

(Elementary–High School) *Liberty A/B, Sheraton*

Richard D. Clark *(richard.clark@millersville.edu),* Millersville University, Millersville, Pa.

Presider: Roberta M. Johnson *(rmjohnsn@ucar.edu),* University Corporation for Atmospheric Research, Boulder, Colo.

In thinking of urban areas prone to pollution episodes, we typically associate these events with high population and vehicle density, expansive industry, and energy production, and we would be correct. But whether or not a pollution episode actually occurs is almost entirely dependent on the atmospheric conditions—the meteorology. Dr. Clark will present observations based on several years of field projects in the Philadelphia area that examine the sensitivity of pollutant concentrations on local and regional atmospheric circulations.

National Earth Science Teachers Association

Events at Philadelphia NSTA 2010

All NESTA events will be held in the Sheraton Philadelphia City Center Hotel Liberty A/B except as indicated.

Friday March 19

9:30 NESTA Geology Share-a-Thon

11:00 NESTA Oceans and Atmospheres Share-a-Thon

12:30 NESTA Space Science Share-a-Thon

2:00 Don't miss the American Geophysical Union Lecture!

Predicting Earthquakes and Volcanic Eruptions: What Can and Can Not Now Be Done?
Dr. Stephen Malone
2010 IRIS/SSA Distinguished Lecturer, University of Washington
Location: Room 201C of the Philadelphia Convention Center

6:30-8:00 NESTA Friends of Earth Science Reception
Location: Sheraton Horizons Rooftop Ballroom

Saturday March 20

NESTA Earth and Space Science Resource Day: Earth System Science and the Environment

7:00-8:30 NESTA Resource Day Breakfast
Location: Sheraton Logans I Room
(Advance purchase tickets required)

Building meaningful Earth system science education partnerships across the K-20 community
Professors Tanya Furman *(The Pennsylvania State University)* and Laura Guertin *(Pennsylvania State Brandywine)*

9:30 NESTA Earth System Science and the Environment Share-a-Thon

11:00 ***Meteorology drives everything: the sensitivity of pollution episodes to atmospheric conditions in the mid-Atlantic region***
Professor Richard Clark, Millersville University of Pennsylvania

12:30 ***Changing Seas, Changing Life: Paleontological Research with Student Participation***
Dr. Robert Ross, Paleontological Research Institution

2:00 ***Environmental Earth System Science for Education in Urban Areas***
Professor Alexander Gates, Rutgers University

3:30-5:00 NESTA Rock and Mineral Raffle

5:00-6:30 NESTA Membership Meeting

These events are cosponsored by the American Geophysical Union, Carolina Biological Supply, UCAR, and Windows to the Universe.

http://www.nestanet.org

SESSION 30

Enhance Student Fieldwork with National Geographic FieldScope (Env)

(Middle Level–High School/Informal) *Salon 3/4, Sheraton*

Kathleen Schwille *(kschwill@ngs.org),* National Geographic Society, Washington, D.C.

Learn to share student-collected field data with similar projects across the country. National Geographic's FieldScope software, a free GIS tool designed for student use, will allow your students to share, view, and analyze collections of data.

SESSION 31

Science at Work at NASA (Gen)

(High School) *Salon 10, Sheraton*

Monica Trevathan *(monica.trevathan@tietronix.com)* and **Natalee D. Lloyd** *(natalee.lloyd@tietronix.com),* NASA: Human Research Program, Houston, Tex.

Discover NASA's Math and Science @ Work project: free-response–style questions for advanced placement physics, biology, and chemistry developed with real data from NASA specialists.

11:00 AM–12 Noon Workshops

✔ **Interactive Science Notebooks for Inspiring Young Scientists (Gen)**

(General) *Hall D/Room 5, Convention Center*

Donna Farland *(Farlandsmith@aol.com),* The Ohio State University, Mansfield

Dianne Woolard, Williams Elementary School, Magnolia, Tex.

Explore the use of interactive notebooks with middle school girls and how to create interactive science notebooks for a variety of audiences.

The Making of Lava Lamps: An Interdisciplinary Project Supporting STEM Education (Chem)

(Middle Level–High School) *Hall D/Room 6, Convention Center*

Diane DiGravio and **Keith Auinger** *(keith_auinger@websterschools.org),* Spry Middle School, Webster, N.Y.

Presider: Diane DiGravio

The "glowing goo" of lava lamps is not just a flashback to the 70s—it's also a unique learning experience supporting STEM education at the secondary level.

Show What You Know! (Bio)

(Preschool–Elementary) *Hall D/Room 8, Convention Center*

Jane E. Callery *(jcallery@crec.org),* CREC Magnet Schools, Hartford, Conn.

Investigating with a "How do you know?" attitude, students are challenged to use their literacy, math, and science skills to solve intriguing problems.

WHOOSH! Balloon Car Engineering Design (Phys)

(Elementary) *Hall D/Room 9, Convention Center*

Alberto Camacho *(zjazzzone@aol.com),* P.S. 42, Claremont Community School, Bronx, N.Y.

Christina Franke *(mariachristinafranke@gmail.com),* P.S.K369, Coy L. Cox School, Woodstock, N.Y.

Design, make, test, and troubleshoot a balloon car from recycled materials. Explore energy storage and conversion, and plan investigations of how to make it faster.

Differentiating Instruction Within a Hands-On, Inquiry-based Elementary Science Program (Gen)

(Elementary) *Hall D/Room 14, Convention Center*

Michael Haines, Swarthmore Rutledge Elementary School, Swarthmore, Pa.

We modified and expanded our science program of STC kits to meet the needs of special needs students.

Our Brain Needs Drugs: Produce Them on Your Own! (Gen)

(Middle Level–College) *Hall D/Room 15, Convention Center*

Martin Lindner *(lindner@ipn.uni-kiel.de),* IPN Leibniz Institute for Science Education, University of Kiel, Germany

Discover the role of neurotransmitters in an easy and exciting way. Transfer these easy-to-do experiments to your own classroom.

Connecting Science and Math Inquiry at the Early Childhood Level (Gen)
(Preschool–Elementary) Hall D/Room 16, Convention Center
Glenda S. Pepin, Clemson University, Clemson, S.C.
Analyze developmentally appropriate practices in science and mathematics for children at the preschool and kindergarten level. We'll examine connections among mathematics and science standards and how to implement student-centered lessons.

The Impact of Polymers on Impact Sports (Chem)
(Middle Level) Hall D/Room 19, Convention Center
Sandra H. Van Natta *(svanna1064@roadrunner.com),* Intersociety Polymer Education Council, Hamilton, Ohio
Sue E. Hall, Polymer Ambassador, Stevens Point, Wis.
Learn the science involved in the manufacture of sports gear. Come test a variety of polymeric materials used in helmets and identify their properties. Handouts and materials.

Science After the Bell Rings (Gen)
(Elementary–Middle Level/Inf.) Hall D/Room 21, Conv.Center
Ben Dworken *(bdworken@tascorp.org)* and **Sunset Harris** *(sharris@tascorp.org),* The After-School Corp., New York, N.Y.
After school and after 3:00 PM is the perfect time to engage students in fun inquiry-based science activities. We'll share strategies, activities you can take away, and access to curriculum that supports after-school exploration.

Bridging the Gap in Content Knowledge from Elementary Through Middle School (Gen)
(Elementary–Middle Level) Hall D/Room 22, Convention Center
Judy A. Young *(jyoung@pearl.k12.ms.us)* and **Bridget Smith** *(bsmith@pearl.k12.ms.us),* Pearl (Miss.) Public School District
Gloria W. Lewis, Utica Middle School, Utica, Miss.
Presider: Gloria W. Lewis
Hands-on activities will be used to demonstrate continuity of science skills across the curriculum, from elementary through middle school years.

Modifying Curricula and Attitudes to Develop Self-Efficacy in Girls (Gen)
(Elementary–Middle Level/Inf.) Hall D/Room 25, Conv. Center
Constance E. O'Brien, University of Nebraska at Omaha
Explore biases that may hold girls back in STEM and what works when teaching girls. A few changes can make a huge impact.

Why Science? Class Activities to Get Them Thinking on the First Day (Gen)
(Elementary–High School) Hall D/Room 28, Convention Center
Jill Black, Missouri State University, Springfield
Probe students' minds about what life would be like without the discoveries of science or scientific thinking with diagnostic assessment, humor, analogies to legal and forensic evidence, a little "gross" critical thinking, and a hands-on guided inquiry activity.

Exploring Engineering with Elementary-Level Children and Their Parents (Gen)
(Preschool–Middle Level) Hall D/Room 30, Convention Center
Mia Jackson, David Heil & Associates, Inc, Portland, Ore.
Joan Chadde *(jchadde@mtu.edu),* Michigan Technological University, Houghton
Presider: Mia Jackson
Explore hands-on engineering activities that engage the whole family and learn how to host a family engineering event in your community. Sample activities and prizes.

Interactive Science Notebooks: A Resource Students Can Build and Use to Develop Understanding (Gen)
(Middle Level–High School) Commonwealth A, Loews
Kristin Newton *(knewton@cpsd.us)* and **Desirée Phillips** *(dphillips@cpsd.us),* Cambridge Rindge and Latin School, Cambridge, Mass.
See how we help ninth-graders build inquiry and questioning skills as they process their learning in a structured notebook system.

Using Formative Assessment in the Classroom to Make Students Responsible for Their Own Learning (Gen)
(Middle Level–High School/Supervision) Regency A, Loews
Michelle L. Kutch *(michelle.kutch@bsd.k12.de.us),* Springer Middle School, Wilmington, Del.
Presider: Michael A. Gliniak, Springer Middle School, Wilmington, Del.
Experience formative assessments that will help you make informed decisions and demystify learning for students. Free takeaways!

CESI Session: Science Sen$e: Easy, Inexpensive Activities for Elementary Classrooms Using Everyday Items (Gen)
(Elementary) *Washington A, Loews*
Jeannelle Day *(dayj@easternct.edu)* and **Laura Worthington** *(worthingtonl@easternct.edu),* Eastern Connecticut State University, Willimantic
Cheryl W. Sundberg *(sundbergrc@att.net),* The University of Alabama, Millbrook
Experience engaging, inexpensive K–8 hands-on/minds-on demonstrations and lesson ideas related to science standards, including energy, solubility, and material properties.

Volunteer Scientists and Hands-On Learning in Your Classroom (Gen)
(Informal Education) *Franklin 1, Marriott*
Janice E. Cuny, National Science Foundation, Arlington, Va.
Carter Romansky *(carterromansky@citizenschools.org),* Citizen Schools, Boston, Mass.
National Lab Day and Citizen Schools show how to engage volunteer scientists in sharing their excitement and expertise in hands-on projects in the classroom.

Constructing Phylogeny and Phylogenetic Trees for Learning Evolution (Bio)
(High School) *Franklin 4, Marriott*
Norman Thomson, University of Georgia, Athens
Almost all biology textbooks use trees to represent evolutionary pathways. Explore their construction and use in the classroom.

Get 'em Up and At It! Using Student Interactive Demonstrations to Model Cellular Processes in Genetics (Bio)
(General) *Franklin 5, Marriott*
Christina N. Dragon *(christina.dragon@gmail.com),* Smith College, Northampton, Mass.
Get students out of their seats and in motion with these effective, innovative mind and body techniques that illustrate replication, transcription, PCR, and gel electrophoresis.

Using Rare Diseases to Teach About Scientific Inquiry (Bio)
(Middle Level) *Franklin 8, Marriott*
Mark Bloom, BSCS, Colorado Springs, Colo.
Experience an inquiry-based activity that uses the study of a rare disease to engage students in heredity and scientific inquiry.

Investigating Foods Using the Merck Index (Chem)
(High School) *Grand Salon A, Marriott*
Alberta L. Hemsley *(hemslea@cps-K12.org),* Withrow International High School, Cincinnati, Ohio
Presider: Tracy Greeley *(greelet@cps-k12.org),* Woodward Career Technical High School, Cincinnati, Ohio
In this project, students investigate vitamin ingredients and check molecular weights and percent composition of ingredients in selected foods using the Merck Index.

Your Bicycle and Gears: It's All in the Teeth (Phys)
(General) *Grand Salon C, Marriott*
Mark B. Atwood *(marlinwood@verizon.net),* Nazareth Intermediate School, Nazareth, Pa.
Explore the relationship between two sets of gears on a bicycle and learn how the gear combinations affect distance traveled, speed, and energy applied.

Exploring the Dual Nature of Light (Phys)
(Middle Level–High School) *Grand Salon J, Marriott*
Muhammad Bhatti *(bhatti@utpa.edu)* and **John McBride** *(jwm1303@utpa.edu),* University of Texas–Pan American, Edinburg
Engage in hands-on, inquiry-based activities that explore the dual nature of light. Experimental proofs are provided. Handouts!

See It Today, Use It Tomorrow (Chem)
(Middle Level–High School/Informal) *Grand Salon K, Marriott*
Erica K. Jacobsen *(jacobsen@chem.wisc.edu), Journal of Chemical Education,* Madison, Wis.
Ever needed an easy way to prepare and implement lessons for a substitute teacher or for an emergency? I will share chemistry activities for these situations.

NASA: Exploring Magnetism in Space Science (Earth)
(Elementary–High School) *Freedom E, Sheraton*
Bryan J. Mendez *(bmendez@berkeley.edu),* University of California, Berkeley
Teach the basic concepts of magnetism and its importance in the Sun-Earth connection with these fun hands-on activities and strategies.

Climate and the Coast **(Earth)**
(Middle Level–High School) *Freedom G, Sheraton*
Pat Harcourt *(pat.harcourt@state.ma.us),* Waquoit Bay National Estuarine Research Reserve, Waquoit, Mass.
Climate change is affecting coastal areas. We'll use student-friendly data and images to study impacts of warming, storms, and sea level rise on coastal systems.

Caving in the Classroom **(Earth)**
(Middle Level) *Independence A, Sheraton*
Holly L. Yoder *(hyoder@elkhart.k12.in.us),* Pierre Moran Middle School, Elkhart, Ind.
Build a cave in your school and your kids will learn mapping skills and teamwork! Engage students with cave-connected activities and complete with a literary assessment.

Incredible Invisible Soil Robots **(Env)**
(Middle Level–High School) *Liberty C, Sheraton*
John W. Fedors *(jfedors@johnfedors.com),* Science Activities, Lincoln, Calif.
Soil robots are microbes that utilize the abundant locked-up energy in organic/inorganic waste and maintain our food web.

Unveiling the Mysteries of the Universe **(Earth)**
(Middle Level–High School) *Philadelphia South, Sheraton*
Missy Holzer *(mholzer@monmouth.com),* Chatham High School, Chatham, N.J.
Pamela Perry *(pperry@lewistonpublicschools.org),* Lewiston High School, Brunswick, Maine
Use the steps of a problem-based task to convert invisible X-ray energy into images of spectacular space objects.

11:00 AM–12 Noon Exhibitor Workshops

Active Chemistry **(Chem)**
(Grades 9–12) *201A, Convention Center*
Sponsor: It's About Time
Arthur Eisenkraft, 2000–2001 NSTA President, and University of Massachusetts, Boston
Active Chemistry is an NSF inquiry-based curriculum that will make 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 also discuss how Active Chemistry support materials will assist you with differential instruction in the classroom.

Moon Phases: Teaching in an Immersive Environment **(Earth)**
(Grades K–8) *Booth #641, Exhibit Hall, Convention Center*
Sponsor: Spitz, Inc.
David Bradstreet *(dbradstr@eastern.edu),* Eastern University, St. Davids, Pa.
Moon phases is a frequently taught, challenging subject. Unfortunately, misconceptions are often taught or reinforced. Join educator/astronomer Dr. David Bradstreet and learn how our curriculum for immersive 3-D dome teaching is used to explore moon phases in a memorable, entertaining way.

11:00 AM–1:00 PM Luncheon

Holt McDougal Luncheon
(By Invitation Only) *JWs, Marriott*

11:00 AM–1:00 PM Exhibitor Workshop

FOSS Assessment—Valuing Academic Progress in Grades 3–6 **(Gen)**
(Grades 3–6) *107A/B, Convention Center*
Sponsor: Delta Education, School Specialty Science–FOSS
Kathy J. Long, Brian T. Campbell, and **Larry Malone**, Lawrence Hall of Science, University of California, Berkeley
The ASK (Assessing Science Knowledge) Project has developed a system for determining levels of understanding of complex scientific ideas. This workshop will introduce benchmark assessments developed for FOSS modules for grades 3–6 and the tools you can use to analyze student work. Sample materials provided.

11:30 AM–12 Noon Presentations

SESSION 1

Multisensory Formative and Summative Assessments for the Motivationally Impaired (Gen)

(General) *Hall D/Room 10, Convention Center*

Jon Yoshioka *(jonyoshi@hawaii.edu)* and **Scott Robinson** *(scottdr@hawaii.edu),* University of Hawaii at Manoa, Honolulu

We will share research-based, multisensory formative and summative assessments that have been successfully used with under-motivated students.

SESSION 2

Periodic Nomenclature (Chem)

(High School–College) *Congress B, Loews*

Edmund J. Escudero *(escudero_e@summitcds.org),* Summit Country Day School, Cincinnati, Ohio

Don't make your students memorize countless cations and anions. Let the periodic table do the work for you. Learn the periodic table secrets!

12 Noon–12:30 PM Presentation

SESSION 1

Teacher Researcher Day Session: Science Inquiry Group Network (Gen)

(General) *Grand Salon E/F, Marriott*

Emily H. van Zee *(vanzeee@science.oregonstate.edu),* Oregon State University, Corvallis

Yajaira Fuentes-Tauber *(yfuentes-tauber@hotmail.com),* Rivera High School, Brownsville, Tex.

Examine ways to inquire into your science teaching practices and students' learning. Take home handouts and useful resources.

12 Noon–1:30 PM COSEE Luncheon

Robots, Satellites, Sensors, and the Sea

(By Invitation Only) *Logans 2, Sheraton*

Scott Glenn and **Oscar Schofield,** Rutgers University, New Brunswick, N.J.

Even as science and technology advance, the ocean still contains many mysteries. Rutgers University's Institute of Marine and Coastal Sciences uses cutting-edge technology to unravel some of the mysteries of the coastal ocean. Since 1992, Drs. Scott Glenn and Oscar Schofield have led the field of ocean observatories. Ocean observatories explore a changing ocean, from the melting polar ocean to waters of the northeast United States. Now everyone can be an ocean explorer, whether in a research lab or a classroom!

12 Noon–1:30 PM NSTA/SCST College Luncheon

Friend, Can You Spare Some Change? (M-10)

(Tickets Required: $55) *Commonwealth C, Loews*

Robert J. Beichner *(beichner@ncsu.edu),* 2010 Recipient of the Outstanding Undergraduate College Teacher Award, and Alumni Distinguished Professor of Physics, North Carolina State University, Raleigh

Dr. Beichner will discuss the changing characteristics of our students and the changing role of higher education.

Bob Beichner is Professor of Physics and Founding Director of the Science, Technology, Engineering, and Mathematics Education Initiative at North Carolina State University. A recipient of numerous awards, Dr. Beichner has made significant contributions to undergraduate science education through his innovative work with the "Student-Centered Active Learning Environment for Undergraduate Program (SCALEUP). The SCALEUP project takes teaching practices that have proven effective in small classes, such as group learning, and amplifies them into classrooms for large classes. Dr. Beichner is also a national leader in publishing and scholarship. In addition to authoring nine books, including the leading introductory calculus-based physics text in the country, Dr. Beichner was founding editor of Physical Review Special Topics – Physics Education Research, *a journal of the American Physical Society. .*

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 3:00 PM on Friday.

12 Noon–1:30 PM Exhibitor Workshops

Launching Early Science Inquiry with *The Zula Patrol* (Gen)
(Grades K–3) *103B, Convention Center*
Sponsor: Zula International
Laurie Michnal *(laurie@zula.com* and *info@zula.com)* and **Andrea Tompkins** *(andrea@zula.com),* Zula International, Burbank, Calif.
Join the *Zula* crew for a highly interactive science workshop that includes fun hands-on activities that will help "launch" inquiry-based science into preschool to third-grade classrooms. Outcomes from schools using Zula's outstanding science/math critical-thinking curriculum program will be shared. Content supports a multidisciplinary approach that fulfills national and state standards.

Hands-On Integrated Science Activities for Middle School (Gen)
(Grades 6–8) *103C, 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 middle school activities that integrate life, earth, and physical science topics. Come perform and observe experiments designed to capture the curiosity and engage the energy of adolescent students. Handouts provided for all activities.

Top 10 Countdown: Biotechnology Modules (Bio)
(Grades 9–12) *104A/B, Convention Center*
Sponsor: Sargent-Welch
Spinnin' Amy Naum, Science Kit & Boreal Laboratories, Tonawanda, N.Y.
A surefire hit with your students, these EDVOTEK Biotechnology Modules are off the charts! Explore electrophoresis, DNA analysis, and more with comprehensive packages of equipment, supplies, and activities. Learn how to use these in your biotech class to get students rockin' on this cutting-edge science.

How Do Natural Disasters Affect People? A Project-based Learning Lesson (Env)
(Grades 3–8) *105A/B, Convention Center*
Sponsor: BrainPOP
Annie Choi *(anniec@brainpop.com),* BrainPOP, New York, N.Y.
Tornadoes! Earthquakes! Floods! See how technology enhances student exploration of natural disasters.

Middle School Spectroscopy: Visualizing the Spectrum (Phys)
(Grades 6–9) *106A/B, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Sunshine Cheryl Hanzlik *(chanzlik@vwreducation.com),* Science Kit & Boreal Laboratories, Tonawanda, N.Y.
It's all about the Rainbow Connection with this workshop. Discover how to introduce spectroscopy with your middle school class. It's as simple as ROYGBIV and more fun with physics than you've ever had!

Chemistry and the Atom: Fun with the Atom-building Game (Chem)
(Grades 5–12) *108A, Convention Center*
Sponsor: CPO Science, School Specialty Science
Scott Eddleman, CPO Science, School Specialty Science, Nashua, N.H.
Our understanding of matter at the atomic level can be abstract, and students can have a hard time making sense of these fascinating concepts. In this workshop you will experience innovative games and activities that give students fun opportunities to explore and grasp atomic structure and the periodic table.

The National Youth Leadership Forum: Training Tomorrow's Science Leaders (Gen)
(Grades 3–12) *109A/B, Convention Center*
Sponsor: National Youth Leadership Forum
Katherine McLaughlin *(kmclaughlin@nylf.org),* National Youth Leadership Forum, Vienna, Va.
Medicine! Architecture! Forensics! Are your students interested in learning more about these subjects in a fast-paced, demanding, and fun summer program? Give your high-achieving students the opportunity of a lifetime by learning more about the National Youth Leadership Forum. We offer a variety of programs for elementary, middle school, and high school students. In addition to learning about the program, participants will receive hands-on discovery-based curricula to take back to their classrooms.

The Layered Earth! (Earth)
(Grades 8–12) *110A/B, Convention Center*
Sponsor: Simulation Curriculum Corp.
Martin Gabber *(mgabber@sympatico.ca),* Simulation Curriculum Corp., Edina, Minn.
What powers the internal processes that produce volcanoes, earthquakes, and mountains? What is the rock cycle and how does it work? What is an earthquake? How are volcanoes formed? What might Earth look like in the future? Join us on the big screen and experience The Layered Earth, the geology curriculum from the makers of Starry Night.

Untamed Science! How to Make Your Own Science Videos from Scratch (Gen)
(Grades K–12) *113B, Convention Center*
Sponsor: Pearson
Daniell Washington, Miami, Fla.
Suzanne Rutishauser, Milwaukee, Wis.
Join the fun and engaging Untamed Science video crew on a science video adventure! This team of young scientists is passionate about education, developing exciting videos that address the "big questions" of science and bringing real-world applications to the classroom. Learn how to best implement video in the classroom and discover how you and your students can create your own videos on a shoestring budget. Untamed Science recently teamed with Pearson to create personalized videos for all of Pearson's new science programs, K–12! Take home handouts and free lesson activities.

Hands-On/Minds-On Middle School Science (Gen)
(Grades 6–8) *201B, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Looking for a new way to engage and excite your middle school science students? The research-based STC Program™ units use hands-on investigations to bring the WOW back to science. Come explore a selection of STC Program activities and leave with sample lessons and materials to take back to the classroom.

Inquiry Chemistry with Vernier (Chem)
(Grades 9–College) *202A, Convention Center*
Sponsor: Vernier Software & Technology
Jack Randall *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
In this hands-on workshop, you will become the student as you investigate intermolecular attractions through inquiry. This experiment is from our new book *Investigating Chemistry Through Inquiry.* Learn how to collect data using LabQuest or our new LabQuest Mini with Temperature Probes.

Mystery of Lyle and Louise Questioned Documents Analysis (Gen)
(Grades 7–College) *202B, Convention Center*
Sponsor: Vandalia Science Education
Derek Gregg, Vandalia Research, Inc., Huntington, W.Va.
Steve Beckelhimer *(info@vandaliascied.com),* Vandalia Science Education, Huntington, W.Va.
During the investigation of the Mondelo murder, police have turned their suspicion on business partner John Wayne Gretsky, finding questionable receipts on his desk. In this workshop, you will determine if these receipts are legitimate business documents or evidence of a crime, using handwriting analysis and thin layer chromatography.

Incorporating Social Networking and Gaming into the Classroom (Gen)
(Grades 6–9) *203A, Convention Center*
Sponsor: National Geographic–The JASON Project
Bill Jewell *(bjewell@jason.org),* Digital Media and Technology, Ashburn, Va.
Marjee Chmiel *(mchmiel@jason.org),* The JASON Project, Ashburn, Va.
While many educators have expressed interest in using video games to teach, few games have been designed as core curriculum with the educator in mind. This workshop illustrates The JASON Project's suite of standards-based games designed to be integrated directly into the middle school science curriculum. The workshop will also explore how trends in social media allow for meaningful, ongoing opportunities to engage and motivate students.

Gateways to Biology (Bio)
(Grades 9–11) *203B, Convention Center*
Sponsor: Region 4 Education Service Center
Mary Ingle *(mingle@esc4.net)* and **Jackie Nowlin** *(jnowlin@esc4.net),* Region 4 Education Service Center, Houston, Tex.
Does a biology course that focuses on the doing, rather than the reading about biology interest you? In this session, participants explore methods of introducing and supporting biology concepts through hands-on/minds-on activities. Join us and learn about an innovative approach to biology.

Teaching Genetics and Biotechnology with Carolina's Manipulative Kits (Bio)
(Grades 9–College) *204A, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Use Carolina's manipulative models to teach key biotechnology and genetics concepts. Participants construct human karyotypes using magnetic chromosomes on a karyotyping board. Possible karyotypes include normal male and female and some common abnormal karyotypes. They also use two new innovative models to teach DNA structure, transcription, and translation.

Molecular Models in the Classroom (Chem)
(Grades 9–12) *204B, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Bring atomic structure, the periodic table, bonding, and molecular geometry together for a powerful lesson that your students won't forget. Experience the four tools that make these abstract concepts concrete for students and convenient for you. Handouts and giveaways.

Neuroscience Core Concepts: The Basic Principles of Learning and Ways to Teach Effectively (Bio)
(Grades 8–12) *304, Convention Center*
Sponsor: Society for Neuroscience
Patricia Camp and **Cynthia Pfirrmann,** Society for Neuroscience, Washington, D.C.
How does learning take place in our brains? How can neuroscience teach us how to teach most effectively? A neuroscientist and a teacher co-present hands-on activities that demonstrate learning and share information about brain basics.

***A Natural Approach to Chemistry:* Teaching About Electrochemistry (Chem)**
(Grades 10–12) *Hall D/Room 2, Convention Center*
Sponsor: LAB-AIDS, Inc.
Tom Hsu, Author, Andover, Mass.
Join author Tom Hsu for a special preview and hands-on examination of selected laboratory activities from *A Natural Approach to Chemistry,* a new high school program that takes a fresh look at chemistry today. It features a new, innovative probeware system that is rugged, simple to use, and makes accurate, quantitative measurements accessible to all students. Selected lab activities will address concepts related to how batteries work, electrochemistry, and electroplating. Selected labs and other program materials will be provided for all participants.

12:30–1:00 PM Presentations

SESSION 1
Does Playing Video Games Enhance Short-Term Memory? (Gen)
(Informal Education) *Hall D/Room 17, Convention Center*
Sheila F. Pirkle *(pirkles@apsu.edu),* Austin Peay State University, Clarksville, Tenn.
We will examine the short-term learning effects of video gaming on memory, comparing children with adults.

SESSION 2
Cognitive Study Skills for Middle School Students: Increasing Learning Through Strategy Instruction (Gen)
(Middle Level) *Hall D/Room 27, Convention Center*
Stephanie H. Toney *(smhtoney@nc.rr.com),* North Carolina State University, Raleigh
Laura Robertson, University School, East Tennessee State University, Johnson City
Learn how to teach your students the research-based cognitive strategies they need to study effectively and to retain information from class and lab activities.

SESSION 3

Planning to Manage the Science Classroom: A Preventive Problem-solving Approach (Gen)

(Supervision/Administration) *Regency C2, Loews*

Keith Roscoe *(keith.roscoe@uleth.ca),* University of Lethbridge, Alta., Canada

Science teachers' effectiveness and retention are improved by involving them in planning specific aspects of classroom management before classes start using a preventive problem-solving approach.

SESSION 4

Teaching Plasma Phase to Middle School Students (Chem)

(Middle Level–College) *305/306, Marriott*

Taha Massalha *(tahamas@gmail.com),* The Academic Arab College of Education, Haifa, Israel

Rachel Abadi *(abadi@macam.ac.il),* Levinsky College of Education and Kibbutzim College, Tel-Aviv, Israel

We will share a hands-on/minds-on model for teaching/learning plasma physics. Enhance your students' understanding of matter phases.

SESSION 5

Developing a Martian Constitution (Earth)

(General) *Liberty C, Sheraton*

Jeff Adkins *(astronomyteacher@mac.com)* and **Allison M. Weihe** *(dvgovteacher@yahoo.com),* Deer Valley High School, Antioch, Calif.

Presider: Bruce H. Hemp, Fort Defiance High School, Fort Defiance, Va.

An astronomy class and a government class collaborated on the development of a constitution for a Martian space colony.

12:30–1:30 PM Presentations

SESSION 1 (two presentations)

(High School) *Hall D/Room 1, Convention Center*

Using Students' Already-developed Technology Skills (Gen)

Cheryl Everett *(cheryle@cciu.org),* Chester County Intermediate Unit, Downingtown, Pa.

Robyn Spear *(spearr@pasd.k12.pa.us),* Phoenixville (Pa.) Area School District

Most of our students are already immersed in the world of technology. Come see how science teachers can use this to their advantage.

Creating Biologically Realistic 3-D Animations to Encourage Inquiry in the Classroom (Bio)

Kyung-A Kwon *(kakwon@uga.edu)* and **J. Steve Oliver** *(soliver@uga.edu),* University of Georgia, Athens

A unique collaboration of scientists, educators, and teachers has come together to create highly realistic and interactive biological animations for high school biology.

SESSION 2

ELD Strategies in Science (Gen)

(General) *Hall D/Room 5, Convention Center*

Michael Klentschy *(mpkdr@aol.com),* San Diego State University–Imperial Valley Campus, Calexico, Calif.

Presider: Anne K. Powers *(powersa@limestone.on.ca),* Limestone District School Board, Kingston, Ont., Canada

I will share research-based classroom strategies designed to provide English learners with both the opportunity and support necessary to effectively learn science and to close achievement gaps.

SESSION 3 (two presentations)

(General) *Hall D/Room 7, Convention Center*

Sticky Notes and Student Identification of Variables in Science Investigations (Gen)

Malcolm S. Cheney *(cheneymac@comcast.net),* Retired Educator, Windsor, Conn.

Using colored sticky notes to distinguish between independent and dependent variables helps all students learn to structure a controlled scientific investigation and to write a complete report.

★ **Accessing Chemistry: Reaching All Students (Chem)**

Mary P. Blain, Glastonbury High School, Glastonbury, Conn.

Modifications were made to instructional strategies used in a conceptual-level chemistry course for intellectually challenged students. I will share activities, course objectives, and units, as well as differentiated instructional strategies.

SESSION 4

Outside the Classroom Walls: Creating a Backpack Lesson to Expand Student Learning (Gen)

(Preschool–Middle Level/Informal) *Hall D/Room 8, Conv. Center*

Candace Lutzow-Felling *(cjl6b@virginia.edu),* University of Virginia, Boyce

Robin Coutts *(rcoutts@virginia.edu),* University of Virginia/State Arboretum of Virginia, Boyce

Presider: Emily Ford *(emilyford@virginia.edu),* State Arboretum of Virginia, Boyce

Learn to create lessons contained in a backpack, offering your students the time and space to explore scientific concepts without classroom constraints.

SESSION 5

An Online Game That Teaches About Alcohol Abuse: It's an Adventure! (Bio)

(Middle Level) *Hall D/Room 18, Convention Center*

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

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

Wondering how to teach the dangers of alcohol while adhering to your science curriculum and national standards? Use this highly engaging, free web adventure that teaches about alcohol abuse in the context of body systems.

SESSION 6

Reflective Science: A Metacognitive Approach to Learning Science (Gen)

(Middle Level–College) *Hall D/Room 20, Convention Center*

Deb J. McGregor, University of Wolverhampton, Walsall, U.K.

Enhance student understanding by presenting intriguing evidence that students reflect upon and discuss to clarify meaning (personal, scientific, and everyday).

SESSION 7

Revising the NSTA Science Teacher Preparation Program Standards (Gen)

(College/Supervision) *Commonwealth B, Loews*

David A. Wiley *(david.wiley@lr.edu),* NSTA Director, Preservice Teacher Preparation, and Lenoir-Rhyne University, Hickory, N.C.

Erica M. Brownstein *(ebrownst@capital.edu),* Capital University, Columbus, Ohio

Francis Q. Eberle *(feberle@nsta.org),* Executive Director, National Science Teachers Association, Arlington, Va.

Elizabeth Allan *(eallan@uco.edu),* University of Central Oklahoma, Edmond

Jon E. Pedersen *(jep@unl.edu),* ASTE President, and University of Nebraska–Lincoln

We'll look at the status and draft of the revisions to the NSTA Science Teacher Preparation Standards used in the accreditation process.

SESSION 8 (two presentations)

(General) *Congress A, Loews*

Science Accommodations and Resources for Students with Special Needs: Providing Science Instruction for All Students (Gen)

Greg P. Stefanich *(stefanich@uni.edu),* University of Northern Iowa, Cedar Falls

Involvement and participation in meaningful experiences with other students is critical, and the secondary school science and mathematics curriculum is frequently a gatekeeper. We will examine accommodations and resources for students with disabilities, with an emphasis on adaptive supplies and equipment for students with visual impairments.

Engaging Science Instruction for Special Needs Students (Gen)

Michele Hodson, NBCT *(vvjrmhodson@mdeca.org),* **Amanda Phillips** *(vvgephillip@mdeca.org),* and **Nicole Thomas** *(wjrnthomas@mdeca.org),* Valley View Local Schools, Germantown, Ohio

Looking for innovative ways to engage special needs students in the science standards? We'll look at inquiry, movement activities, and accommodations. Handouts.

SESSION 9 (two presentations)
(High School–College) *Regency C1, Loews*

Biochemical Changes During Embryogenesis: Promoting Interdisciplinary Connections and Expanding Learning Outcomes in Developmental Biology (Bio)

Supaporn Porntrai *(sporntrai@yahoo.com),* Ubon Rajathanee University, Ubon Rajathanee, Thailand
Inquiry-based learning in developmental biology encourages a broader range of learning outcomes and interdisciplinary connections than do "traditional" laboratory courses.

New Tools for Teaching Respiration and Photosynthesis (Bio)

Ann C.F. Batiza *(batiza@msoe.edu),* Center for BioMolecular Modeling, Milwaukee School of Engineering, Milwaukee, Wis.
New teaching tools illustrate the fundamental connections between photosynthesis, cellular respiration, and a hydrogen fuel cell. We'll share the results of our study.

SESSION 10

The Realistic Professional Learning Community (Gen)

(General) *Washington B, Loews*

Matthew A. Johnson *(johnsonma@kalamazoo.k12.mi.us)* and **Charles G. Tansey** *(tanseycg@kalamazoo.k12.mi.us),* Edison Environmental Science Academy, Kalamazoo, Mich.
Learn to develop a voluntary PLC using lesson study, collaborative unit design, community science nights, and discussions of current science topics to maintain interest.

SESSION 11

National Board Certification and Renewal: What, How, Why? (Gen)

(Middle Level–High School) *304, Marriott*

Susan R. Shepard, Jupiter High School, Jupiter, Fla.
National Board Certification is worth the effort for both you and your students. Learn about the challenges and how to avoid pitfalls, and get tips for success.

SESSION 12

Evolution Revolution (Bio)

(General) *Franklin 2, Marriott*

Rob DeSalle and **David Randle** *(drandle@amnh.org),* American Museum of Natural History, New York, N.Y.
Come get an overview of current trends in researching and teaching evolution and learn how to build "Trees of Life" using free online databases and software.

SESSION 13 (two presentations)
(High School) *Franklin 3, Marriott*

The Great Stem Cell Debate (Bio)

MaryKate L. Holden *(mholden@ormila.com),* Oak Ridge Military Academy, Oak Ridge, N.C.
Here's a new way to teach biology content—debate a current hot-button topic using knowledge from across academic disciplines.

Using "Secrets of the Sequence" in Biology Classrooms (Bio)

Emily Betts *(ebetts@richmond.k12.va.us),* Open High School, Richmond, Va.
Jacqueline T. McDonnough, Virginia Commonwealth University, Richmond
Learn how to incorporate a resource of videos about human genetics research into your biology classroom.

SESSION 14

A Coral Reef in Your Classroom: Creating a Unique Opportunity for Student Research (Bio)

(General) *Franklin 6, Marriott*

Jon L. Swanson *(jswanson@eosmith.org),* Edwin O. Smith High School, Storrs, Conn.
Discover the benefits of having marine aquaria in the classroom, including the potential to involve students in real scientific research projects.

SESSION 15

Dollar Store Physics: Inexpensive Demos That Address Physics Misconceptions (Phys)

(Middle Level–High School) *Franklin 7, Marriott*

Kathy Mirakovits *(kmirakovits@portageps.org)* and **Lindsey McConney** *(lmcconney@portageps.org),* Portage Northern High School, Portage, Mich.
Do your students confuse mass and weight and centripetal and centrifugal force? Do they have preconceived outcomes in labs? Learn easy, inexpensive demos that squelch misconceptions.

SESSION 16

Teacher Researcher Day Session: Inquiry Learning Communities: Use of POGIL in a High School Chemistry Class (Chem)

(High School/Supervision) *Grand Salon E/F, Group 1, Marriott*

Kevin J. Henson *(khenson@lrhsd.org),* Lenape High School, Medford, N.J.
Actively engage students using POGIL, a research-based learning environment in which students work in groups developing process and critical-thinking skills.

SESSION 17 (two presentations)
(Elementary–Middle Level) *Grand Salon E/F, Group 2, Marriott*

Teacher Researcher Day Session: Mixed-Methods Study on the Effect of Classroom Interruptions on Teacher Instruction (Gen)

Gloria E. Egner-Cicirello, Hunter Elementary School, Philadelphia, Pa.
Cristina C. Alvarez *(ccalvarez@philasd.org),* William H. Hunter School, Philadelphia, Pa.
We examined how students and teachers perceive interruptions that occur during instructional time and gauged their effect on teacher instruction.

Teacher Researcher Day Session: The Impact of Student-produced Webcasts on Achievement and Attitude in Science Class (Chem)

CANCELED

Patrick J. Englert, Lower Moreland High School, Huntingdon Valley, Pa.
We tracked students and the use of webcasts in order to increase student motivation in the sciences.

SESSION 18 (two presentations)
(General) *Grand Salon E/F, Group 3, Marriott*

Teacher Researcher Day Session: Visions of Teaching Science (Gen)

Deborah L. Roberts-Harris, Chandler, Ariz.

CANCELED

As new teachers leave method classes and student teaching, how do they envision science learning and teaching? What are the things they take with them as they launch their new careers?

Teacher Researcher Day Session: Inquiry for Equity: Increasing Learning Opportunities Through Classroom-based Research (Gen)

Claire G. Bové, Mills College, Oakland, Calif.
Isabelle McDaniel *(bellamcd@gmail.com),* Creative Arts Charter School, Kensington, Calif.
We are examining our teaching practice through classroom-based inquiry with a focus on equity. We'll share our research projects.

SESSION 19 (two presentations)
(High School–College) *Grand Salon E/F, Group 4, Marriott*

Teacher Researcher Day Session: The Effects of a PCB Modeling-based Course Sequence on Upper-Level Electives (Phys)

Kathy L. Malone *(kmalone@shadysideacademy.org,)* **Sarah Cudney** *(scudney@shadysideacademy.org),* and **Anita Schuchardt** *(aschuchardt@shadysideacademy.org),* Shady Side Academy, Pittsburgh, Pa.
We will describe the effects of a physics, chemistry, and biology (PCB) modeling sequence on upper-level science electives in comparison to the former biology-first sequence used at Shady Side Academy.

Teacher Researcher Day Session: Environmental Stewardship and Active Democracy in Preservice Teacher Education (Env)

William Medina-Jerez *(wmedinaj@uwyo.edu),* **Carie Green** *(cgreen13@uwyo.edu),* and **Carol Bryant,** University of Wyoming, Laramie
Follow the growth of preservice teachers who took democratic action to address energy usage on campus.

SESSION 20

Teacher Researcher Day Session: Problem-Based Learning: An Action Research Roundtable (Gen)

(Middle Level–High School) *Grand Salon E/F, Group 5, Marriott*

Kathy S. Hoppe *(khoppe@monroe2boces.org),* Monroe 2-Orleans BOCES and St. John Fisher College, Spencerport, N.Y.
During this roundtable discussion, we will address a three-year action research project on the effectiveness of Problem-Based Learning as an instructional practice.

SESSION 21

Global Warming? Global Cooling? Climate Change? What's a Teacher to Teach? (Gen)

(Middle Level–High School) *Grand Salon G, Marriott*

John G. Hehr *(jghehr@uark.edu)* and **Lynne H. Hehr** *(lhehr@uark.edu),* University of Arkansas, Fayetteville
Confused by all the pro and con hype about climate change? Join us for information and discussion and form your own information-based decisions.

SESSION 22

Ocean Data for a Changing Climate: The NOAA National Oceanographic Data Center's Educational Partnerships and Projects (Env)

(Informal Education) *Freedom F, Sheraton*

Kenneth S. Casey *(kenneth.casey@noaa.gov),* NOAA National Oceanographic Data Center, Silver Spring, Md.

Discover the ocean data available to you and your students through the NOAA National Oceanographic Data Center's educational partnerships.

SESSION 23

The Scientific Method: Unleashed, Uncut, and Outdoors (Env)

(Elementary–High School) *Freedom H, Sheraton*

Wynn Y. Simon *(wynn.simon@ttu.edu),* Texas Tech Outdoor School, Junction

Megan Dominguez-Brazil *(megan.brazil@ttu.edu),* Texas Tech University at Junction

Investigate natural and innovative methods of environmental sciences through multiple best learning practices. TTU Outdoor School highlights curricular units and pedagogy.

SESSION 24

Algebraic Fluency: Sometimes It IS Rocket Science (Earth)

(Middle Level–High School) *Independence B, Sheraton*

David D. Thornburg *(dthornburg@aol.com),* Thornburg Center for Space Exploration, Lake Barrington, Ill.

Experience ways to help your students look at mathematics through the eyes of a mathematician while exploring science through inquiry-driven project-based learning.

SESSION 25

NESTA Session: Advances in Earth and Space Science Lecture: Changing Seas, Changing Life: Paleontological Research with Student Participation (Earth)

(Elementary–High School) *Liberty A/B, Sheraton*

Robert M. Ross *(rmr16@cornell.edu),* Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.

Presider: Roberta M. Johnson *(rmjohnsn@ucar.edu),* University Corporation for Atmospheric Research, Boulder, Colo.

New studies to understand changing environments and faunas in ancient seas require large quantities of new data on fossils. "Fossil Finders" is a project to partner with grades 5–9 students and their teachers in data collection and analysis (of Devonian-age fossils), as part of a teacher professional development research project. Organized by Barbara Crawford of Cornell University, "Fossil Finders" increases teacher and student engagement in real-world inquiry while increasing the capacity of scientists to carry out paleontological research.

SESSION 26

Virtual Scat: Using Blogs and Conferencing Tools to Engage Students in Scientific Inquiry (Env)

(Elementary–High School) *Salon 3/4, Sheraton*

Allison Roach *(aroach@earthwatch.org)* and **Anna Janovicz,** Earthwatch Institute, Maynard, Mass.

Learn how to use blogs and conferencing tools to engage students in scientific inquiry as virtual field researchers.

12:30–1:30 PM Workshops

Connecting Math, Science, and Literacy for the Good of All! (Bio)

(Middle Level–High School) *Hall D/Room 6, Convention Center*

Anna Eileen Masaschi *(amasaschi@bcps.org),* Lansdowne High School, Baltimore, Md.

Presider: Olivia N. Jones *(ognjones@aol.com),* Lincoln Prairie School, Hoffman Estates, Ill.

New teachers and their mentor will share graphic organizers, algebra connections, and quick-write strategies that promote rigorous lessons with formative assessments.

Learning Physics in the Real World (Phys)

(Elementary/Informal Ed) *Hall D/Room 9, Convention Center*

Mary C. Myron *(myron@etsu.edu)* and **Aimee Govett** *(govett@etsu.edu),* East Tennessee State University, Johnson City

Explore "hard" science concepts using toys and playground equipment in this physics workshop for K–5 teachers.

Exploring the Solar System Through the Eyes of Scientists (Earth)
(Elementary) Hall D/Room 10, Convention Center
Sally L. Feldman *(feldmom@aol.com),* Washington Elementary School, Richmond, Calif.
Ruth L. Paglierani *(ruthp@ssl.berkeley.edu),* University of California, Berkeley
Come explore our solar system through hands-on astronomy activities created especially for primary students. Topics include ice, moons, and how our solar system works as a system. Key to the learning process is the use of student notebooks.

Linking Home and School with P.A.S.S.© (Portable Affordable Simple Science) (Gen)
(Preschool–Elementary) Hall D/Room 15, Convention Center
Renee G. O'Leary, Caravel Academy, Bear, Del.
These simple, multisensory, hands-on early childhood/elementary explorations (preK–2) in zippable plastic bags have take-home and multidisciplinary follow-up. Take home sample lesson plans/bags and follow-up.

Invertebrates Are Elementary (Gen)
(Elementary) Hall D/Room 16, Convention Center
Bruce L. Larson *(birdlarson@comcast.net),* Stratham Memorial School, Stratham, N.H.
Inverts are the predominant animal phyla and are studied indirectly in ecology activities, habitat studies, and just for fun at the K–5 levels. Get a refresher on this diverse group and get to know some friendly vermicomposting annelids to boot.

Juggling in After-School Programs: Science, Fitness, and Fun—It's a Balancing Act! (Phys)
(Elementary–Middle Level/Inf.) Hall D/Room 19, Conv.Center
Nancy M. Williams, St. Louis (Mo.) Public Schools
Newton's laws are explored, experienced, and explicitly taught through these engaging high-energy lessons suitable for after school or classroom. Handouts!

Science + Writing = Learning (Gen)
(Elementary–Middle Level) Hall D/Room 21, Convention Center
Julie Alexander *(jualexan@columbia.k12.mo.us),* Columbia (Mo.) Public Schools
Learn how to implement science notebooks in your classroom. We'll look at notebook set-up, assessment, and math integration.

Engaging Girls in Science with SciGirls (Gen)
(Elementary–Middle Level/Inf.) Hall D/Room 22, Conv. Center
Richard C. Hudson and **Lisa Regalla,** Twin Cities Public Television/PBS, St. Paul, Minn.
Presider: Lisa Regalla
Get the girls in your classroom excited about science with the new PBS series *SciGirls.* Free DVDs and activity guides in both English and Spanish!

London Bridge Is Falling Down! (Gen)
(Elementary–Middle Level) Hall D/Room 25, Convention Center
Alexis Serita Johnson *(ahayes@richlandone.org),* W.A. Perry Middle School, Columbia, S.C.
Yolanda Daniels *(ydaniels@richlandone.org),* Gibbes Middle School, Columbia, S.C.
Presider: Nathan Yon, W.A. Perry Middle School, Columbia, S.C.
These engaging kinesthetic and cross-curricular activities reinforce the concept of technological design using real-world scenarios.

The Good, the Bad, and the Ugly: Turning Bad Labs into Good Labs (Gen)
(Elementary–High School) Hall D/Room 30, Convention Center
Darin S. Munsell *(dmunsel@yahoo.com),* Illinois Institute of Technology, Chicago
Cheryl L. Heitzman *(cherylheitzman@gmail.com),* Perspectives/IIT Math and Science Academy, Chicago, Ill.
Create excellent K–12 inquiry-based labs from those labs that never seem to work and from those common cookbook labs.

Helping High School Students Write Their Own Scientific Experiments (Gen)
(High School) Commonwealth A, Loews
Kristen R. Dotti *(kristen.dotti@catalystlearningcurricula.com),* Christ School, Arden, N.C.
Writing lab experiments can be a huge leap for students accustomed to cookbook-style labs. Learn some strategies to help your students develop high-quality scientific experiments.

Inspire the Next Generation of Engineers with Free Resources from PBS's Design Squad (Gen)
(Middle Level/Supervision) Regency A, Loews
Susan Buckey *(susan_buckey@wgbh.org),* WGBH Educational Foundation, Boston, Mass.
Design Squad goes to school with new activities designed especially for middle school teachers. Come try your hand at the activities and explore a new online training tool.

The Consequences of Undisclosed Science Knowledge: Bright Students Failing in STEM Majors (Gen)
(Middle Level–High School) Washington A, Loews
Barbara J. Rascoe *(rascoe_bj@mercer.edu),* Mercer University, Macon, Ga.
We will examine seven aspects of undisclosed knowledge, how each may impact bright students, and inquiry strategies that expose undisclosed science knowledge that is critical for knowledge transformations.

Examining the Bioethics of Animals in Research (Bio)
(High School) Franklin 1, Marriott
Dave Vannier *(vannierd@od.nih.gov),* National Institutes of Health, Bethesda, Md.
Examine the ethics of genetically modifying animals for human gain. Respect and harms/benefits are presented in a new model for teaching bioethics in high school.

The Mathematics of Human Population Growth (Bio)
(Middle Level–High School) Franklin 4, Marriott
John E. Penick *(john.penick@sangari.com),* 2003–2004 NSTA President, and Sangari, USA, Cary, N.C.
William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.
Assume the roles of five hypothetical families, each with very different reproductive strategies. The total populations after 100 years are presented with amazing differences.

Experimental Design and Data Analysis in Biology: Using Model Systems in the Classroom (Bio)
(Middle Level–College) Franklin 5, Marriott
Alfred Porter, Atlanta (Ga.) Public Schools
Explore the best practice of using an inquiry-based approach when teaching science. We'll look at the constructivist theory and the benefits of an inquiry-based science curriculum.

Using Medicine to Engage Students Studying Evolution (Bio)
(High School–College) Franklin 8, Marriott
Mark Bloom, BSCS, Colorado Springs, Colo.
Experience an inquiry-based activity that uses a medical context—connecting natural selection to human medicine—to engage students in the study of evolution.

With a Pinch of Salt or More: Looking at Food Preservation and Preparation from an Extreme Microbe's Angle (Bio)
(Middle Level–College) Franklin 9, Marriott
Priya DasSarma *(dassarmp@umbi.umd.edu),* University of Maryland Biotechnology Institute, Baltimore
Mark Gallo *(mgallo@niagara.edu),* Niagara University, Niagara University, N.Y.
Presider: Steve Wagner *(swagner@sfasu.edu),* Stephen F. Austin State University, Nacogdoches, Tex.
Why is salt important and how is it relevant to teaching biology? Watch microbes react to salt concentrations and discuss global effects of salt.

Science Homework: A Family Event! (Chem)
(Middle Level–High School) Grand Salon A, Marriott
Dawn L. Cronauer *(dawn.cronauer@hcps.org),* North Harford Middle School, Pylesville, Md.
Presider: Sandra Casad, Loyola University Chicago, Ill.
Get parents involved and students excited about homework with hands-on science at home. I'll provide a CD with home demonstrations for each physical science unit.

Beyond Introductory Circuits: Electronics (Phys)
(High School) Grand Salon C, Marriott
Aaron R. Osowiecki *(aosowiecki@gmail.com),* Boston Latin School, Boston, Mass.
Go beyond simple series and parallel circuits. Learn how to teach students about modern electronics (diodes, transistors, etc.) with computer probes.

NSTA Press Session: Making Science Reading Come Alive (Gen)
(Middle Level–High School) Grand Salon D, Marriott
Jodi L. Wheeler-Toppen *(jwt@uga.edu),* University of Georgia, Lawrenceville
Find out why kids have trouble with science reading and try some proven techniques for turning your students into successful science readers.

Electro Luminescence (EL) : Light Imitating Art (Phys)
(Middle Level–High School/Informal) Grand Salon J, Marriott
Tim Jones, Los Angeles Unified School District Local District 8, Gardena, Calif.
Craig Yokoi, Purche Elementary School, Gardena, Calif.
Presider: Craig Yokoi
Incorporate the beauty of light using EL wires to create sculptures. Learn the science behind the art and the use of EL in today's environment.

Have Einstein, Curie, and Newton Visit Your Classroom! Embedding the History of Science into Your Teaching (Chem)
(High School) *Grand Salon K, Marriott*
Charles Judson Hill *(chill@wheelock.edu),* Education Development Center, Inc., Newton, Mass.
Address national standards, deepen students' scientific understanding, *and* engage students all at once! Embed the history of science into your lessons using free web resources.

Three Rivers Water Quality Project (Env)
(Middle Level) *Independence A, Sheraton*
Cindy Colomb *(cindy@anovascience.com),* ANOVA Science Education Corp., Honolulu, Hawaii
Experience water quality testing using appropriate scientific processes and probeware.

Dirtology: A Soil Science (Env)
(Middle Level–High School) *Philadelphia South, Sheraton*
Sherry S. Fulk-Bringman and **Suzanne M. Cunningham** *(scunning@purdue.edu),* Purdue University, West Lafayette, Ind.
Soil science is an intriguing and inexpensive medium to teach middle and high school students the physical and environmental sciences.

12:30–1:30 PM Exhibitor Workshop

Project-Based Inquiry Science (PBIS): The Next Generation of Middle School Programs (Gen)
(Grades 6–8) *201A, Convention Center*
Sponsor: It's About Time
Mary Starr, The University of Michigan, Ann Arbor
We will review the latest cognitive research about how middle school students learn best and about how this research has been put into practice in real-world classrooms. In PBIS, students investigate scientific content and learn scientific practices while addressing project challenges or answering driving questions that matter to them. You'll see a transformation in your students as they become enthusiastic collaborative learners and rigorous thinkers.

1:00–6:00 PM Reception

I Teach Inquiry Reception
(By Invitation Only) *Grand Salon I, Marriott*
Join a panel discussion from the I Teach Inquiry Network about the joys and pains of implementing inquiry science in your school. Reception to follow.

1:30–2:00 PM Presentations

SESSION 1
Teacher Researcher Day Session: Creating and Implementing POGIL in the Biology Classroom (Bio)
(Middle Level–High School) *Grand Salon E/F, Group 1, Marriott*
Jeffrey T. Maddock *(jmaddock@sas.upenn.edu),* Brimm Medical Arts High School, Camden, N.J.
Explore the benefits, creation, and implementation of Process Oriented Guided Inquiry Learning (POGIL) in the biology classroom.

SESSION 2
Teacher Researcher Day Session: Learning to Teach By Listening to My Students Learn (Gen)
(Middle Level–High School) *Grand Salon E/F, Group 3, Marriott*
Claire G. Bové *(cgbove@flash.net),* Mills College, Oakland, Calif.
As a teacher in an urban school, I have learned to teach scientific content by studying small-group student dialogue.

SESSION 3
Teacher Researcher Day Session: Using Formative Assessment to Enhance Teaching and Learning in Problem-based Curricula (Earth)
(Elementary–Middle Level) *Grand Salon E/F, Group 4, Marriott*
Amy E. Trauth-Nare and **Gayle A. Buck** *(gabuck@indiana.edu),* Indiana University, Bloomington
Learn how to use formative assessment efficiently and effectively to support your students' learning and enhance your instructional decision making.

SESSION 4
Teacher Researcher Day Session: Using Physics as the Context for Literacy Learning (Phys)
(General) *Grand Salon E/F, Group 5, Marriott*
Emily H. van Zee *(vanzeee@science.oregonstate.edu)* and **Michele Crowl** *(crowlm@onid.orst.edu),* Oregon State University, Corvallis
How can one use science as the focus for learning to listen closely, speak clearly, write coherently, and read with comprehension?

1:30–2:30 PM Presentations

SESSION 1 (two presentations)
(General) *Independence C, Sheraton*

COSEE Session: COSEE-West Online Workshops: Providing Access to Scientists and Enhancing Teachers' Skills in the Digital World (Env)

Lynn N. Whitley *(lwhitley@usc.edu),* University of Southern California, Los Angeles

Our online workshops provide an opportunity for teachers to interact with marine and aquatic research scientists as well as other teachers as they enhance (or learn!) digital skills through online keynote presentations, digital discussion rooms, live chats, and more.

COSEE Session: COSEE SE: Broadening Participation of Rural Students with Estuarine Scientists (Env)

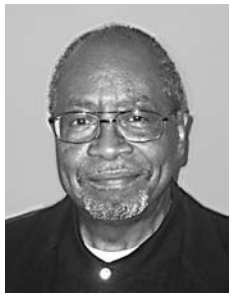
Sandra Bickerstaff *(sbickers@scsu.edu),* South Carolina State University, Orangeburg

Elizabeth Vernon Bell *(elizabeth.vernon@scseagrant.org),* South Carolina Sea Grant Consortium, Charleston

Innovative collaborations and strategies engage rural, middle school, and university students with research scientists in field and classroom investigations.

1:30–3:00 PM Shell Science Seminar

✔ **Talent Knows No Color Line (Gen)**
(General) *114, Convention Center*



Garland L. Thompson *(gtsailor@verizon.net),* News Correspondent and Journalist, Philadelphia, Pa.

Presider: David Wiley *(david.wiley@lr.edu),* NSTA Director, Preservice Teacher Preparation, and Lenoir-Rhyne University, Hickory, N.C.

Most exemplars look like statistical outliers in the current discussion of where America should look to find its next generation of science-trained professionals. However, when one looks at the numbers beneath the prevailing media images of the people coming out of "underserved" communities, the supposed outliers look more like forerunners. I've sat for 23 years on the Selection Panels for annual STEM contests: the Black Engineer of the Year Awards, National Women of Color Technology Awards, and Emerald Honors for Minorities in Research Science. The winners of those award contests are the inventors and developers of many of the technologies that have reshaped the way we do business and conduct social and governmental affairs in the 21st century. At first glance, they look somehow "different" from the young people stuck in the "underserved" communities. Look closer, however, and you'll find they came from very similar backgrounds and scaled hurdles our society says are insurmountable. The main difference is that at critical times in their lives, someone believed in them, mentored them, and pushed them onward to the careers that became so significant to America's progress.

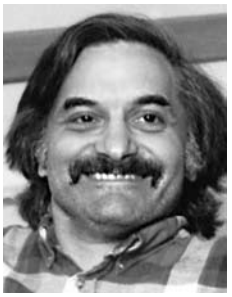
Garland L. Thompson is a journalist with 34 years' experience covering a wide range of topics and events. Beginning on the editing desk of The Philadelphia Inquirer *in 1975, Thompson joined the editorial board at a time when few news dailies had any minority input at all. In 1984 he became executive editor of America's oldest black newsweekly,* The Philadelphia Tribune. *Thompson joined* The Baltimore Sun *editorial board in 1985 and became science and technology policy writer.*

Thompson held a variety of editing positions before returning to The Philadelphia Tribune *in 2000, where he continues as a news correspondent. He also is an award-winning correspondent for Baltimore National Public Radio affiliate WYPR, 88.1 FM.*

1:30–3:00 PM Shell Science Seminar

Authentic Astronomical Data Analysis in Educational Settings (Gen)

(General) *204C, Convention Center*



Terry Matilsky *(matilsky@physics.rutgers.edu),* Professor of Physics and Astronomy, Rutgers University, New Brunswick, N.J.

Presider: Missy Holzer *(mholzer@monmouth.com),* Science Teacher, Chatham High School, Chatham, N.J.

How can we provide an authentic research experience to students who want to find out what science is really about? We couple DS9 imaging software, a user-friendly fun way to explore the environment, with a "virtual observatory" that allows analysis to be done remotely on UNIX-based machines regardless of the platform employed by the user. Furthermore, by adapting VNC (Virtual Network Computer) software, we can enhance this flexibility enormously and allow instructors to view, comment on, and debug any analysis task in real time, from anywhere in the world, and across all computing platforms. This makes these programs especially useful in distance-learning environments.

Terry Matilsky holds a PhD in astrophysical sciences from Princeton University. After post-docs at AS&E and MIT, where he worked with Riccardo Giacconi and others on the first X-ray satellites to be launched by NASA, he joined the faculty at Rutgers University in 1976. While at Rutgers, he has participated extensively in undergraduate education and for seven years was director of the Rutgers College General Honors Program. While director, he developed several new courses, which are still given. These courses range from "The Hitch-hikers Guide to the Universe" (in which the philosophy of the universe is explored as well as the science) to "Physics and Photography" (wherein principles of mathematics and physics are applied to image formation and theories of perspective). During his tenure at Rutgers he has won numerous teaching awards.

For the past 12 years, Dr. Matilsky has co-directed (with Professor Eugenia Etkina) the Rutgers Astrophysics Summer Institute, in which gifted high school students explore the X-ray universe using archived data from NASA satellites such as Chandra and EXOSAT. Students and their teachers use the actual data used by trained scientists and after examining light curves and energy spectra of various astronomical objects, try to model their behavior after the behavior of astronomers when writing research papers. This program has been so successful that it has been the subject of a full-page article in The New York Times.

1:30–4:00 PM Exhibitor Workshop

Making Sense of Science Notebooks with FOSS 3–6 (for Experienced Users) (Gen)

(Grades 3–6) *107A/B, Convention Center*

Sponsor: Delta Education, School Specialty Science–FOSS

Ellen Mintz, Consultant, Charleston, S.C.

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

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

Through a hands-on FOSS investigation, we'll expand on the essential elements of student-centered science notebooks, look for evidence of learning, and explore ways to provide effective feedback. Learn how to use notebooks to guide instruction through embedded assessments and next-step strategies. Sample materials provided.

2:00–2:30 PM Presentations

SESSION 1

Is Your Science Lab a Safe Place to Work for Students? (Gen)

(Middle Level–College) *Hall D/Room 11, Convention Center*

Susmita Acharya, Cardinal Stritch University, Milwaukee, Wis.

I will share resources for conducting safe and productive chemistry and biology labs and general rules for chemical disposal according to OSHA and EPA regulations.

SESSION 2

AMSE Session: Science for All Children—And Their Parents! (Gen)

(Elementary–Middle Level) *Commonwealth D, Loews*

Susan Pearlman *(pearlman@siu.edu),* Southern Illinois University, Carbondale

Jacqueline Palka *(jpalka@ebrschools.org),* Glasgow Middle School, Baton Rouge, La.

Involve parents in their children's learning. We'll share examples from a multicultural rural school, a school using personalized learning plans, and a program for gifted urban children.

SESSION 3

Statewide E-Mail Listserv Supporting Food and Nutrition Sciences Teaching in K–12 Classrooms **(Bio)**

(Informal Education) *Franklin 9, Marriott*

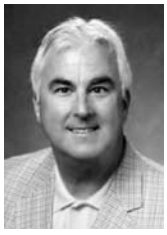
Ting-Fang Hsu *(thsu@umail.iu.edu),* Indiana University, Bloomington

Mixed-methods research revealed that school teachers effectively shaped food and nutrition curriculum and instruction by constructing their educational experiences through asynchronous text-based communication.

2:00–3:00 PM Teacher Researcher Day Keynote Address

The Pretzel Theory of Inquiry **(Gen)**

(General) *Grand Salon E/F, Marriott*



Douglas J. Llewellyn *(dllewell@rochester.rr.com),* Adjunct Faculty, St. John Fisher College, Rochester, N.Y.

This talk builds on a teacher researcher's theory—inquiry has so many twists and turns it resembles a twisted pretzel more than a pretzel rod.

Douglas Llewellyn teaches educational leadership courses at St. John Fisher College in Rochester, New York. Previously, he was the K–12 Director of Science at the Rochester City School District, a junior high school principal, and a middle school science teacher.

Llewellyn's research interests are in the areas of scientific inquiry, constructivist teaching, and teacher leadership. He presently co-directs a program in Rochester to develop teacher/leaders in mathematics and science. He has written Inquire Within: Implementing Inquiry-based Science Standards in Grades 3–8, *Second Edition and* Teaching High School Science Through Inquiry.

2:00–3:00 PM NSTA/ASE Honors Exchange Lecture

Professionalism and Science Learning in the 2010s **(Gen)**

(General) *201C, Convention Center*

Manoj Chitnavis *(manojchitnavis@yahoo.com),* Chair, The Association for Science Education, Hertfordshire, U.K.

Annette Smith *(annettesmith@ase.org.uk),* Executive Director, The Association for Science Education, Hertfordshire, U.K.

The science teacher's commitment to professional development is central to improving science learning. Reflective practice, regular updates of subject knowledge, and action research to discern the impact of professional development on learners are all part of this commitment. Maintaining a high level of professionalism while surrounded by the practicalities of classroom teaching is a challenge for all science teachers, wherever they are and whatever age group they teach. The speakers will discuss the challenges and some of the support offered by our Association. The Association for Science Education is NSTA's counterpart in the U.K. It is the largest of the subject teaching associations and exerts influence at the highest level in U.K. education.

Manoj K. Chitnavis is chair of The Association for Science Education. He holds a degree in combined sciences, majoring in chemistry, from the University of Plymouth and is a member of the Royal Society of Chemistry. Manoj has served as regional adviser to the BBC South West Region and as a mentor for ethnic minority teachers based at Exeter University. Manoj is a Chartered Chemist and Chartered Scientist.

Annette Smith took up the post of chief executive at The Association for Science Education in March 2009. Previously she was a director at the British Association for the Advancement of Science with responsibility for the Young People's Programme and the UK National Science and Engineering Week. Prior to this she worked in industry as a scientist in environmental health physics and safety. Recently, she was president of the European Science Events Association (EUSCEA), and she is a Fellow of the Institute of Physics.

2:00–3:00 PM Presentations

SESSION 1

NSTA Avenue Session: The Shell Science Teaching Award—Learn More, Be Successful (Gen)
(Elementary–High School) 307, Convention Center
John A. Jackson, Altadena, Calif.
Lovelle Ruggiero *(lovelleruggiero@mac.com),* New Rochelle, N.Y.
Presider: Amanda Upton, Manager, Nominations and Teacher Awards Program, NSTA, Arlington, Va.
Join Shell awardees, finalists, and members of the NSTA/Shell judging panel to learn what it takes to apply for and win this prestigious and enriching $10,000 national award from Shell Oil Company.

SESSION 2

Teach Locally, Collaborate Globally (Env)
(Middle Level–High School) Hall D/Room 1, Convention Center
Brenda Conway and **Dianne Clowes** *(dclowes@ms.spotsylvania.k12.va.us),* Ni River Middle School, Spotsylvania, Va.
"WE" tools can give your classroom a global perspective. We will share successes and failures, and provide insight on integrating technology and developing a student website.

SESSION 3

Applied Geosciences in the City for Middle School Students (Env)
(Middle Level–High School) Hall D/Room 5, Convention Center
David E. Johnson *(djohnson@wcasd.net),* Fugett Middle School, West Chester, Pa.
Today's urban environment faces tough challenges regarding groundwater management, foundation geology, waste disposal, and field remediation. Create interest in applied geosciences with these lessons, techniques, and ideas.

SESSION 4

Moving Beyond Retention: Setting the Stage for the Next Generation of Teacher Leaders (Gen)
(General) Hall D/Room 7, Convention Center
Nicole M. Gillespie *(ngillespie@kstf.org)* and **Roseanne Rostock** *(rrostock@kstf.org),* Knowles Science Teaching Foundation, Moorestown, N.J.
What can we do to prepare new teachers to take on leadership roles and become change agents in education? The Knowles Science Teaching Foundation (KSTF) offers five-year fellowships to beginning high school science and math teachers.

SESSION 5 (two presentations)
(Elementary) Hall D/Room 16, Convention Center

Student-led Science Investigations for All Subjects (Gen)
Steven C. Smith *(mrsmith@purdue.edu),* Purdue University, West Lafayette, Ind.
Amy Smith, Blue Ridge Primary School, Frankfort, Ind.
Kristen Poindexter *(kpoindexter@msdwt.k12.in.us),* Spring Mill Elementary School, Indianapolis, Ind.
Science investigations with everyday items excite primary students and enhance reading, journaling, and math skills. We'll share classroom-tested lessons.

Project GEMS: Developing Talent in the STEM Disciplines (Gen)
David M. Baxter and **Allison K. Bemiss,** Project GEMS, Bowling Green, Ky.
Project GEMS (Gifted Education in Math and Science) moves elementary students beyond traditional textbook boundaries as they develop critical-thinking skills for the 21st century.

SESSION 6

NASA's Do-It-Yourself Podcast (Gen)
(Informal Education) Hall D/Room 17, Convention Center
Denise Miller *(denise.miller@nasa.gov),* NASA, Huntsville, Ala.
Mindi L. Capp *(mindi.capp@nasa.gov),* NASA Educational Technology Services, Chicago, Ill.
Your students can build their own podcasts with free NASA audio and video clips.

SESSION 7

Rube Goldberg: A Project-Based Learning Experience for All! (Phys)
(Middle Level) Hall D/Room 19, Convention Center
Steve Fielman *(sfielman@verizon.net),* Ichabod Crane Middle School, Valatie, N.Y.
Presider: Fred Pidgeon, STANYS, Rensselaer, N.Y.
Experience the challenge of a Rube Goldberg Project that connects all learners to a "strange new world" of PBLs.

SESSION 8

Getting Your Students to Talk: Discussion-based Activities for Large Enrollment Courses (Gen)

(General) *Hall D/Room 20, Convention Center*

Stephen B. Witzig *(sbwitzig@mizzou.edu),* **Binaben H. Vanmali** *(vanmalib@missouri.edu),* and **Aaron J. Sickel,** University of Missouri, Columbia

Infuse small- and large-group discussion to foster meaningful learning in your large enrollment courses. We'll look at some examples.

SESSION 9

Culturally Competent Science for American Indian Students (Gen)

(Elementary–Middle Level) *Hall D/Room 22, Convention Center*

Regina Sievert, Indigenous Math and Science Institute, Pablo, Mont.

Tami Morrison *(tmorrison@polson.k12.mt.us)* and **Stacey M. Ellis,** Linderman Elementary School, Polson, Mont.

Linda Briggeman *(klbrig@aol.com),* DeSmet Elementary School, Missoula, Mont.

Amanda McGill *(amcgill@clintoncougars.com),* Clinton Elementary School, Clinton, Mont.

Monica Wilson, St. Regis Elementary School, St. Regis, Pa.

Rebecca Burg *(burgrb16@yahoo.com),* Dixon Elementary School, Dixon, Mont.

Dora Hugs and **Karen Smith,** Montana State University, Bozeman

Support science learning in American Indian students with these culturally competent science methods and content. Take home sample curricula.

SESSION 10

Warming Up Your Wiki: An Interdisciplinary Online Approach to Teaching the Topic of Climate Change (Gen)

(General) *Hall D/Room 26, Convention Center*

Jon L. Swanson *(jswanson@eosmith.org)* and **Alan Trotochaud,** Edwin O. Smith High School, Storrs, Conn.

This online wiki-based approach allows for students to interact with and learn from students from other classes both within the same discipline and across disciplines.

SESSION 11

NSTA Press Session: Planning and Designing Safe, Sustainable, and Flexible Facilities for Inquiry-based Science (Gen)

(General) *Hall D/Room 27, 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 Community College, Boca Raton, Fla.

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

Presider: LaMoine L. Motz

Join the authors of *NSTA Guide to Planning School Science Facilities* (Second Edition) and learn how the latest research on effective teaching provides you with a resource for making effective, flexible, and safe teaching spaces for science instruction, and how YOU can influence the planning and design of effective science facilities.

SESSION 12

Nurturing Urban, Low-Income Students' Learning of Science by Integrating Literacy Tools and Hands-On Activities (Gen)

(Elementary) *Hall D/Room 29, Convention Center*

Marcie G. Gutierrez and **Amani Abuhabsah,** Chicago (Ill.) Public Schools

Holly Heneghan, Justine M. Kane, Maria Varelas, Amy Arsenault, and **Lynne Pieper,** University of Illinois at Chicago

Presider: Maria Varelas

Learn how to nurture young, urban, low-income Latino/a and African American students' learning of science by integrating literacy tools, such as read-alouds and journaling, with hands-on activities.

SESSION 13

Hands-On Science and Literacy: How Deaf Kids Connect Science, Math, and Language (Gen)

(General) *Congress A, Loews*

Fiona M. Bennie *(fbennie@boston.k12.ma.us),* Horace Mann School for the Deaf and Hard of Hearing, Boston, Mass.

Deaf School connects science, math, and language learning to foster literacy using vlogs. Science/ELA teachers collaborate to create an exciting cross-curricular classroom!

SESSION 14

Research Experiences for Teachers (RET) at Vanderbilt University (Gen)

(High School–College) *Congress B, Loews*

Martha M. Day *(martha.day@wku.edu),* Western Kentucky University, Bowling Green

Vickie C. Reedy, Houston County High School, Erin, Tenn.

Teacher participants of NSF's Research Experiences for Teachers program will share their experiences conducting biomedical engineering research alongside researchers at Vanderbilt University Medical Center. Take home a copy of the curriculum and participate in lesson activities contained in the module.

SESSION 15

High Poverty *and* High Student Achievement: Yes, We Can…Yes, We Do! (Gen)

(Supervision/Administration) *Regency C2, Loews*

Gregory D. MacDougall *(gregm@usca.edu),* NSTA Director, District VI, and University of South Carolina, Aiken

We will focus on inquiring into identifying high poverty/high-performing schools and discovering strategies that are useful for *all* schools.

SESSION 16

Are You Teaching What You Think You're Teaching? (Gen)

(General) *Washington B, Loews*

Donald E. Kline *(kline@lvc.edu),* Program Coordinator, NSTA Philadelpha National Conference on Science Education, and Lebanon Valley College, Annville, Pa.

Teachers are so familiar with content that they forget students do not see the same concept connections. Learn to prevent this from happening.

SESSION 17

Inquiry, Assessment, Technology, Misconceptions, and More: Insights from Teacher-Researchers (Gen)

(Middle Level–High School) *Washington C, Loews*

John Graves *(graves@montana.edu),* Montana State University, Bozeman

Presider: Walt Woolbaugh, Manhattan (Mont.) School District

Hear what classroom teachers have discovered about their teaching and their students' learning by conducting classroom research.

SESSION 18

Visualizing Biotechnology (Gen)

(Middle Level–High School) *303, Marriott*

Howard Lurie *(howard_lurie@wgbh.org),* WGBH, Boston, Mass.

WGBH Teachers' Domain has developed new digital resources for teaching biotechnology. Learn about these free standards-based resources and opportunities for professional development.

SESSION 19

Using Assessment to Improve Learning: Self- and Peer-Assessment (Gen)

(Middle Level–High School) *304, Marriott*

Douglas A. Buchanan *(dbucha5913@aol.com),* University of Edinburgh, U.K.

Reflecting best practice in formative assessment, we will explore the creative use of self- and peer-assessment to promote real learning.

SESSION 20 (two presentations)

(Middle Level–High School) *305/306, Marriott*

Presider: Jeffrey Smith, Radnor High School, Radnor, Pa.

A Description of the Implementation of Science Co-teaching at Radnor High School (Gen)

Kathryn A. Romano *(kathryn.romano@rtsd.org),* Radnor High School, Radnor, Pa.

Radnor High School has completed the fourth year of its science co-teaching initiative. We'll discuss the implementation process and student achievement.

Creating Successful Collaborations in Professional Learning Communities (Chem)

Cara L. Hale-Hanes *(chemexplorer@aol.com),* Long Beach Polytechnic High School, Long Beach, Calif.

Professional Learning Communities (PLCs) can provide collegial support for new and experienced teachers, especially when focusing on a specific task. We will examine how to lay the foundation for successful collaboration and then practice collaboration building with a sample task for curricular planning.

SESSION 21

HiGene: A Genome Sequencing Project for High Schools (Bio)

(General) *Franklin 2, Marriott*

Andrew K. Vershon *(vershon@waksman.rutgers.edu),* Rutgers University, Piscataway, N.J.

Jeff Charney *(jcharney@whrhs.org),* Watchung Hills Regional High School, Warren, N.J.

Anne Sanelli *(asanelli@ebnet.org),* East Brunswick High School, East Brunswick, N.J.

Presider: Jeff Charney

HiGene is an authentic research project in molecular biology and bioinformatics in which novel DNA sequences are analyzed by students for possible GenBank publication. How can you participate?

SESSION 22

Urban Youth and Sustainable Gardening: Cleveland Botanical Garden's (CBG) Green Corps (Bio)

(General) *Franklin 3, Marriott*

Jesus F. Sanchez, Cleveland Botanical Garden, Cleveland, Ohio

Improved nutrition, reduction of carbon use, and development of life skills is attained through CBG's Green Corps, a summer-long work-study hands-on program.

SESSION 23

BioMedTech: Engineering for Your Health (Bio)

(Middle Level–High School) *Franklin 6, Marriott*

Tracey T. Meilander *(meilandert@glsc.org)* and **Amanda Whitener,** Great Lakes Science Center, Cleveland, Ohio

Engage your students in the future of biomedical engineering and technology with the Great Lakes Science Center.

SESSION 24

Kitchen Physics (Phys)

(Middle Level–College) *Franklin 7, Marriott*

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

Here are 50 physics demonstrations that use common household items and no fancy equipment. Lots of freebies!

SESSION 25

Teaching Physical Science and IT Principles Through the Design of an Underwater Robot (Phys)

(Middle Level–High School) *Grand Salon B, Marriott*

Jason Sayres *(jason.sayres@stevens.edu),* Stevens Institute of Technology, Hoboken, N.J.

Learn concepts and applications of buoyancy, stability, gearing, 2-D and 3-D motion, and information technology through the design, construction, and programming of an underwater robot.

SESSION 26

NSTA Press Session: Using Science Notebooks in the Elementary Classroom (Gen)

(General) *Grand Salon D, Marriott*

Michael Klentschy *(mpkdr@aol.com),* San Diego State University–Imperial Valley Campus, Calexico, Calif.

Learn strategies for using science notebooks in the elementary classroom, with a special focus on English learners. Learn about the seven essential components of science notebooks and the research-based evidence supporting their use.

SESSION 27

[795]Say What You Mean! Strategies to Help Students Better Communicate Science (Gen)

(Middle Level–High School) *Grand Salon G, Marriott*

Stephen Best *(sdbest@umich.edu),* University of Michigan, Ann Arbor

Do your students know the difference between a definition, description, and explanation? We'll explore strategies to help students effectively communicate their understanding of science.

SESSION 28

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

(High School) *Grand Salon L, Marriott*

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

Andrew G. Nydam *(andrewnydam@hotmail.com),* Olympia High School, Olympia, Wash.

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/learn. Handouts.

SESSION 29

Digital Storytelling: Picture THIS—Taking Human Impact Seriously (Env)

(Informal Education) *Freedom F, Sheraton*

Patricia Patrick *(ppatrick@bennett.edu),* Bennett College, Greensboro, N.C.

Presider: Sayrd Price, South Davie Middle School, Mocksville, N.C.

Use art, science, writing, and technology (digital storytelling) to involve students in environmental science. Students become citizen scientists and share their data with researchers.

SESSION 30

Exploring the Heavens with Computer Simulations (Earth)

(High School–College) *Freedom G, Sheraton*

Andrew P. DiGiovanni, Bedford High School, Bedford, N.H.

Learn the basics of SkyGazer software. See a demonstration of lab activities that include an orientation of the celestial sphere, the apparent motion of stars, observing satellites, and Kepler's laws of planetary motion.

SESSION 31

Investigating Fossils Using Inquiry for English Language Learners (Earth)

(Elementary–Middle Level) *Independence A, Sheraton*

Xenia S. Meyer, Barbara A. Crawford *(bac45@cornell.edu),* and **Daniel K. Capps** *(dkc39@cornell.edu),* Cornell University, Ithaca, N.Y.

Robert M. Ross *(rmr16@cornell.edu),* Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.

Our urban middle school classroom introduces English language learners to authentic science with this innovative inquiry-based curriculum on fossils. Handouts.

SESSION 32 (two presentations)

(Middle Level–High School/Informal) *Independence B, Sheraton*

Profound Ideas About the Earth System (Earth)

Don A. Duggan-Haas *(dugganhaas@museumoftheearth.org),* Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.

What ideas should everyone understand about Earth? What if instruction is focused on a very small set of whoppingly large ideas? What should they be?

Using NSF-supported Modules to Teach High School Honors Earth System Science and AP Environmental Science (Earth)

Cheryl Manning, Evergreen High School, Evergreen, Colo.

Robert J. Myers *(bob_myers@strategies.org),* Institute for Global Environmental Strategies, Arlington, Va.

Learn how we integrated NSF-supported lessons and materials from a geoscience professional development program into a high school AP environmental education course.

SESSION 33

NESTA Session: Advances in Earth and Space Science Lecture: Environmental Earth System Science for Education in Urban Areas (Earth)

(Elementary–High School) *Liberty A/B, Sheraton*

Alexander Gates *(agates@andromeda.rutgers.edu),* Rutgers University, Newark, N.J.

Presider: Roberta M. Johnson *(rmjohnsn@ucar.edu),* University Corporation for Atmospheric Research, Boulder, Colo.

New hands-on exercises in applied geosciences are used in environmental Earth Systems Science to engage students from urban settings. The exercises address issues of resource acquisition systems and interplay with environmental systems such as surface water and groundwater systems. All introduce students to the role of earth sciences on everyday life.

SESSION 34

Educational Gaming: New Teaching Strategies (Env)

(Elementary–Middle Level) *Liberty C, Sheraton*

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

Interactive games help bridge the gap between the classroom and digital students.

2:00–3:00 PM Workshops

Mitosis, DNA, and Me! (Bio)
(Middle Level–High School) Hall D/Room 6, Convention Center
Susan A. Kautzer *(funscience@hotmail.com),* Dupo Junior High School, Dupo, Ill.
English and science meet with these low-cost classroom activities, including making a classroom model of a DNA molecule, mitosis cookies, cracking the DNA code, superhero cartoons, and replication errors. The first 75 participants will receive activity ideas, master copies, and keys.

I Can Use Science Where? (Earth)
(Elementary) Hall D/Room 10, Convention Center
Kaeleen R. Sugden and **Matt R. Weaver,** Grand Valley State University, Allendale, Mich.
Here is a fun way to incorporate science into everyday elementary classroom subjects. We'll use the solar system as an example. Handouts.

Inquiry Experiences in Science and Math: Making the Most of Technology (Gen)
(Elementary) Hall D/Room 15, Convention Center
Ed A. Marek, University of Oklahoma, Norman
Brian L. Gerber *(blgerber@valdosta.edu),* Valdosta State University, Valdosta, Ga.
Learn about a collaborative partnership designed to increase the effectiveness of grades 3–5 teachers of math and science and try some representative activities.

Become an Environmental Investigator (Gen)
(Preschool–Middle Level) Hall D/Room 21, Convention Center
Ruth Ruud, Fairview, Pa.
Sally E. Bell *(sebell048@comcast.net),* Missouri Dept. of Conservation, Kansas City
Investigate environmental issues using hands-on interdisciplinary activities involving literacy, math, social studies, and science. Walk away with a unit that can be used throughout the school year.

Energize Your Students with Inquiry-based Water and Energy Investigations (Gen)
(Elementary–Middle Level) Hall D/Room 25, Convention Center
Sandra Ryack-Bell and **Amy Hoffmaster** *(ahoffmaster@mits.org),* Museum Institute for Teaching Science, Quincy, Mass.
These inquiry-based minds-on/hands-on water and energy investigations were developed by K–8 teachers during professional development summer institutes involving 45 museums, aquariums, and science education centers.

How Can a Lighter Extinguish a Burning Candle? Exploring Combustion (Gen)
(General) Hall D/Room 28, Convention Center
Chih-Che Tai *(cctai.etsu@gmail.com),* East Tennessee State University, Johnson City
This inquiry lesson uses a variety of practical situations to help students construct their knowledge of combustion, including a fire accident and a candle burning in a sealed jar experiment.

Teaching the Small Particle Model of Matter: An Inquiry Approach (Gen)
(General) Hall D/Room 30, Convention Center
Cody W. Sandifer *(csandife@towson.edu),* Towson University, Towson, Md.
Help students develop a better understanding of small-particle phenomena with these inquiry activities and simulations. Bring your wireless-ready laptop if you have one.

Conference Freebies: How to Really Use Them in Your Classroom (Gen)
(Middle Level–High School) Commonwealth A, Loews
Catherine Ryan *(dfryanjr@yahoo.com),* Alvin High School, Alvin, Tex.
Ever leave a conference with a bag of "stuff" you never look at again? Learn how to use freebies to excite your students about science.

Developing Science Leaders: An Elementary Science Professional Learning Community (Gen)
(Elementary/Supervision) Regency A, Loews
Patricia L. Bricker *(bricker@email.wcu.edu),* Western Carolina University, Cullowhee, N.C.
Donalyn Small *(donalyn.small@asheville.k12.nc.us),* Jones Elementary School, Asheville, N.C.
Come participate in a mock PLC meeting. Learn about goals, structures, and potential outcomes; envision possibilities; and leave with strategies you can implement in your own settings.

Improving Your Students' Graphing and Graph Interpretation Practices (Gen)
(Middle Level–High School) *Washington A, Loews*
G. Michael Bowen *(gmbowen@yahoo.com),* Mount Saint Vincent University, Halifax, Nova Scotia, Canada
Anthony W. Bartley *(abartley@lakeheadu.ca),* Lakehead University, Thunder Bay, Ont., Canada
Engage in model activities and take home a handbook on improving students' data literacy.

Smiling Faces—Amazingly Simple Enzyme Assays (Bio)
(Middle Level–High School) *Franklin 1, Marriott*
Suzanne M. Cunningham *(scunning@purdue.edu),* Purdue University, West Lafayette, Ind.
Visualize and quantify enzyme activity using corn seed, starch-agar gels, and an indicator. Puzzles and LEGOs™ help students better understand enzyme function.

Using Proportional Reasoning to Estimate the Size of a Population (Bio)
(High School) *Franklin 4, Marriott*
William H. Leonard *(leonard@clemson.edu),* Clemson University, Clemson, S.C.
John E. Penick *(john.penick@sangari.com),* 2003–2004 NSTA President, and Sangari, USA, Cary, N.C.
Teach your students how to estimate the size of any population using proportional reasoning with a capture-mark-recapture method. Easy materials setup and student handout provided.

Helicopter Seeds and Hypotheses…That's Funny! (Bio)
(Elementary–High School) *Franklin 5, Marriott*
Christopher Dobson *(dobsonc@gvsu.edu),* Grand Valley State University, Allendale, Mich.
Have your students explore the nature and methods of science using this engaging inquiry-based activity that examines the wind dispersal of maple tree samaras. Handouts.

Sally Ride Science and the U.S. Forest Service Symposium Session: An Opportunity to Take Pictures of the Moon (Earth)
(Middle Level) *Franklin 10, Marriott*
Karen Flammer *(kflammer@ucsd.edu),* Sally Ride Science, San Diego, Calif.
Learn about an upcoming mission to explore the Moon and an opportunity for students to take pictures of the lunar surface from the MoonKAM camera on the spacecraft.

Rigor *vs.* Rhetoric: Developing Scientific Skepticism in Our Students (Gen)
(High School) *Grand Salon C, Marriott*
Jenelle D. Hopkins *(jhopkins@interact.ccsd.net),* Centennial High School, Las Vegas, Nev.
Carol Engelmann *(caengelm@mtu.edu)* and **Mark Klawiter** *(mklawiter@wasdinet.org),* Michigan Technological University, Houghton
We will share various teaching strategies that can be used to increase students' skills in analyzing the debates surrounding scientific issues.

Investigate the Scientific Basis of ElectroPollution with Paul and Mike (Phys)
(Middle Level–High School) *Grand Salon J, Marriott*
Michael H. Suckley *(drsuckley@sciencescene.com)* and **Paul A. Klozik** *(paklozik@wowway.com),* Macomb Community College, Warren, Mich.
Experience stimulating inquiry-based activities involving magnets, electricity, and their relationships, which form the scientific basis of electropollution. Detailed handouts and an equipment raffle for motors, generators, and magnets.

Classroom Symposium: A Model of Scientific Talk (Gen)
(High School) *Grand Salon K, Marriott*
Nanette I. Dietrich and **Oliver Dreon** *(oliver.dreon@millersville.edu),* Millersville University of Pennsylvania, Millersville
To train scientifically literate students, we must model how scientists communicate. Come learn how to organize and implement an authentic scientific symposium in your classroom.

An Out-of-This-World Blog-o-Spheric Experience! (Earth)
(General) *Freedom E, Sheraton*
Jason LeGrett *(jayb2242001@yahoo.com)* and **Coralee Smith** *(smithcs@buffalostate.edu),* Buffalo State College, Buffalo, N.Y.
Presider: Coralee Smith
An undergraduate elementary teacher candidate created original web pages for second-grade students with built-in interactive assessments to explore the solar system. Experience the blog-o-spheric results!

Fuel of the Future: Hydrogen Fuel Cells (Env)
(Middle Level–High School) *Freedom H, Sheraton*
April Chancellor *(april.chancellor@msichicago.org)* and **Patricia Messersmith** *(patricia.messersmith@msichicago.org),* Museum of Science and Industry, Chicago, Ill.
Want to incorporate hydrogen fuel cells into your class? Explore hands-on activities with the Museum of Science and Industry and get resources for your classroom.

Field Studies, Design Projects, Secondary Research: Similarities and Differences with Controlled Experiments (Earth)
(Middle Level–High School/Inf.) *Philadelphia North, Sheraton*
Hudson Roditi *(hroditi@amnh.org)* and **Jay Holmes,** American Museum of Natural History, New York, N.Y.
Does the language and experimental design of controlled experiments—independent, dependent, and constant variables; control groups; number of trials—apply to the other forms of student investigation?

Getting Students Involved in Climate Change Research with Project BudBurst (Env)
(Middle Level–High School/Inf.) *Philadelphia South, Sheraton*
Sandra Henderson, University Corporation for Atmospheric Research, Boulder, Colo.
Get your students involved in a national climate-change field campaign by making simple observations of plants in your community. Hands-on activities and handouts provided.

By invitation only, join your fellow NSTA Life Members for a breakfast filled with memories as well as meaning. Catch up with old friends, make new ones, trade war stories, and discuss ways to share your talents and vitality with the science education community.

NSTA Life Members' Buffet Breakfast
Sunday, March 21
7:00–9:00 AM
Philadelphia Marriott, 304/305
Tickets are required (M-12; $45)

Participation is limited to NSTA life members only.

2:00–3:00 PM Exhibitor Workshop

Coordinated Science: Physical, Earth, and Space Sciences (Gen)

(Grades 9–12) *201A, Convention Center*

Sponsor: It's About Time

Robert Granza, It's About Time, Armonk, N.Y.

This brand-new curriculum challenges students and introduces them to the scientific concepts and processes in Active Physics, Active Chemistry, and EarthComm, in a student-friendly approach. Find out what makes this curriculum unique and how it works. Leave with a practical hands-on activity that your students will find engaging, meaningful, and relevant to their lives.

— Mary Grace Nuckols Paul

2:00–3:30 PM Exhibitor Workshops

Science of Everyday Life with the Discovery Education 3M Young Scientist Challenge (Gen)

(Grades 5–8) *103B, Convention Center*

Sponsor: Discovery Education

Brad Fountain *(brad_fountain@discovery.com),* Discovery Education, Silver Spring, Md.

Explore science in everyday life with the Discovery Education 3M Young Scientist Challenge. Learn tech tools to help students communicate about science and submit video entries, get science fair tips, and demo activities that showcase the innovation behind everyday items. You could win a 3M Innovation Kit with sample products!

Start or Improve Your Biotechnology Program (Bio)

(Grades 9–College) *104A/B, Convention Center*

Sponsor: Sargent-Welch

Ellyn Daugherty, San Mateo Biotechnology Career Pathway, San Mateo, Calif.

Join the Biotech fan club! Ellyn Daugherty is helping high school and community college teachers develop units or courses that focus on biotechnology laboratory skill development and career exploration. Ellyn will show you how to overcome some of the obstacles to starting a biotechnology program; implementing curriculum; recruiting students; funding; and gaining support from administration, industry, and the community.

Exploring Ocean Resources—From Energy to the Environment K–12 (Gen)

(Grades K–12) *105A/B, Convention Center*

Sponsor: U.S. Dept. of the Interior, Minerals Management Service (MMS)

Jim Kendall, Minerals Management Service, Herndon, Va.

Caryl Fagot and **John Romero**, Minerals Management Service, Camarillo, Calif.

Unlock mysteries of America's offshore waters with MMS Chief Scientist Dr. Jim Kendall! Explore ongoing deep-sea exploration and research associated with the nation's quest for traditional and renewable ocean energy resources. Participants will receive free science-based curricula, educational posters, and hands-on classroom activities developed from actual MMS-funded research!

Hand Jive of Hands-On Chemistry (Chem)
(Grades 6–12) *106A/B, Convention Center*
Sponsor: Sargent-Welch
Super-Safe Mark Meszaros *(mark_meszaros@vwr.com),* Sargent-Welch, Buffalo, N.Y.
Safety rocks! Well, at least it does when ScholAR Chemistry is leading the charge with safe, exciting, and easy-to-perform chemistry demonstrations for the classroom. Prepare to perform six actual demonstrations using simple materials and learn how to address concepts and misconceptions and incorporating student worksheets.

Crazy Traits: Genetics and Adaptations Games for All (Bio)
(Grades 5–12) *108A, Convention Center*
Sponsor: CPO Science, School Specialty Science
Scott Eddleman, CPO Science, School Specialty Science, Nashua, N.H.
Use a one-of-a-kind creature building system to explore the role that change plays in an organism's heredity. Use your creature to model how the environment may influence a species' traits and its survival. Preview a new technique for teaching the concepts of genes, traits, heredity, and probability.

Living by Chemistry: Feeling Under Pressure (Chem)
(Grades 9–12) *110A/B, 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 Living by Chemistry provided.

Inquiry in the Classroom (Gen)
(Grades K–8) *113B, 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 and minds-on inquiry options to keep all your students engaged.

1, 2, 3, 4…Boost Your Students' Math Scores (Gen)
(Grades K–5) *201B, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Explore how numbers and mathematical operations (addition, subtraction, multiplication, division, fractions, decimals, and probability) can be used to describe patterns around us. Session activities use Math Out of the Box®, an inquiry-based math curriculum developed at Clemson University. You'll experience lessons from the program's Developing Number Concepts strand.

Human Physiology with Vernier (Bio)
(Grades 9–College) *202A, Convention Center*
Sponsor: Vernier Software & Technology
Mike Collins *(info@vernier.com),* Vernier Software & Technology, Beaverton, Ore.
Experiments such as EKG, Human Respiration, and Grip Strength Comparison from our *Human Physiology with Vernier* lab book will be performed in this hands-on workshop. You will be able to try these experiments using LabQuest and our new LabQuest Mini.

The STEM Academy (Gen)
(General) *202B, Convention Center*
Sponsor: DS SolidWorks Corp.
Russ Mickelson *(russell.mickelson@thecadacademy.com),* The CAD Academy, Surprise, Ariz.
Learn how The STEM Academy engages all learners in K–12 STEM education, not just the top 15% of upper classmen. This program scaffolds from K to 12 and features discovery-based courses (K–8) and mainline education to advanced courses for 9–12. The program maps to ITEA, ABET, NSTA, and NCTM standards and features student certification and articulation with leading universities. The STEM Academy creates Engineering Habits of the Mind!

Science and the Real World: 21st-Century Learning Tools from NBC News (Gen)
(General) *203A, Convention Center*
Sponsor: NBC Learn
Beth Nissen *(beth.nissen@nbcuni.com),* **Michael Levin,** and **Norman Cohen** *(norman.cohen@nbcuni.com),* NBC Learn, New York, N.Y.
Understanding science—and how it applies to everyday life–is critical in preparing students for 21st-century success. Learn how NBC News Archives on Demand delivers a broad spectrum of constantly updated multimedia content, connecting today's visual learners with the physics, chemistry, life sciences, and technologies that surround them.

Exploring Gene Function in *C. elegans:* Mutations and RNA Interference **(Bio)**
(Grades 9–College) *204A, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Students can explore gene function using the roundworm *C. elegans.* Come discover the exciting things you can do in the classroom with this model organism. Learn how to grow the worms, explore mutant phenotypes, and easily turn off specific genes with RNA interference.

Butterflies in Your Classroom **(Bio)**
(Grades K–12) *204B, Convention Center*
Sponsor: Carolina Biological Supply Co.
Carolina Teaching Partner
Bring excitement into your classroom with the painted lady butterfly (*Vanessa cardui*), which is easily raised and cultured year-round. This session includes guidance on care of the butterfly in every life stage. This insect also meets the National Science Education Standards for characteristics, life cycles, and reproduction. Free living sample and activities.

Neuromyth Busters **(Bio)**
(Grades 7–12) *304, Convention Center*
Sponsor: Society for Neuroscience
Philadelphia Area Neuroscientists
Are people really either right- or left-brained? Can humans get smarter by hearing music *in utero?* Get the truth about brain development and functionality through a series of hands-on activities that can be implemented in the classroom.

2:00–5:00 PM Short Course

The Young Scientist: Engaging Three- to Five-Year-Old Children in Science (SC-16)
(Preschool/College) *Rhapsody, Doubletree*
Tickets Required: $34
Karen Worth *(kworth@edc.org)* and **Jeffrey Winokur** *(jwinokur@edc.org),* Education Development Center, Inc., Newton, Mass.
For description, see Volume 1, page 64.

2:30–3:30 PM Workshop

COSEE Session: The Ocean Literacy Scope & Sequence **(Gen)**
(Elementary–High School) *Independence C, Sheraton*
Craig Strang *(cstrang@berkeley.edu)* and **Catherine Halversen** *(chalver@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Lynn N. Whitley, University of Southern California, Los Angeles
Peter Tuddenham *(peter@coexploration.net),* College of Exploration, Potomac Falls, Va.
The Ocean Literacy Scope & Sequence helps you use ocean science concepts to address state and national science standards.

2:30–4:30 PM Presentation

SESSION 1
AoA Session: 21st-Century Skills: Research and Practice **(Gen)**
(General) *Regency B, Loews*
Richard Duschl, NARST President, and The Pennsylvania State University, University Park
Brenda Wojnowski *(bwojnowski@gmail.com),* NSELA President, and Wojnowski and Associates, Inc., Dallas, Tex.
Linda Atkinson *(latkinson@ou.edu),* University of Oklahoma, Norman
Cherry C. Brewton *(cbrewton@georgiasouthern.edu),* AMSE President, and Georgia Southern University, Statesboro
Jon E. Pedersen *(jep@unl.edu),* ASTE President, and University of Nebraska–Lincoln
What do we know about 21st-Century Skills learning and teacher practice? A panel representing the science education community will engage participants in a discussion of 21st-Century Skills.

3:00–4:00 PM Exhibitor Workshop

Moon Phases: Teaching in an Immersive Environment **(Earth)**
(Grades K–8) *Booth #641, Exhibit Hall, Convention Center*
Sponsor: Spitz, Inc.
David Bradstreet *(dbradstr@eastern.edu),* Eastern University, St. Davids, Pa.
Moon phases is a frequently taught, challenging subject. Unfortunately, misconceptions are often taught or reinforced. Join educator/astronomer Dr. David Bradstreet and learn how our curriculum for immersive 3-D dome teaching is used to explore moon phases in a memorable, entertaining way.

3:30–4:00 PM Presentations

SESSION 1

Project SMART: A Partnership for Recruiting Science and Math Teachers (Gen)

(General) *Hall D/Room 10, Convention Center*

Kathryn C. Scantlebury *(kscantle@udel.edu),* University of Delaware, Newark

The SMART Project is a joint endeavor to recruit underrepresented students to study science or math and to then go on to teach in high-needs schools.

SESSION 2

Exploring the Pros and Cons of an Elementary Science Kit Program (Gen)

(General) *Hall D/Room 20, Convention Center*

M. Gail Jones and **Grant E. Gardner,** North Carolina State University, Raleigh

Laura Robertson, University School, East Tennessee State University, Johnson City

Examine the advantages and limitations of using an elementary science kit program, including impacts on instruction, assessments, and material resources.

SESSION 3

Why Use Service Learning in the Science Classroom? (Chem)

(High School) *305/306, Marriott*

Christopher Martin *(martinbrockie@gmail.com),* Howenstine High Magnet School, Tucson, Ariz.

Service learning motivates students and teachers, breaking down the walls of isolation surrounding the classroom and providing service to the scientific community.

SESSION 4

Investigating Soil Degradation: Using Photovoice to Engage Students in Community-based Inquiry (Earth)

(Middle Level) *Salon 3/4, Sheraton*

Gayle A. Buck *(gabuck@indiana.edu)* and **Kristin Leigh Cook,** Indiana University, Bloomington

In this problem-based inquiry unit, middle level students use photovoice and probeware to investigate the causes and effects of soil degradation and erosion.

3:30–4:30 PM Robert Karplus Lecture

CSTEM—From Cradle to Career: Using Connectivity to Create Continuous Improvement in the Sciences (Gen)

(General) *201C, Convention Center*

Reagan Flowers *(rflowers@cstem.org),* Founder and CEO, CSTEM Teacher and Student Support Services, Inc., Houston, Tex.

Presider: Donald Snyder *(dosnyder@philasd.org),* South Philadelphia High School, Philadelphia, Pa.

The CSTEM pedagogy is highly innovative and works to prepare teachers as well as students to move forward to succeed in a global society. The five components (communication, science, technology, engineering, and mathematics) are taught using an integrated approach that builds upon each subject as part of a greater whole. CSTEM makes science a day-to-day experience to which all students, preK–12, respond more favorably than to traditional methods. Students are completely engaged in every step of learning, empowering and encouraging them throughout their lives.

Dr. Reagan Flowers is a scientist, educator, and humanitarian who is committed to improving the community one student at a time. The success of young people has been the driving force behind her innovative ideas as the founder and CEO of CSTEM Teacher and Student Support Services, Inc. Founded in 2002, CSTEM, a nonprofit organization, provides educational support in areas of communication, science, technology, engineering, and mathematics. The mission is to provide opportunities that close achievement gaps between underrepresented preK–12 students and those in the national average. CSTEM impacts education through focused professional development that increases teacher content knowledge and real-world projects that enhance student achievement.

In 2009 Dr. Flowers authored and published The CSTEM Sea Turtle Challenge: A Feeder Pattern Approach to Reaching All Students Through Hands-on Project-based Learning. *The feeder pattern model connects elementary, middle, and high schools to create STEM pipelines of students prepared to pursue careers in related fields. The annual Sea Turtle Challenge involves teachers and students in an interdisciplinary project with robotics, sculptures, murals, creative writing, interactive media, and geographical information systems (GIS). CSTEM's outreach impacts well over 20,000 students, 500 teachers, and 150,000 households annually.*

3:30–4:30 PM Featured Presentation

Explaining Global Warming to the Mass Audience (Gen)

(General) *114, Convention Center*

Glenn Schwartz, Chief Meteorologist, NBC 10, Bala Cynwyd, Pa.

Presider: Marlene Hilkowitz (*mhilkowitz@mac.com),* Philadelphia, Pa.

Global warming is a very complex and controversial issue. There are basic facts that are agreed on by virtually all parties, but there are many other topics that skeptics point to regularly. I will cover both areas, addressing the skeptic's concerns and the arguments to counter those concerns.

Meteorologist Glenn "Hurricane" Schwartz began his career with the National Hurricane Center in Miami in 1974 and shortly after embarked on a fast-moving TV meteorology career. As a hurricane specialist for The Weather Channel in Atlanta (1985), he produced hurricane documentaries and became the network's first "hurricane chaser." He got his nickname when he worked at WNYW-TV in New York City (1986). An anchorman dubbed him "Hurricane" after watching old footage of Schwartz being blown around by one.

Schwartz joined NBC 10 in October 1995, and in 2002 was named NBC 10's chief meteorologist. In the same year he co-authored The Philadelphia Area Weather Book. *The recipient of numerous awards, including an Emmy, Schwartz is most proud of being voted "one of the 30 greatest Philadelphians of the past 30 years." In October 2005, he was named the 79th Certified Broadcast Meteorologist (CBM) in the country. Schwartz is one of the first broadcast meteorologists in Philadelphia to earn this prestigious recognition.*

Over the years, Schwartz has been very involved in his community. In 2005, Schwartz started a community project—Hurricane's Outreach Program to Educate Scientists (H.O.P.E.S). The goal of H.O.P.E.S. is to mentor minority students and provide them with professional guidance and exposure to the field of meteorology.

3:30–4:30 PM Presentations

SESSION 1

National Lab Day Is for Teachers! (Env)

(Middle Level–High School/Informal) *204C, Convention Center*

Janice E. Cuny *(jan@nationallabday.org),* National Science Foundation, Arlington, Va.

National Lab Day is a nationwide movement that's bringing hands-on, discovery-based lab experiences to students. Find out how to get your class involved.

SESSION 2

NSTA Avenue Session: Pete Conrad Spirit of Innovation Awards (Earth)

(High School) *307, Convention Center*

Clementine Ntshaykolo *(clementine@conradawards.org)* and **Joshua Neubert** *(joshua.neubert@conradawards.org),* The Conrad Foundation, San Francisco, Calif.

Building on astronaut Charles "Pete" Conrad's legacy of innovation and entrepreneurship, the Awards invites teams of high school students, led by their teacher or other coach, to create new products to solve real-world challenges in aerospace, renewable energy, space nutrition, and Green Schools. The program connects teams with leading scientists, engineers, and entrepreneurs and awards $100,000 in prizes and grant monies to help take student products to the commercial marketplace.

SESSION 3 (two presentations)

(High School) *Hall D/Room 1, Convention Center*

Using Virtual Labs to Fuel Inquiry and Promote Student Achievement (Chem)

Cara L. Hale-Hanes *(chemexplorer@aol.com),* Long Beach Polytechnic High School, Long Beach, Calif.

Learn how we integrated virtual laboratories into a chemistry unit, resulting in an increased level of achievement for students underrepresented in the sciences.

Teaching Chemistry to High School Students at a Cyber Charter School (Chem)

Beverly J. Nelson, Agora Cyber Charter School, Devon, Pa.

I will share the benefits and drawbacks of teaching a lab science virtually. Not only can it be done, it's rewarding in many ways.

SESSION 4

Using Action Reasearch in the Classroom: How to Make It Work for You (Gen)

(General) *Hall D/Room 11, Convention Center*

Michaelle Jaeger *(mjaeger@d231.rochelle.net),* Rochelle (Ill.) Elementary School District

We'll examine action research and how to use the data to make your classroom the most beneficial for you and your students.

SESSION 5

Starting Early: Working Together to Determine How the PreK Child Learns Science (Gen)

(Preschool–Elementary) *Hall D/Room 14, Convention Center*

Maria Aida Alanis *(aalanis1@austin.rr.com),* Austin (Tex.) Independent School District

Learn how preK teachers in an urban setting researched how young learners acquire scientific learning.

SESSION 6

Baking to Reinforce Chemistry Topics (Chem)

(Middle Level) *Hall D/Room 19, Convention Center*

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

I will share three different experiments I use in my eighth-grade physical science classes that involve baking cakes with Easy-Bake Ovens. Handouts online.

SESSION 7

Science Is Summer Fun! (Gen)

(Middle Level) *Hall D/Room 22, Convention Center*

Robert T. Jefferson, Jr. *(mrrtj@yahoo.com),* Tantasqua Regional Junior High School, Fiskdale, Mass.

Keep your students excited about science even during the summer months. Weeklong, half-day science camps are perfect for tackling inquiry-based topics.

SESSION 8

The Science Exposition (Gen)

(General) *Hall D/Room 26, Convention Center*

Eric K. Bull *(ebull@jessup.edu),* William Jessup University, Rocklin, Calif.

Here is an innovative alternative to the traditional science fair. Students have six options for participation and can self-select based on interest and ability.

SESSION 9 (two presentations)

(General) *Hall D/Room 27, Convention Center*

The Initial Impact of NCLB on Elementary Science—Now What? (Gen)

George W. Griffith *(scitcher@hotmail.com),* Northern Valley Unified School District 212, Almena, Kans.

My research indicates that instructional time for science has decreased. Learn how reading, writing, and math standards can be integrated in the elementary science classroom with the goal of increasing science instruction at the elementary level.

Integrating Placed-based Scientific Inquiry into Other Disciplines (Gen)

Dean Goodwin and **Jeannette Adkins,** Christchurch School, Christchurch, Va.

This new integrated curriculum uses local surroundings to link science with social studies, math, English, fine arts, and foreign language.

SESSION 10

Data: It's Not a Four-Letter Word (Gen)

(General) *Hall D/Room 29, Convention Center*

Kirk Beckendorf *(kirk.beckendorf@noaa.gov),* Einstein Fellow, NOAA, Washington, D.C.

Presider: Krystal Bellamy *(kbellamy@compasslearning.com),* Round Rock, Tex.

NOAA's data are not your grandfather's data. Learn about NOAA data resources that rival MTV (well, almost) and are readily available for your use.

SESSION 11

What Can Four-Year-Olds Know and Do in Science? (Gen)

(General) *Commonwealth D, Loews*

Mary E. Hobbs *(maryhobbs@mail.utexas.edu)* and **Robert A. Williams** *(rivers40@yahoo.com),* University of Texas, Austin

This NSF-funded research involving teachers examined what four-year-olds know and can do in science.

SESSION 12

Standards-based Inquiry: Planning and Implementation of a Freshman Year Science Course (Gen)

(High School) *Congress A, Loews*

Chris Sterman *(csterman@bensalemsd.org),* **Jerry Weiner** *(jweiner@bensalemsd.org),* **Dan Shuchat** *(dshuchat@bensalemsd.org),* and **Steve Garstka** *(sgarstka@bensalemsd.org),* Bensalem High School, Bensalem, Pa.

Bensalem High School's partnership with several universities created a freshman-level science class that is inquiry based and assessed using a competency-based approach.

SESSION 13

Helping Teachers Adopt Merit's Collaborative Learning Techniques Through the MIST Summer Teacher Workshop (Gen)

(High School–College) *Congress B, Loews*

Gretchen M. Adams *(gadams4@illinois.edu),* **Jennifer R. McNeilly** *(jrmcneil@illinois.edu),* and **Holly A. Downs** *(hadowns@illinois.edu),* University of Illinois at Urbana-Champaign, Urbana

The MIST Summer Workshop at the University of Illinois in Urbana-Champaign disseminates the Merit Program's successful collaborative learning techniques to high school and college instructors. We'll tell you how it works and share workshop and evaluation materials.

SESSION 14

Genome Science (Bio)

(High School–College) *Regency C1, Loews*

Eric Bruce Nash *(nash@cshl.edu),* Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.

Presider: Patricia Waller, F&P Consulting, Allentown, Pa.

Join the DNA experts. Move your biology labs from DNA basics and recombinant technology in prokaryotes into the exciting world of eukaryotic genomics.

SESSION 15

Ellis Island...Science and Immigration Policy (Gen)

(Elementary–High School) *Washington B, Loews*

Barbara S. De Santis *(bsdesantis@yahoo.com),* Sayreville Public Schools, Parlin, N.J.

Cindy Jenkins *(jenkins@robbinsville.k12.nj.us),* Pond Road Middle School, Robbinsville, N.J.

Beth Topinka *(btopinka@gmail.com),* Millstone Township Middle School, Perrineville, N.J.

Ellis Island provides a unique narrative for examining the role of science in immigration policy and trends. These materials were created by Ellis Island Ambassadors.

SESSION 16

Admit and Exit Slips: Simple, Ongoing, Formative Assessment for Effective Science Lessons (Gen)

(Middle Level–High School) *Washington C, Loews*

Malcolm S. Cheney *(cheneymac@comcast.net),* Retired Educator, Windsor, Conn.

Admit/exit slips enable all teachers to effectively engage students in a clear lesson structure while actively monitoring and assessing teaching strategies and learning efficiency.

SESSION 17

Computers and Inquiry: Using Interactive Science Simulations to Promote Student-centered Instruction (Gen)

(Middle Level–High School) *303, Marriott*

Pablo Zatz and **Randy L. Bell** *(randybell@virginia.edu),* University of Virginia, Charlottesville

Lara K. Smetana *(smetanal1@southernct.edu),* Southern Connecticut State University, New Haven

Learn how simulations can make inquiry easy and fun. We'll provide everything needed to get started, including dozens of simulations, model lessons, and instructional strategies.

SESSION 18

Using Assessment to Improve Learning: Effective Questioning (Gen)

(Middle Level–High School) *304, Marriott*

Douglas A. Buchanan *(dbucha5913@aol.com),* University of Edinburgh, U.K.

Explore effective use of questions to promote thinking, discussion, and learning.

SESSION 19

The Census of Marine Life: Bring a Decade of Global Research to Your Classroom! (Bio)

(Middle Level–High School) *Franklin 3, Marriott*

Celia Cackowski *(celia@gso.uri.edu),* University of Rhode Island Graduate School of Oceanography, Narragansett

Join a member of the Census's Education and Outreach Team to explore online teaching tools created in conjunction with the program's scientists.

SESSION 20

Cool Web Resources for Human Biology and Health (Bio)

(General) *Franklin 6, Marriott*

Lynette A. Hart *(lahart@ucdavis.edu),* **Mary W. Wood** *(mwwood@ucdavis.edu),* and **Marco M. Molinaro** *(mmolinaro@ucdavis.edu),* University of California, Davis

William A. Storm *(bstorm@djusd.k12.ca.us),* Davis (Calif.) Joint Unified School District

Cathy Parker, Curtis Creek School District, Sonora, Calif.

Discover free websites rated by teachers as outstanding for teaching about human body systems and health as well as sample webquests prepared by master teachers.

SESSION 21

Strategies for Supporting the ELL Learner of Physics (Phys)

(Middle Level–High School) *Franklin 7, Marriott*

Ruben A. Rodriguez *(rodr98@gmail.com),* East Boston High School, East Boston, Mass.

Learn how to harness traditional and electronic strategies to support ELL students' learning of physics in a Physics First course.

SESSION 22

NSTA Press Session: Outdoor Science Classroom (Gen)

(Elementary–Middle Level) *Grand Salon D, Marriott*

Steve Rich *(bflywriter@comcast.net),* Georgia Dept. of Education, Atlanta

Take learning outdoors and integrate all subjects with these easy lessons and learning spaces. Find the math in a tree, map migration, and more. Free seeds!

SESSION 23

Teacher Researcher Day Session: Collegial Inquiry: Structured Professional Development Model That Uses Research to Tailor Lessons (Chem)

(Middle Level–High School/Supv.) *Grand Salon E/F, Group 1, Marriott*

Kevin J. Henson *(khenson@lrhsd.org),* Lenape High School, Medford, N.J.

Improve and recharge your teaching using this structured form of professional development.

SESSION 24

Teacher Researcher Day Session: Bridging the Gap Between Research and Practice in the Urban Science Classroom (Gen)

(General) *Grand Salon E/F, Group 3, Marriott*

Pamela Fraser-Abder *(pamela.abder@nyu.edu),* New York University, New York, N.Y.

Explore one method of incorporating research in gender, cultural, and diversity issues as they affect participation and achievement in urban science classrooms.

SESSION 25

Teacher Researcher Day Session: Science Notebook Strategies to Enhance Science and Literacy Integration (Gen)

(Elementary–High School) *Grand Salon E/F, Group 4, Marriott*

Lori L. Petty *(loripetty83@gmail.com),* Highland Park High School, Amarillo, Tex.

No time for science and literacy? Come learn strategies to integrate science and literacy instruction so that learning in both content areas is enhanced.

SESSION 26

Teacher Researcher Day Session: Cultural Relevance in Science Pedagogy (CRISP): Action Research Network (Gen)

(Elementary–Middle Level) *Grand Salon E/F, Group 5, Marriott*

Mistilina Sato *(msato@umn.edu)* and **Stacy A. Ernst** *(erns0039@umn.edu),* University of Minnesota, Minneapolis

Michael J. Gabler *(mgabler@marshallschool.org),* Marshall School, Duluth, Minn.

Presider: Mistilina Sato

CRISP teachers and action research facilitators, in collaboration with the University of Minnesota and Science Museum of Minnesota, integrate culturally relevant instruction into daily practice.

SESSION 27

Let the Games Begin: Molympics! (Chem)

(High School) *Grand Salon L, Marriott*

Mindy J. Bedrossian *(minjane@aol.com),* Strongsville High School, Strongsville, Ohio

An intense and exciting chemistry competition between teams helps to strengthen student understanding of chemistry concepts.

SESSION 28

Outdoor Science Field Trips and Student Actions, Reactions, and Reflections (Env)

(Informal Education) *Freedom F, Sheraton*

Peggy L. Preusch *(ppreusch@umd.edu),* University of Maryland, College Park

We'll look at the active and passive elements of outdoor field trip experiences and the importance of reflective opportunities that support students' meaning-making processes.

SESSION 29

Renewable Energy and the Electrical Power Grid (Env)

(Middle Level–High School/Informal) *Freedom H, Sheraton*

Jana Sebestik *(sebestik@illinois.edu)* and **George Reese** *(reese@illinios.edu),* University of Illinois at Urbana-Champaign, Champaign

Free simulations allow students to control renewable and traditional generation of electricity and make adjustments to the system based on transmission capabilities, carbon dioxide emissions, and costs.

SESSION 30

Engaging Upper Elementary and Middle School Students in International Science Inquiry (Earth)

(Elementary–Middle Level) *Independence A, Sheraton*

Walter S. Smith *(walter.smith@ttu.edu),* NSTA Director, College Science Teaching, and Texas Tech University, Lubbock

Lee Yuen Lew *(leeyuenlew@liu.edu),* Long Island University, Brookville, N.Y.

Kate Baird *(kabaird@iupuc.edu),* NSTA Director, District X, and Indiana University-Purdue University, Columbus

Bambi L. Bailey *(bambi_bailey@uttyler.edu),* The University of Texas at Tyler

Presider: Bambi L. Bailey

Involve your gifted or all your grades 4–8 students in standards-based, international, free science through the MOON Project. Participation requires only eyes and internet access.

SESSION 31

Hubble Space Telescope: Eyes on the Universe! (Earth)

(Elementary–High School) *Independence B, Sheraton*

Cynthia P. Higley, Cerro Villa Middle School, Villa Park, Calif.

Engage students in research. I'll share plans for building your own model, a spectacular photo presentation, and curriculum that inspires interest in astronomy and links literacy, art, and technology.

3:30–4:30 PM Workshops

✔ **City Science: Using Your City as a Classroom (Gen)**

(Elementary–Middle Level) *Hall D/Room 5, Convention Center*

Laura Rico-Beck *(april.chancellor@msichicago.org)* and **Patricia Messersmith** *(patricia.messersmith@msichicago.org),* Museum of Science and Industry, Chicago, Ill.

Use the buildings and bridges around you to teach students the basics of structural design. We'll share creative, fun lesson plans.

Connecting Children to Nature with Growing Up WILD (Bio)

(Preschool) *Hall D/Room 6, Convention Center*

Cheryl L. Stanco, Project WILD, Houston, Tex.

Come get an overview of Project WILD's new initiative for early childhood and engage in interdisciplinary activities designed to nurture a lifelong appreciation of nature.

★ **Captivate Your Students with Magic! (Phys)**
(General) Hall D/Room 7, Convention Center
David C. White *(dcwhite@pasadenaisd.org)* and **Alexander S. Graham** *(tnelsdowns@yahoo.com),* Pasadena Memorial High School, Pasadena, Tex.
Diana Gano *(ganod@pearlandisd.org),* Dawson High School, Pearland, Tex.
Reach out to your students by using magic in the classroom to illustrate concepts, make connections, and raise interest and awareness.

Get the Buzz on Bees: Connecting Students to Technology and Ecosystem Studies Through Agricultural Simulation (Bio)
(Elementary) Hall D/Room 8, Convention Center
Carolyn DeCristofano *(carolyn@blueheroneducation.us)* and **Deborah Dempsey** *(deb@blueheroneducation.us),* Blue Heron Education, Plympton, Mass.
Empower and motivate rural students with agriculturally based problem solving! Apply life science content, observation, and data analysis to manage bee pollination for "your" cranberry crop.

Energy Flowing Through the Middle School Cycles (Gen)
(Middle Level) Hall D/Room 9, Convention Center
Ross Ann Hill, Idalou Middle School, Idalou, Tex.
Melissa Duncan, Frenship Middle School, Wolfforth, Tex.
Explore Earth's cycles using fun activities, games, and resources. These resources effectively teach carbon, lunar, nitrogen, rock, and water cycles.

All That Glitters: Developing a School-wide Interdisciplinary Unit on "Treasures" (Gen)
(Elementary) Hall D/Room 15, Convention Center
Sami Kahn *(skahn@collegiateschool.org),* Collegiate School, New York, N.Y.
Come engage in activities related to a school-wide unit, "Treasures Around the World," while learning tips for collaboration, coordination, and creation of an interdisciplinary curriculum.

Celebrating Unsung Heroes of Science: A Sociocultural Approach to Science Biography (Gen)
(Informal Education) Hall D/Room 17, Convention Center
Joy M. Barnes-Johnson, Temple University, Philadelphia, Pa.
Interdisciplinary curricula may represent the best way of embracing the tenets of multicultural science. Co-teachers of an inclusive earth science course have developed a way to engage all students in research activities based on content standards for history, language arts, and science.

Making Science Matter (Bio)
(Middle Level) Hall D/Room 18, Convention Center
Pamela A. Koch *(pkoch@tc.edu),* Teachers College, Columbia University, New York, N.Y.
Aleta Damm *(adamm@jpsmail.org),* Middle School at Parkside, Jackson, Mich.
Learn strategies to help students use their own lives as legitimate sources of data collection, analysis, and discussion.

Questions, Claims, Evidence: How to Use Language to Learn Science (Gen)
(Elementary–Middle Level) Hall D/Room 21, Convention Center
Jay W. Staker *(jstaker@iastate.edu),* Iowa State University, Ames
Lori Norton-Meier *(lori.nortonmeier@louisville.edu),* University of Louisville, Ky.
Brian Hand *(brian-hand@uiowa.edu),* University of Iowa, Iowa City
Lynn Hockenberry *(lhockenberry@aea13.org),* Loess Hills Area Education Agency 13, Atlantic, Iowa
The science writing heuristic works with language and science to promote learning. This approach focuses on writing processes for negotiating understanding of science concepts.

Integrating Science Simulations into Science Curriculum and Assessment Systems (Gen)
(Middle Level) Hall D/Room 25, Convention Center
Barbara C. Buckley *(bbuckle@wested.org),* WestEd, Redwood City, Calif.
Matt D. Silberglitt *(msilber@wested.org),* WestEd, Oakland, Calif.
Bring your own laptop and explore simulation-based science assessments currently used in several states for researching their use for curriculum, formative, and summative assessment.

Science Notebooking: A Convenient and Cost-effective Approach (Gen)
(Elementary–High School) Hall D/Room 28, Convention Center
Adam J. Geller *(adam.geller@teachforamerica.org),* Teach For America, St. Louis, Mo.
Implementing science notebooks can increase effectiveness and decrease workload. Hands-on and how-to with the template to make free notebooks included.

Soar into Spring with Kites (Gen)
(General) Hall D/Room 30, Convention Center
Dottie W. Hartman *(dottie.hartman@lpsb.org)* and **Kirk Jones** *(kirk.jones@lpsb.org),* Walker High School, Walker, La.
Build the cheapest and simplest kite in the world and soar into spring with aerodynamic lessons that you and your students will enjoy.

Newton on the Cheap (Gen)
(General) Regency A, Loews
Gene L. Easter *(gleaster@sbcglobal.net),* Kent State University, Kent, Ohio
Presider: Linda Easter, Brushfire Science Consultants, Tallmadge, Ohio
Teach Newton's three laws of motion using the cheap and the familiar—with flair! Leave this session with effective and captivating activities, interactive demos, labs, and assessment activities.

CESI Session: Creativity in the Science Classroom (Gen)
(General) Washington A, Loews
Hans Persson *(hanper@hanper.se),* University of Stockholm, Sweden
Creativity and variety are powerful tools for raising both student and teacher interest in science and keeping this interest alive.

Biology Activities for Beginning Teachers (Bio)
(Middle Level–High School) Franklin 1, Marriott
Sarah J. Anderson *(sarah.anderson@ttu.edu),* Texas Tech University, Lubbock
This veteran teacher wants to share best practices and activities gathered over 10 years of teaching middle level and high school life science and biology.

Building a Beak: Linking Student Ideas of Adaptation to Modern Evolution (Bio)
(Middle Level–High School) Franklin 4, Marriott
Katherine Larson, East High School, Des Moines, Iowa
In this adaptation lab, students become birds and must travel to find what food source is right for them.

Shades of Green (Bio)
(General) Franklin 5, Marriott
Glenda McCarty *(glendamccarty@gmail.com)* and **Jennifer Hope** *(jmghope@gmail.com),* University of Missouri–St. Louis
Explore the many shades of the color green with experiments, journaling, and books, along with observation of natural phenomena.

Helping Students "Get" What They Read (Gen)
(Elementary–High School) Franklin 8, Marriott
Betty Stennett, BSCS, Colorado Springs, Colo.
Learn several proven literacy strategies to help students make meaning from what they read in science.

The Journey of a Photon: Engaging High School Students Through Immersive Media Development (Phys)
(High School) Franklin 9, Marriott
Jacob Noel-Storr *(jake@cis.rit.edu)* and **Gregory A. Wyllie** *(koder09@hotmail.com),* Rochester Institute of Technology, Rochester, N.Y.
Kevin L. Shimkus *(k_shimkus@tamu.edu),* Texas A&M University, College Station
Promote inquiry-driven astronomy and physics learning using digital media development as a teaching strategy.

Sally Ride Science and the U.S. Forest Service Symposium Session: Looking at Our Changing Earth from Space (Env)
(Middle Level) Franklin 10, Marriott
Julie Miller *(jmillerirc@olatheschools.com),* Sally Ride Science, San Diego, Calif.
Try some activities from two inquiry-based programs that study Earth from space: NASA's ISS EarthKAM and Sally Ride Science's EarthScape. Explore our changing Earth through activities using digital images taken from the International Space Station.

From UFOs to Elves: Connecting Science to Science Fiction (Chem)
(Middle Level–High School) *Grand Salon A, Marriott*
Corey P. Gallegos *(cpgallegos@aps.k12.co.us),* Aurora Hills Middle School, Aurora, Colo.
Explore the love/hate relationship between science and science fiction. Become the cool teacher who connects student interest in aliens and mutant superheroes with science standards.

Teacher Researcher Day Session: First-Year Science Teaching as a Project Nexus Graduate (Gen)
(General) *Grand Salon E/F, Group 2, Marriott*
Phyllis Katz *(pkatz15@gmail.com),* Retired Educator, Silver Spring, Md.
J. Randy McGinnis *(jmcginni@umd.edu),* University of Maryland, College Park
We'll share drawings, snapshots, and words reflecting our experiences as graduates of an innovative science teaching preparation program designed to encourage underrepresented teacher candidates to become reform-oriented teachers of science.

Cut and Glue to Learn About Uniform and Accelerated Motion (Phys)
(Middle Level–High School) *Grand Salon J, Marriott*
Dorina Kosztin *(kosztind@missouri.edu)* and **Meera Chandrasekhar** *(meerac@missouri.edu),* University of Missouri, Columbia
Teach your students about position, velocity, and acceleration using a car, a block, tape, paper, scissors, and glue. We'll construct graphs and analyze them. Handouts.

Fly Me to the Moon: Blast Off for an Out-of-This-World WebQuest Experience (Earth)
(General) *Freedom E, Sheraton*
Kristina Zaleski *(zalekr60@mail.buffalostate.edu),* **Coralee Smith** *(smithcs@buffalostate.edu),* and **Jason LeGrett** *(jayb2242001@yahoo.com),* Buffalo State College, Buffalo, N.Y.
Blast off to outer space with an interactive WebQuest designed for grade 2 students. This site contains interactive web pages and assessments to facilitate student learning.

COSEE Session: Practical Applications of the Ocean Literacy Principles Scope & Sequence (Earth)
(General) *Independence C, Sheraton*
Catherine Halversen *(chalver@berkeley.edu)* and **Craig Strang** *(cstrang@berkeley.edu),* Lawrence Hall of Science, University of California, Berkeley
Sarah E. Schoedinger *(sarah.schoedinger@noaa.gov),* NOAA Office of Education, Charlotte, N.C.
Ocean Literacy Scope & Sequence was used to develop the NOAA-funded Ocean Sciences Sequence Curriculum. Explore curriculum activities and practical applications.

Human Health and Global Environmental Change (Env)
(General) *Liberty C, Sheraton*
Margaret Thomsen Katsumi *(margaret_katsumi@hms.harvard.edu)* and **Heather Foley** *(heather_foley2@hms.harvard.edu),* Center for Health and the Global Environment, Harvard Medical School, Boston, Mass.
Join us to explore curriculum materials from Harvard Medical School's Human Health and Global Environmental Change course, adapted for use in high school science classrooms.

3:30–4:30 PM Exhibitor Workshop

Professional Development Worthy of Stimulus Funding (Phys)
(Grades 6–12) *201A, Convention Center*
Sponsor: It's About Time
Gary Curts, Dublin Jerome High School, Dublin, Ohio
Stimulate your science inquiry classroom with engineering design and project-driven strategies. Our research has shown that professional development using these strategies helps teachers improve student achievement.

3:30–5:00 PM Workshop

NESTA Session: National Earth Science Teachers Association Rock and Mineral Raffle (Earth)
(General) *Liberty A/B, Sheraton*
Wilene Rigsby, Retired Science Teacher, North Little Rock, Ark.
Roberta M. Johnson *(rmjohnsn@ucar.edu),* University Corporation for Atmospheric Research, Boulder, Colo.
Win display-quality specimens of rocks, minerals, fossils, and other earth science–related materials while learning about earth science materials from areas other than your own.

3:30–5:30 PM Meeting

John Glenn Center Task Force Meeting
(By Invitation Only) *Registration I, Marriott*

3:30–5:30 PM NSTA ESP Symposium III

NSTA Exemplary Science Program (ESP)…Realizing the Visions of the National Standards: It Takes ESP to Find Exemplary Science Programs (Gen)
(General) *Grand Salon K, Marriott*
Organized by Robert E. Yager, 1982–1983 NSTA President and Editor of the NSTA ESP Program

Coordinator: Robert E. Yager, University of Iowa, Iowa City

This session will include brief descriptions of programs that exemplify how the four NSES goals have been met. Discussion will center on how NSES *More Emphasis* suggestions have guided instruction. Participants in this symposium will include the following authors from specific monographs in the series.

Exemplary Science Programs: Grades PreK–4
Peter Veronesi *(pverones@brockport.edu),* State University of New York College at Brockport
Kim C. Sadler *(ksadler@mtsu.edu),* Middle Tennessee State University, Murfreesboro
Janice Koch *(janice.koch@hofstra.edu),* Profesor Emerita, Hofstra University, Hempstead, N.Y.

Exemplary Science Programs: Grades 5–8
Barbara Kay Foots *(bkfoots@swbell.net),* Science Education Consultant, Houston, Tex.
Deborah Hanuscin *(hanuscind@missouri.edu),* University of Missouri, Columbia
Karen Mesmer *(kmesmer@baraboo.k12.wi.us),* Baraboo Middle School, Baraboo, Wis.

Exemplary Science Programs: Grades 9–12
Cindy Moss *(cindy.moss@cms.k12.nc.us),* Charlotte Mecklenburg School System, Charlotte, N.C.
Eric A. Walters *(ewalters@marymountnyc.org),* The Marymount School of New York, N.Y.

4:00–5:30 PM Exhibitor Workshops

Dancin' DNA on a Chain (Bio)
(Grades 6–10) *104A/B, Convention Center*
Sponsor: Science Kit & Boreal Laboratories
Dancin' Amy Naum *(amy_naum@vwreducation.com),* Science Kit & Boreal Laboratories, Tonawanda, N.Y.
When you come to the DNA disco, you gotta have the proper accessories. Make your very own DNA necklace that you can wear anywhere in true science style! Learn to extract DNA from cheek tissue, collect cells, lyse cell membranes, separate DNA from other cell contents, and isolate DNA in an easy experiment that uses a minimal amount of materials.

An Exclusive Engagement with NEW Cenco AP Physics Labs (Phys)
(Grades 8–12) *106A/B, Convention Center*
Sponsor: Sargent-Welch
Funky Cheryl Hanzlik *(chanzlik@vwreducation.com),* Science Kit & Boreal Laboratories, Tonawanda, N.Y.
Get VIP treatment with a behind-the-scenes sneak peak of the new Cenco AP Physics Laboratory line from Sargent-Welch. These funky, fresh labs provide additional learning opportunities and reinforce concepts discussed in your AP Physics class consistent with current introductory college courses. Watch example labs demonstrated live and learn about all the new releases.

4:30–5:00 PM Presentation

SESSION 1
Teacher Researcher Day Session: Fostering Teacher Researcher Collaborations (Gen)
(General) *Grand Salon E/F, Marriott*
Emily H. van Zee *(vanzeee@science.oregonstate.edu),* Oregon State University, Corvallis
Claire G. Bové *(cgbove@flash.net),* Mills College, Oakland, Calif.
What can teacher researchers do to foster their own and others' inquiries into science learning and teaching? Please join us in reflecting on ways to collaborate!

5:00–5:30 PM Presentation

SESSION 1

NSTA Press Session: *The Biology Teacher's Handbook* Is Here to Help You! (Bio)

(Middle Level–High School/Supv.) *Grand Salon D, Marriott*

April L. Gardner and **Betty Stennett,** BSCS, Colorado Springs, Colo.

Come experience some sample ways *The Biology Teacher's Handbook* can support you in making decisions that will enhance learning in your biology classroom.

5:00–6:00 PM Presentations

SESSION 1 (two presentations)

(General) *Hall D/Room 1, Convention Center*

Using a Social Media Tool to Motivate Learning (Gen)

Shannon S. Ricles *(shannon.ricles@noaa.gov),* NOAA Monitor National Marine Sanctuary, Newport News, Va.

Get an overview of social media tools and learn how to use them to enhance curriculum and turn your students into eager learners.

Tablet PCs Promote Classroom Interaction in Math and Science (Gen)

Carla Romney *(romney@bu.edu),* Boston University, Boston, Mass.

Explore the use of networked Tablet PCs to enable teachers and students to engage in real-time problem solving.

SESSION 2

Engineer Your Life: Inspiring Girls to Explore Engineering (Gen)

(General) *Hall D/Room 5, Convention Center*

Stefanie Chang *(stef@hodr.org),* Hands On Disaster Response, Carlisle, Mass.

Want to encourage college-bound girls to consider engineering? Learn about the research-based Engineer Your Life campaign from a panel of experts in the engineering community.

SESSION 3

"Simple"y the Best Demos (Chem)

(High School–College) *Hall D/Room 7, Convention Center*

Bette Bridges *(babridges@comcast.net),* Retired Educator, Natick, Mass.

Presider: Kenneth W. Brody *(kwbrody@mit.edu),* Retired Educator, Sharon, Mass.

Excite your students and enhance your classes with these demos that use common substances, are quick to set up, and cost very little.

SESSION 4 (two presentations)

(General) *Hall D/Room 11, Convention Center*

Ensuring Success in Professional Development (Gen)

Nicole L. Kowrach and **Bryan W. Wunar,** Museum of Science and Industry, Chicago, Ill.

Learn about a teacher professional development model that builds relationships with teachers, develops engaging curricula, improves teachers' content knowledge, and removes barriers to ensure success.

Teachers as Experts: Using Teacher Knowledge to Guide Collaboration and Innovation (Gen)

Tracy Hollars, Avon Lake (Ohio) City Schools

Kathleen Schwartz Crooks *(ksc16@uakron.edu),* The University of Akron, Ohio

Kathleen Ann Scott *(kscott@ashland.edu),* Ashland University, Elyria, Ohio

We will share the experiences, outcomes, and resources of a school-wide initiative to infuse 21st-century skills, technology, tools, and collaborative learning into everyone's curriculum.

SESSION 5

Learning and Teaching Through Telepresence **(Gen)**

(General) *Hall D/Room 20, Convention Center*

Maryann C. Scholl and **Celia Cackowski** *(celia@gso.uri.edu),* University of Rhode Island Graduate School of Oceanography, Narragansett

Telepresence technology allows users to participate in oceanographic expeditions with scientists in remote locations. Experience the technology and learn how to integrate it into your curriculum.

SESSION 6

Purposeful Learning: Hook, Line, and Thinker **(Gen)**

(Middle Level) *Hall D/Room 22, Convention Center*

Nicole McRee *(mcree.nicole@d46.org)* and **Tracy M. Bratzke,** Grayslake Middle School, Grayslake, Ill.

We will share ideas for incorporating problem-based, cross-curricular lessons and units into your current curriculum to promote experiential, authentic learning.

SESSION 7

Multidiscipline Creek Study: It's Easy, Fun, and Great Research for Students! **(Gen)**

(Middle Level–College) *Hall D/Room 26, Convention Center*

Jennifer Baker, Kathy Mirakovits *(kmirakovits@portageps.org),* **Lindsey McConney** *(lmcconney@portageps.org),* **Michelle Mason, Daniall Poulsen** *(dpoulsen@portageps.org),* **Donna Hertel,** and **Angelique Biehl,** Portage Northern High School, Portage, Mich.

Learn how to use a local creek ecosystem to teach biology, chemistry, physics, and earth science concepts through authentic field investigation.

SESSION 8 (two presentations)

(General) *Hall D/Room 27, Convention Center*

Improving Students' Performance via Mentoring Science Teachers **(Gen)**

Alfred Porter *(apporter12@aol.com)* and **Evelyn Moblery** *(emobley@k12.atlanta.ga.us),* Atlanta (Ga.) Public Schools

Learn how to construct a mentor program for novice K–12 science instructors. We'll focus on best practices for mentoring and supporting novice science teachers.

Coteaching Science with Preservice Educators **(Gen)**

Todd M. Dunn and **Kate Scantlebury** *(kscantle@udel.edu),* University of Delaware, Newark

University faculty, district administration, cooperating teachers, and student teachers have found multiple benefits to using the coteaching model to improve instruction. We'll share current research.

SESSION 9 (two presentations)

(General) *Hall D/Room 29, Convention Center*

Using English as the Language of Instruction for Science in Qatar **(Gen)**

Tricia R. Kerr, Qatar University, Doha, Qatar

We'll share lessons learned from a small research project that examined the effect of infusing ESL strategies into science teaching and learning.

An International Perspective: Science Education in Qatar **(Gen)**

Tricia R. Kerr, Qatar University, Doha, Qatar

Take a look at how a small Middle Eastern country is joining the worldwide science education community.

SESSION 10

Inquiry Science for Elementary and Early Childhood Preservice Students **(Gen)**

(College) *Congress A, Loews*

Karen Worth *(kworth@wheelock.edu),* **Ellen Faszewski, Peter Holden** *(pholden@wheelock.edu),* and **Charles Fidler** *(cfidler@wheelock.edu),* Wheelock College, Boston, Mass.

Jeff Winokur *(jwinokur@edc.org),* Education Development Center, Inc., Newton, Mass.

Using snapshots of student inquiries, we will show how science and education faculty together present a coherent and exciting message about science learning and teaching.

SESSION 11

mtDNA: Where Biology, Chemistry and Anthropology Meet **(Gen)**

(High School–College) *Congress B, Loews*

Meredith Knight *(meredith.knight@tufts.edu),* Tufts University, Medford, Mass.

We'll share a low-cost method that allows students to determine their ancestry by examining their own mitochondrial DNA, as well as resources that allow for the collaboration of social science teachers.

SESSION 12 (two presentations)
(General) *Regency C2, Loews*

Bringing Teachers into the Woods: Science Methods Instruction in the Outdoors (Gen)
Matthew E. Vick *(vickm@uww.edu),* University of Wisconsin–Whitewater
Teachers can engage students with the natural world without needing to be an expert naturalist themselves. A lesson at a prairie site shows you how.

INSPIRE: Designing an Online Community for Students Interested in STEM and NASA (Gen)
Bradford T. Davey *(brad@techforlearning.org),* Pepperdine University, North Kingstown, R.I.
Hilarie Davis *(hilarie@techforlearning.org),* Technology for Learning Consortium Inc., North Kingstown, R.I.
Employing best practices in online community development, INSPIRE seeks to engage like-minded high school learners in an interactive environment of students and NASA personnel.

SESSION 13
What Does Global Competence in Science Look Like? (Gen)
(High School) *Washington C, Loews*
Jennifer Chidsey Pizzo *(jchidseypizzo@gmail.com),* Asia Society, New York, N.Y.
An analysis of student performance-based assessments helps define what it means for high school students to be globally competent in science.

SESSION 14 (two presentations)
(General) *303, Marriott*

Interactive Safety Exercise for a Freshman Science Major Laboratory Course in Chemistry (Chem)
Louis A. Bodack *(lbodack@framingham.edu),* Framingham State College, Framingham, Mass.
Make the safety lecture in the laboratory environment more interesting. Engage students with these techniques.

Climate Change in the Chemistry Classroom (Chem)
Kathleen M. Gorski *(kmgorski@concentric.net),* Wilbraham & Monson Academy, Wilbraham, Mass.
Learn how to thread polar science and climate change lessons into a chemistry curriculum over the course of an academic year.

SESSION 15
Raising the Level of Inquiry in Your Classroom By Modifying Traditional Lab Activities (Gen)
(Middle Level–High School) *304, Marriott*
Heather E. Buskirk *(heather.buskirk@gmail.com)* and **Hanz P. Litz** *(hanzlitz@hotmail.com),* Johnstown High School, Johnstown, N.Y.
Learn easy ways to modify existing labs to make them student-centered investigations and explore the use of journals and wikis for collecting and sharing data.

SESSION 16
Hands-On, Activity-enhanced Analogical Pedagogy in Effective Thermochemistry Teaching (Chem)
(Middle Level–College) *305/306, Marriott*
Peter P. Chang *(peterpchang@hotmail.com),* Jackson State University, Jackson, Miss.
With analogical explanation of basic concepts, simple and safe hands-on activities on calorimetry with extremely accurate results can implement effective teaching-learning in thermochemistry.

SESSION 17
Predators and Dangerous Prey: Plankton, Toxins, and Evolution (Bio)
(Middle Level–High School/Informal) *Franklin 2, Marriott*
Diana Payne *(diana.payne@uconn.edu),* Connecticut Sea Grant, Groton
Michael Finiguerra *(michael.finiguerra@gmail.com),* University of Connecticut, Groton
Get students excited about predators, prey, and evolution at the microscopic level with creative standards-based lessons. Handouts of lessons and a corresponding website will be provided.

SESSION 18
Sixty Labs You Can Do with Little or No Budget (Phys)
(High School) *Franklin 3, Marriott*
Ted Koehn *(tkoehn@lps.org),* Lincoln East High School, Lincoln, Neb.
I will share more than 60 chemistry/physics labs that can be done with low-cost or homemade equipment, including light boxes, parallax viewers, marshmallow catapults, atom electron structures, and much more.

SESSION 19

Biology…Revived! (Bio)

(High School) *Franklin 6, Marriott*

Kristen N. Conkel *(kconkel@tvsd.us)* and **Sheila R. Clements** *(sclements@tvsd.us),* Teays Valley High School, Ashville, Ohio

Stuck in a rut? We can help! We will share new lesson ideas and revisit some tried-and-true biology classics.

SESSION 20

Physics for All: Differentiating Instruction (Phys)

(High School) *Franklin 7, Marriott*

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

Physics First and Physics for All both require differentiated instruction to ensure that all students will be challenged and successful in physics. Let's explore how we can adapt our physics classes to meet the needs of all students.

SESSION 21

Collaborative Student Lessons in Biology (Bio)

(High School) *Franklin 8, Marriott*

James D. Reid *(jim_reid@woodberry.org),* Woodberry Forest School, Woodberry Forest, Va.

I'll share lessons I developed during my 33 years of teaching that actively engage students in mastering some of the fundamental topics in biology.

SESSION 22

Elluminate: A Virtual Learning Environment (Phys)

(Middle Level–High School) *Grand Salon B, Marriott*

Joyce Hilliard-Clark *(hilliard_clark@ncsu.edu),* **Pamela O. Gilchrist** *(pamela_gilchrist@ncsu.edu),* and **Mary L. Gray** *(mary_l_gray@yahoo.com),* North Carolina State University, Raleigh

Photonics Leaders II teachers and students engage in traditional and nontraditional hands-on, problem-based investigative experiences concentrated in photonics using Elluminate, a virtual learning environment.

SESSION 23

Kindle the Fire: Teaching Biology and Chemistry Using Alcohol Pharmacology (Chem)

(High School) *Grand Salon L, Marriott*

Rochelle D. Schwartz-Bloom *(schwa001@duke.edu),* Duke University Medical Center, Durham, N.C.

Myra J. Halpin *(halpin@ncssm.edu),* North Carolina School of Science and Mathematics, Durham

The Alcohol Pharmacology Education Partnership (A-PEP) helps high school students learn biology, chemistry, and math better by presenting basic concepts within the context of alcohol pharmacology.

SESSION 24

Using Trees in the Urban Classroom: The Trees Finally Have a Voice (Env)

(Middle Level–High School) *Freedom H, Sheraton*

Patrick M. Baldwin *(pbaldwin@niu.edu),* Northern Illinois University, DeKalb

Trees have many benefits that urban students don't understand. Get your students to listen to the trees in their neighborhood.

SESSION 25

Virtual Manipulatives to Improve Understanding in the Science Classroom (Earth)

(Middle Level) *Independence B, Sheraton*

Mary C. Cahill, The Potomac School, McLean, Va.

Virtual inquiry-based science activities that are integrated well in the science classroom help dispel misconceptions and promote higher-level critical thinking and problem solving.

SESSION 26

Help! I Need Labs for Environmental Science (Env)

(High School) *Salon 3/4, Sheraton*

Kimberly Warschaw *(kimberly_warschaw@apsva.us)* and **Michelle C. Harris** *(michelle_harris@apsva.us),* Wakefield High School, Arlington, Va.

A lab manual has been created that incorporates all aspects of the AP Environmental Science curriculum with investigative and hands-on learning within the classroom. A discussion will follow to incorporate other lab ideas from a variety of sources.

5:00–6:00 PM Workshops

Infusing Energy Education into Science, Mathematics, and Social Studies (Gen)
(Elementary–Middle Level/Inf.) Hall D/Room 6, Conv. Center
William Bayley *(wbayley@purdue.edu)* and **Steven C. Smith** *(mrsmith@purdue.edu),* Purdue University, West Lafayette, Ind.
Presider: Steven C. Smith
These classroom-ready lessons focusing on energy help illuminate the connections between science, mathematics, and social studies content.

Don't Overlook Seeds When Teaching Inquiry (Bio)
(Elementary) Hall D/Room 8, Convention Center
Lloyd H. Barrow *(barrowl@missouri.edu),* University of Missouri, Columbia
This unit on how to grow seeds in a preservice elementary science methods course models inquiry and the teaching standards. Handouts, rubrics, and notebook use.

The Temperature's Rising in Early Childhood Classrooms (Earth)
(Preschool–Elementary) Hall D/Room 10, Convention Center
Isabelle M. DeBarros *(isabellemdebarros@gmail.com),* Taunton (Mass.) Public Schools
Lindsay A. Daigneault *(ladaigneault@gmail.com),* CAPIC Head Start, Chelsea, Mass.
Explore the concept of temperature in early childhood classrooms and learn how students measure temperature in a variety of settings.

Use What You GOT to Make Science HOT! (Gen)
(Preschool–Elementary) Hall D/Room 15, Convention Center
Jaymee Herrington *(jherring@westga.edu),* West Georgia Youth Science and Technology Center, Carrollton
Ordinary things can make EXTRAordinary science lessons! Come see what you might have lying around that can be used to get students excited about science.

Design Challenges in the Elementary Classroom (Gen)
(Elementary) Hall D/Room 16, Convention Center
Jonathan W. Gerlach *(jonathan.gerlach@sdhc.k12.fl.us),* Hillsborough County Public Schools, Tampa, Fla.
See how to engage learners in this hands-on/minds-on workshop based on NASA's Design Challenges Program.

Reading the Landscape: Inquiry into Local Story (Gen)
(Elementary–High School/Inf.) Hall D/Room 17, Conv. Center
Susan R. McWilliams *(smcw@bendcable.com),* Lewis and Clark College, Portland, Ore.
We'll look at ways to identify and use local resources to promote inquiry learning through inquiry in terms of ecological/geological landscapes and cultural/community experience.

You Are the Center (Bio)
(Middle Level) Hall D/Room 18, Convention Center
Vito M. Dipinto *(vdipinto@nl.edu),* National-Louis University, Wheeling, Ill.
Deanna Murphy, Beach Park Middle School, Beach Park, Ill.
Use these teacher-designed materials to teach hierarchical classification to middle school students.

Who Says Orange Is the Opposite of Blue? Use Retinal Fatigue to Explore Color (Gen)
(Preschool–Middle Level) Hall D/Room 21, Convention Center
Mark R. Malone *(mmalone@uccs.edu),* University of Colorado at Colorado Springs
Use retinal fatigue to discover color opposites and the color wheel, and apply the concept to create artwork in the negative that can be properly viewed only virtually.

Using Stories in the Science Classroom (Gen)
(Middle Level) Hall D/Room 25, Convention Center
Eric C. Hoeppner *(echoeppner@aol.com),* Tall Pine Productions, Clarcona, Fla.
Challenge your students to analyze and synthesize as they learn about natural phenomena through student-composed scripts and storytelling techniques.

Assessing Students' Scientific Literacy (Gen)
(High School) Washington A, Loews
Cathy L. Farrar *(clfbf@umsl.edu)* and **Joseph L. Polman** *(polman@umsl.edu),* University of Missouri, St. Louis
We will share activities and tasks created as part of an NSF grant to assess high school students' science literacy skills.

Who's the Daddy? A Problem-Based Learning (PBL) Unit on DNA Structure and Analysis (Bio)
(Middle Level–High School) *Franklin 1, Marriott*
Kathy S. Hoppe *(khoppe@monroe2boces.org),* Monroe 2-Orleans BOCES and St. John Fisher College, Spencerport, N.Y.
This problem-based learning unit allows students to discover the structure, extraction, and analysis of DNA through the story of a woman who ends up in a coma after a car accident. Integrated lab activities include a large-scale model of DNA, cheek cell/other DNA extraction, and a simulated gel electrophoresis activity. You'll receive notebook resources, plans for building the model, and internet access to a website that links all resources electronically.

Evolving Dianogas! (Bio)
(High School) *Franklin 4, Marriott*
Amy Alexander *(edn_aca_aa@nwoca.org),* Edon High School, Edon, Ohio
What's a dianoga? It's a *Star Wars* creature, of course! Come help them take on different environments and characteristics. Who knows where we'll end up?

Introduction to Bioethics (Bio)
(Middle Level–College) *Franklin 5, Marriott*
Jeanne T. Chowning *(jchowning@nwabr.org)* and **Joan Griswold** *(jgriswold@nwabr.org),* Northwest Association for Biomedical Research, Seattle, Wash.
Engage students in the ethical dimensions of scientific research using these engaging and practical lessons. Take home some newly developed bioethics resources.

Sally Ride Science and the U.S. Forest Service Symposium Session: Introducing the Climate Change, Wildlife, and Wildlands Toolkit (Env)
(Middle Level) *Franklin 10, Marriott*
Vicki Arthur *(varthur@fs.fed.us),* USDA Forest Service, Washington, D.C.
This toolkit was developed by six federal agencies to aid educators in teaching how climate change is affecting our nation's wildlife and public lands and how everyone can become "climate stewards."

The Science of Stuff: Materials Science in the High School Classroom (Chem)
(High School) *Grand Salon A, Marriott*
Christopher Andersen *(andersen.18@osu.edu),* The Ohio State University, Columbus
From nanotubes and buckyballs to carbon-fiber composites and semiconductors, materials scientists and engineers are revolutionizing our lives. Come see how they can revolutionize your classroom!

Exploring Lunar Data in the Classroom (Earth)
(High School) *Freedom E, Sheraton*
Presenter to be announced
Presider: Brooke C. Hsu, NASA Goddard Space Flight Center, Greenbelt, Md.
Learn how to use technology to incorporate real and current lunar data in the classroom.

Helping Students Develop Scientific Explanations Based on Claims, Evidence, and Reasoning (Earth)
(Middle Level–High School/Informal) *Freedom G, Sheraton*
Hudson Roditi *(hroditi@amnh.org)* and **Jay Holmes,** American Museum of Natural History, New York, N.Y.
Explore a research-based scaffold for helping secondary students construct a scientific explanation that is supported by evidence and scientific reasoning.

Climate Change: Classroom Tools to Explore the Past, Present, and Future (Env)
(Middle Level–High School/Informal) *Liberty C, Sheraton*
Lisa Gardiner *(egardine@ucar.edu)* and **Sandra Henderson,** University Corporation for Atmospheric Research, Boulder, Colo.
Explore the scientific foundations of what we know about climate change through hands-on and data-rich classroom activities. Handouts.

5:00–6:30 PM Meeting

NESTA Annual Membership Meeting

Liberty A/B, Sheraton

This is your chance to find out about National Earth Science Teachers Association achievements and plans, share your ideas, and get involved in NESTA. For further information, visit *www.nestanet.org*.

5:30–6:00 PM Presentation

SESSION 1

Improve Student Retention By Enhancing Your Lecture Notes (Bio)

(College) *Regency C1, Loews*

Deborah Cardenas *(dcardenas@collin.edu)* and **Jing-Fong Hsu** *(jhsu@collin.edu),* Collin College, Plano, Tex.

Recorded narrations of your lecture presentations will allow students to listen to complete lectures as if they were in the classroom.

6:00–7:00 PM Meeting

Association of Astronomy Educators Members Meeting

Seminar A, Sheraton

Join us to plan events for the Association of Astronomy Educators to help teachers obtain the resources and training to teach the excitement of astronomy.

7:00–9:30 PM President's Annual Banquet

The Art and Adventure of Leadership (M-11)

(Tickets Required: $80) *Millennium Hall, Loews*

Charles F. Bolden, Jr., NASA Administrator, NASA Headquarters, Washington, D.C.

Nominated by President Barack Obama and confirmed by the U.S. Senate, retired Marine Corps Major General Charles Frank Bolden, Jr., began his duties as the 12th Administrator of the National Aeronautics and Space Administration on July 17, 2009. As Administrator, he leads the NASA team and manages its resources to advance the agency's missions and goals.

Bolden's confirmation marks the beginning of his second stint with the nation's space agency. His 34-year career with the Marine Corps included 14 years as a member of NASA's Astronaut Office. After joining the office in 1980, he traveled four times aboard the space shuttle between 1986 and 1994, commanding two of the missions. His flights included deployment of the Hubble Space Telescope and the first joint U.S.-Russian shuttle mission, which featured a cosmonaut as a member of his crew. Prior to Bolden's nomination for the NASA Administrator's job, he was employed as the Chief Executive Officer of JACKandPANTHER LLC, a small business enterprise providing leadership, military and aerospace consulting, and motivational speaking.

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 3:00 PM on Friday.

7:15–8:45 PM Meeting

Association of Astronomy Educators Members Meeting

(By Invitation Only) *Seminar B, Sheraton*

A Video Showcase of Inspiring Award-winning Teachers and Their Engaging Courses, Part 3

6:00 PM–12 Midnight • Regency A, Loews

Mitchell E. Batoff, Past President, New Jersey Science Teachers Association, Nutley

Gordon D. Clark, Retired Educator, Manalapan, N.J.

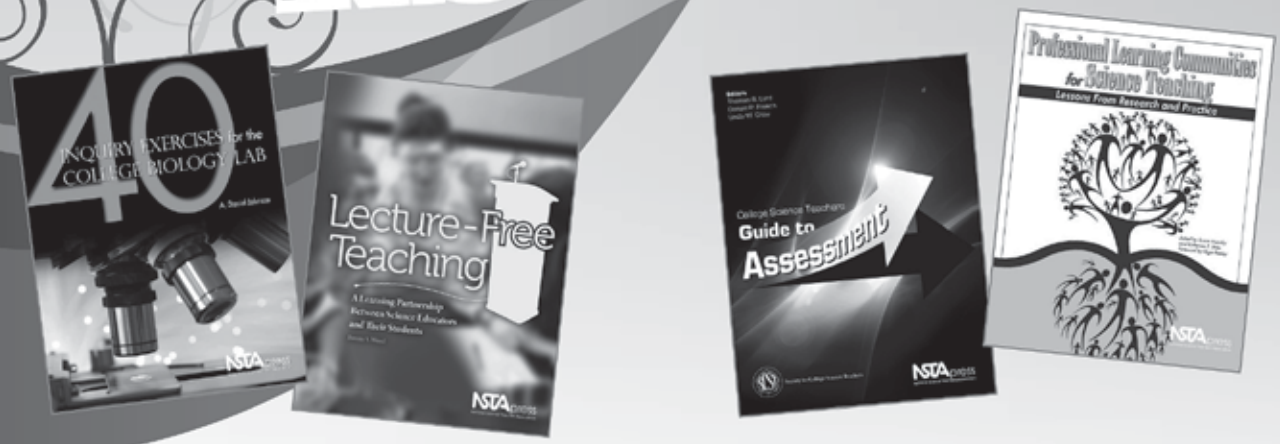
Presider: Gordon D. Clark

This is a continuation of Thursday and Friday evenings, a *new* three-part program presented here for the first time. The screenings will be interspersed with commentary, discussion, and some live demonstrations. There will be laughs mixed with much information on a wide range of topics. Pick up ideas and content that will broaden your knowledge and that you can use in your own teaching. Help select from an extensive menu of course excerpts:

The legendary RICHARD FEYNMAN of Caltech on the Character of Physical Law; STEPHEN NOWICKI of Duke on Population Growth, from his course Biology: The Science of Life; MICHAEL WYSESSION of Washington University on How the Earth Works; ROBERT GREENLER of the University of Wisconsin on The Clarinet, the Washtub, the Musical Nails: How Musical Instruments Work; BARBARA KING of the College of William and Mary on Males and Females—Really So Different? from her course on Roots of Human Behavior; DANIEL ROBINSON of Oxford on Zombies and Do Computers Play Chess?, from his course Consciousness and its Implications; CARL SAGAN of Cornell on One Voice in the Cosmic Fugue; FRANK CARDULLA, formerly of Niles North High School in Skokie, Illinois, excerpts from his chemistry course the Mole Concept and Le Chatelier's Principle; JAMES GATES of the University of Maryland on Who Is Afraid of Music? from his course, Superstring Theory: The DNA of Reality; VERNE ROCKCASTLE of Cornell on Quantitative Meaningful Science for Intermediate Grades; NEIL deGRASSE TYSON of Princeton, excerpts from My Favorite Universe; JOHN FORTMAN of Wright State University, lecture-demonstrations from one of his chemistry courses; MICHAEL STARBIRD of the University of Texas, Random Thoughts on Random Walks; PAUL HEWITT's demonstrations from his physics course at San Francisco State; RICHARD WOLFSON of Middlebury College, excerpts from Earth's Changing Climate and Einstein's Relativity and the Quantum Revolution: Modern Physics for Non-Scientists; BOB BECKER, favorites from his chemistry course at Kirkwood (Missouri) High School; and much more.

Dozens of door prizes directly related to this session will be raffled off through the entire evening. Receive a useful handout. Come and go, stay as long as you wish. Bring your dinner!

Innovative Ideas From NSTA Press



40 Inquiry Exercises for the College Biology Lab

COLLEGE

By A. Daniel Johnson

This one-of-a-kind text for college biology teachers uses the inquiry method in presenting 40 different lab exercises that make complicated biology subjects accessible to majors and nonmajors alike. The author guides teachers step-by-step through the process, even describing the pitfalls they may encounter along the way.

Member Price: $27.96
Nonmember Price: $34.95

Lecture-Free Teaching

A Learning Partnership Between Science Educators and Their Students

COLLEGE

By Bonnie S. Wood

College professors as well as high school and middle school teachers who rely on teaching by routine lecturing may want to consider building "learning partnerships" as a new method for reaching students. This book outlines the implementation and benefits, such as dispelling students' preconceptions, of such partnerships. Author Bonnie Wood advocates the use of inquiry-based exercises, case studies, formative assessments, and other hands-on activities that support the concept of learning teams. *Lecture-Free* provides a compelling case for using valuable classroom time to engage students in activities that build comprehension.

Member Price: $26.36
Nonmember Price: $32.95

College Science Teachers Guide to Assessment

COLLEGE

Edited by Thomas R. Lord, Donald P. French, and Linda W. Crow

This collection of 27 peer reviewed articles provides busy professors with a quick reference for promoting student reflection after exams, encouraging student-led teaching models, and looking at exam corrections from both an instructor and student perspective. The guide covers general, traditional, and alternative assessment techniques as well as those specific to teacher-education classes; a how-to section and a general practices section are also included.

Member Price: $20.76
Nonmmeber Price: $25.95

Professional Learning Communities for Science Teaching

Lessons From Research and Practice

K-COLLEGE

Edited by Susan Mundry and Katherine E. Stiles

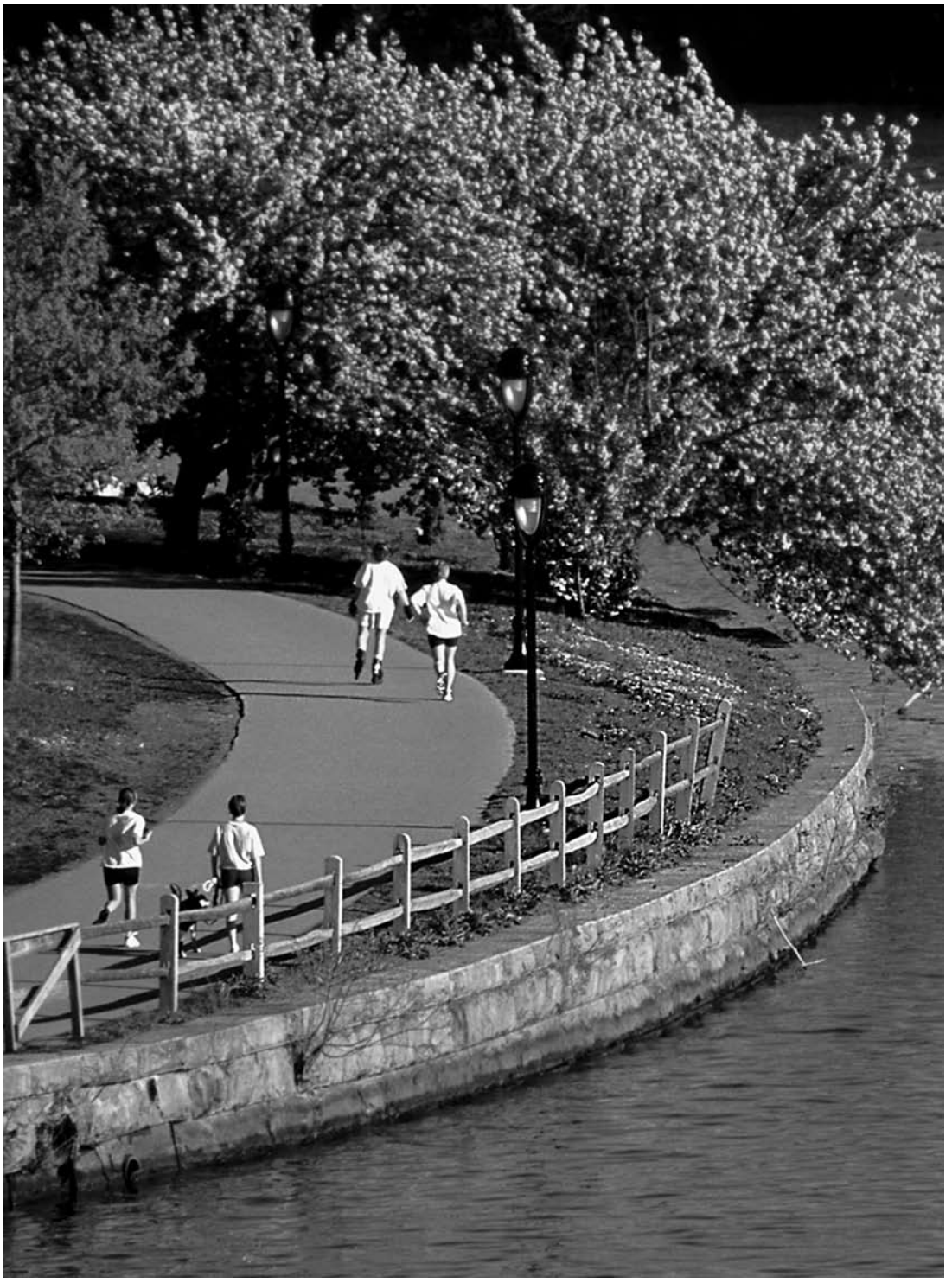
Foreword by Page Keeley

Teachers and administrators interested in forming professional learning communities will find these stories of seven successful approaches to developing PLCs both informative and inspiring. Each chapter ends with reflection questions that expand on the themes and help relate your learning to the chapter's specific focus.

Member Price: $18.36
Nonmember Price: $22.95

To order by phone, call 1-800-277-5300.
To read a free chapter or place an order online, visit *www.nsta.org/store*

NSTA National Science Teachers Association



— Jim McWilliams

Sunday, March 21

	Presentations/Workshops	General Sessions/Special Events	Shell Seminars	Exhibitor Workshops
8:00 AM				
9:00 AM				
10:00 AM				
11:00 AM				
12 Noon				
1:00 PM				
2:00 PM				
3:00 PM				
4:00 PM				
5:00 PM				
6:00 PM				
7:00 PM				
8:00 PM				

7:00–9:00 AM Breakfast

Life Members' Buffet Breakfast (M-12)
(Tickets Required: $45) *304/305, Marriott*
Looking for a morning filled with stories, songs, and activities? Then look no further. Join your fellow life members at this grand networking event.

Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 3:00 PM on Saturday.

8:00–9:00 AM Presentations

SESSION 1 (two presentations)
(General) *103A, Convention Center*
Extreme Exploration: Journey to the Radiation Belts (Earth)
Dawn Turney *(dawn.turney@jhuapl.edu),* The Johns Hopkins Applied Physics Laboratory, Laurel, Md.
Learn how the radiation environment surrounding Earth can affect us and about the new mission that will investigate the mysteries of this dangerous region.

Who Wants to Be an Astronaut? (Earth)
Joanne L. Hoeffner, Mardela Middle and High School, Mardela Springs, Md.
Join NASA and UCSD on EarthKAM missions aboard the International Space Station. Students learn to direct the EarthKAM camera to capture incredible photographs of Earth.

SESSION 2
Best Practices in Molecular Biology: Efficient Transformations, Faster Gels, Stronger Science (Bio)
(High School–College) *103C, Convention Center*
Simon D. Holdaway *(holdaway.simon@gmail.com),* Quinnipiac University, Hamden, Conn.
Discover a method for linking three molecular biology labs (transformations, restriction digests, gel electrophoresis) into a single cohesive unit using new, faster, and versatile reagents and techniques.

SESSION 3
Integrating Case Studies into High School Chemistry Labs (Chem)
(High School–College) *104A/B, Convention Center*
Derrick C. Wood *(woodd@tesd.net),* Conestoga High School, Berwyn, Pa.
Produce a more authentic chemistry research experience using long-term case studies as an alternative to traditional, disjointed chemistry labs.

SESSION 4
Mineral Identification Using a Student-friendly Dichotomous Key (Earth)
(Middle Level–High School) *105A/B, Convention Center*
Diane A. McCallum *(diallison2003@yahoo.com)* and **Jennifer M. Allison** *(allisjen@chambersburg.k12.pa.us),* Faust Junior High School, Chambersburg, Pa.
The use of a dichotomous key creates an inquiry-based approach that can make mineral identification easier and more authentic. This lab is best suited for an introductory course.

SESSION 5 (two presentations)
(Elementary/College/Supervision) *106A/B, Convention Center*
Using Assessments to Guide Professional Development for Urban Elementary Teachers (Gen)
Amy M. Marsch *(amm52@psu.edu)* and **David S. Bender** *(dsb@psu.edu),* Penn State Berks, Reading, Pa.
Learn how assessments were used to inform purposeful planning and instruction for professional development and graduate-level course work designed for elementary school teachers.

Improving the Way We Grade Science (Gen)
Michael E. Mancinelli, Beck Middle School, Cherry Hill, N.J.
Teachers are constantly experimenting with ways of grading and reporting student learning to satisfy the needs of students, parents, and teachers. This action research examines one style of grading and reporting known as Standards-Based Grading. The paper discusses the effectiveness of standards-based grading through a literature review, implementation in four eighth-grade mathematics classrooms, and the surveying of students, parents, and teachers.

SESSION 6

NASA eClips for Elementary Students: Effective Ways to Engage Students in Science and Mathematics (Earth)

(General) *107A/B, Convention Center*

Rebecca Jaramillo *(rebecca.jaramillo@nianet.org),* National Institute of Aerospace, Hampton, Va.

NASA eClips are short, relevant educational video segments designed to inspire students and help them see real-world connections. These resources are available on demand to every school in the nation and can be integrated into daily lesson planning.

SESSION 7

Co-Teaching Genetics and Evolution (Bio)

(High School) *108A, Convention Center*

Karen L. Thomas and **Marc I. Brasof** *(mibrasof@philasd.org),* Constitution High School, Philadelphia, Pa.

Using the historical concept of race relations to teach genetics and evolution creates a unique opportunity to interest more students and clear up common misconceptions.

SESSION 8

Digital Cameras: An Inexpensive Tool for Motivating, Formatively Assessing, and Enhancing Instruction (Bio)

(Middle Level–College) *108B, Convention Center*

Michael Kittel *(mkittel@nccvt.k12.de.us)* and **Brian Heeney** *(brian.heeney@nccvt.k12.de.us),* and Delcastle Technical High School, Wilmington, Del.

Presider: Amy Quillen, Paul M. Hodgson Vocational Technical School, Newark, Del.

Explore the use of digital cameras as a highly motivational tool for formative assessment and student self-assessment, and as an inexpensive alternative to document and video cameras in the science classroom.

SESSION 9

Medieval Medicine: A Hands-On Activity for Eighth-Grade Students (Bio)

(Middle Level–High School) *110A/B, Convention Center*

Nancy B. Tress *(ntress@pitt.edu),* University of Pittsburgh at Titusville

Patient case studies were used to teach middle school students about the use of herbs in medieval medicine.

SESSION 10

The Fly Prison: Modeling Self-Assembly in Nanofabrication (Phys)

(High School) *113B, Convention Center*

Sara W. Bresler *(swb11@scasd.org),* The Delta Program, State College, Pa.

In this introductory nanotechnology course, participants model self-assembly from the bottom up by designing and constructing a fly prison.

SESSION 11

Using Strand Maps (Gen)

(General) *113C, Convention Center*

Ted Willard *(twillard@aaas.org),* AAAS Project 2061, Washington, D.C.

Strand maps provide an easy way to envision how students' understanding will progress over the course of their education. Learn how to interpret this progression and how to use strand maps in your work.

SESSION 12

Developing Reasoning Skills Through Inquiry (Gen)

(Elementary–High School) *201A, Convention Center*

Douglas J. Llewellyn *(dllewell@rochester.rr.com),* St. John Fisher College, Rochester, N.Y.

Through inquiry and problem solving, students can use cognitive skills to analyze their data and elaborate on their explanations, thus enhancing their reasoning skills.

SESSION 13

Planning Effective Research-based Professional Development for Science Teachers (Gen)

(General) *201B, Convention Center*

Michele H. Lee, University of Missouri, Columbia

Be a savvy professional development designer by learning what research-based aspects can make science teacher learning opportunities meaningful and effective! Resources/references provided.

SESSION 14

Free Open-Source Software for STEM (Gen)

(Elementary–High School) *202A, Convention Center*

David D. Thornburg *(dthornburg@aol.com),* Thornburg Center for Space Exploration, Lake Barrington, Ill.

Transform computer use in the science classroom and bridge gaps between teachers and students using free, high-quality STEM software.

SESSION 15

Progressively Challenging Science Investigations for K–8 Elementary Teachers: Immersion in Science (Gen)

(Elementary–Middle Level) *203B, Convention Center*

Donald DeRosa *(donder@bu.edu)* and **Peter Garik** *(garik@bu.edu),* Boston University, Boston, Mass.

Chuck Winrich, Babson College, Babson Park, Mass.

We will report on the methods and impact of a professional development course for K–8 teachers that progressively immerses them deeper into a scientific inquiry.

SESSION 16

Using Superpowered Rap Music to Teach Science (Gen)

(General) *204A, Convention Center*

Tyraine D. Ragsdale *(grandhank@aol.com),* Grand Hank Productions, Inc., Philadelphia, Pa.

Help your students get a handle on the fundamentals of science through the use of hip-hop music. This multimedia approach incorporates multiple intelligences and inquiry-based teaching and learning strategies to connect science theory to hands-on applications.

SESSION 17

A Good Symbiosis: Connecting Science with Reading and Writing (Gen)

(Elementary–Middle Level/College) *204B, Convention Center*

E. Wendy Saul, University of Missouri–St. Louis

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

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

Presider: Becky Litherland, Parkway School District, St. Louis, Mo.

How do children's science books support student writing? Learn to write prompts, inspire revision, and assess student products. Explore examples from the NSTA/NCTE "Day on Student Writing."

SESSION 18

How Science and History Affect Your Understanding of Current Events: Improving Students' Informal Learning (Gen)

(General) *Hall D/Room 3, Convention Center*

Lisa Chillot *(lchillot@schuylkillvalley.org)* and **Dana Doganes** *(ddoganes@schuylkillvalley.org),* Schuylkill Valley High School, Leesport, Pa.

We will examine the historical relationship between the study of history and science; various informal methods of learning including, but not limited to, electronic learning and museum visits; and how to incorporate both informal and interdisciplinary lessons into the classroom curriculum.

SESSION 19

✔ **The Urban Advantage of Field Science Investigations (Env)**

(Middle Level–High School) *Hall D/Room 5, Convention Center*

Christine Kola, M.S. 45, Thomas C. Giordano School, Bronx, N.Y.

Alexandra Guzman *(xelalex13@yahoo.com),* East Flatbush Community Research School, Brooklyn, N.Y.

Learn how urban students can use the scientific method and the natural setting of their environment to design and complete long-term field science investigations.

SESSION 20

Dripping, Flowing, Sinking, and Floating: Water Inquiries in Kindergarten (Phys)

(Preschool–Elementary) *Hall D/Room 9, Convention Center*

Christina M. Ryan *(cryan@cpsd.us),* Cambridgeport School, Cambridge, Mass.

See how a kindergarten class deepened their understanding about the properties of water through discussion, inquiry-based explorations, and science notebooks entries. We will also discuss the importance of formative assessment and documentation in the work of the early childhood science classroom.

SESSION 21

Cultivating Budding Scientists Through Children's Literature (Gen)

(Elementary) *Hall D/Room 13, Convention Center*

Crystal L. Grace-Green and **Elizabeth M. Lutz,** Glenwood Elementary School, Media, Pa.

Use the familiar reading comprehension skills of predicting, questioning, drawing conclusions, and summarizing to introduce the scientific method to primary students.

SESSION 22

Launching Science Notebooks System-wide: It Just Makes Sense! (Gen)

(Elementary) *Hall D/Room 16, Convention Center*

Jennifer L. Craddock *(jenny_craddock@newton.K12.ma.us),* Newton (Mass.) Public Schools

A system-wide shift excited students about learning science, enabling teachers to imbed formative assessment, differentiate, and focus on science concepts—and it was easy!

SESSION 23

Turning Learning Inside Out: Self-directed Professional Development (Env)

(General) *Hall D/Room 21, Convention Center*

Donnan M. Stoicovy *(dms11@scasd.org),* **Jennifer L. Cody** *(jlc36@scasd.org),* and **Elizabeth S. Cullin** *(esc11@scasd.org),* Park Forest Elementary School, State College, Pa.

Presider: Patricia L. Vathis *(pvathis@state.pa.us),* Pennsylvania Dept. of Education, Harrisburg

Many teachers believe that the outside environment is an important setting for learning, yet they rarely go outside. We will focus on a professional development plan that changed this practice.

SESSION 24

Closing the Achievement Gap: Anecdotal Evidence for Improving Performance and Proficiency of Low-Income Students (Gen)

(Middle Level) *Hall D/Room 25, Convention Center*

Justin Darnell *(justin_darnell@dpsk12.org)*; Bryant-Webster Dual Language ECE-8, Denver, Colo.

Presider: Justin Darnell

Dramatically improve science content proficiency for low-income students with high-impact, research-based practices.

SESSION 25

Art-Full Science (Gen)

(Elementary–Middle Level) *Hall D/Room 28, Convention Center*

June L. Teisan, Harper Woods Secondary School, Harper Woods, Mich.

Harness student creativity and engage a wider range of learners by infusing your science curriculum with art. I'll share great ideas, vivid examples, and a few door prizes, too!

8:00–9:00 AM Workshops

Cosmic Times: Astronomy History and Science for the Classroom (Earth)

(Middle Level–High School) *103B, Convention Center*

James Lochner *(james.c.lochner@nasa.gov),* USRA and NASA Goddard Space Flight Center, Greenbelt, Md.

Barbara Mattson *(barb.mattson@nasa.gov),* ADNET and NASA Goddard Space Flight Center, Greenbelt, Md.

Let your students experience the process of science by studying the history of our understanding of the universe through literature using NASA's *Cosmic Times.*

Epidemiology, ELISA, and HIV (Bio)

(High School) *109A/B, Convention Center*

Genevieve Nelson *(genn@gfsnet.org),* Germantown Friends School, Philadelphia, Pa.

Participate in a simulated infectious disease outbreak and then perform an Enzyme Linked Immunosorbent Assay (ELISA). Learn how this powerful technique is used as a diagnostic and research tool.

Scientific Methods Using Bubble-ology Techniques (Chem)

(Elementary–High School) *112A/B, Convention Center*

Joyce E. Hubert-Theriot *(jtheriot@wcasd.net)* and **Judy Jones** *(jjones@wcasd.net),* Bayard Rustin High School, West Chester, Pa.

Presider: James Wakefield, Bayard Rustin High School, West Chester, Pa.

Conduct experimental procedures involving measurement and chemistry of bubbles that high school students electronically broadcast to another district's elementary class. Materials and handouts provided.

Rampage: Building Energy Concepts with Ramps (Phys)

(High School) *113A, Convention Center*

Aaron R. Osowiecki *(aosowiecki@gmail.com),* Boston Latin School, Boston, Mass.

Come learn about conservation of energy using a basic set of ramps of differing height and slope.

Science 2.0 **(Gen)**
(Elementary–High School) *203A, Convention Center*
Barbara S. De Santis *(bsdesantis@yahoo.com),* Sayreville Public Schools, Parlin, N.J.
Looking to implement Web 2.0 tools in your classroom? Come explore videos, Google Docs, and other innovative technologies with a variety of science classroom applications.

After-School Math Plus/After-School Inclusive Math **(Gen)**
(General) *Hall D/Room 4, Convention Center*
Maryann Stimmer *(mstimmer@aed.org),* Educational Equity Center at AED, New York, N.Y.
Linda Colón, Academy for Educational Development, New York, N.Y.
Math is the language of science. Learn how to include all students in inquiry-based math and science activities using an integrated curriculum that includes role models, literacy, exhibit-making, and museum partnerships.

Spirit of the Standards: Authentic Assessments **(Bio)**
(Elementary) *Hall D/Room 8, Convention Center*
Holly J. Clark *(clark@wagnerfreeinstitute.org),* **Dana Semos** *(semos@wagnerfreeinstitute.org),* and **Sabrina C. Fecher** *(sabrina.fecher@gmail.com),* The Wagner Free Institute of Science, Philadelphia, Pa.
How would the Lorax's truffula trees grow back? This engaging inquiry creates a springboard for assessment. We'll share resources to help you develop your own assessments.

It's Not Made of Green Cheese, You Know! **(Earth)**
(Elementary) *Hall D/Room 10, Convention Center*
Julie Taylor, Consultant/Solar System Educator, Victorville, Calif.
Celebrate the 40th anniversary of the Apollo Program with these fun-filled moon activities.

Science in the Summer **(Gen)**
(Elementary) *Hall D/Room 11, Convention Center*
Christian C. Heine *(cheine@bensalemsd.org),* Cornwells Elementary School, Bensalem, Pa.
Bill G. Vosburgh *(bvosburgh@wcasd.net),* Hillsdale Elementary School, West Chester, Pa.
Presider: Christian C. Heine
This 23-year-old summer science program can be taught in any facility and includes hands-on activities for grades 2–6.

Going to the Zoo, Zoo, Zoo—Get Activities, Activities, Activities **(Gen)**
(Elementary) *Hall D/Room 12, Convention Center*
CANCELED
Patricia Patrick *(ppatrick@bennett.edu),* Bennett College, Greensboro, N.C.
Take your K–2 students to the zoo and combine science, math, and writing. Here are some field trip ideas that you can do at any zoo.

Energy Concepts Measure Up **(Gen)**
(Preschool–Elementary) *Hall D/Room 15, Convention Center*
Mary Spruill *(info@need.org),* The NEED Project, Manassas, Va.
These engaging hands-on activities introduce scientific measurement while exploring basic energy concepts—motion, heat, light, sound, and growth. Use these resources to integrate math and science.

Science in the Everyday Lives of Students **(Bio)**
(Elementary–Middle Level) *Hall D/Room 18, Convention Center*
Pamela A. Koch *(pkoch@tc.edu),* Teachers College, Columbia University, New York, N.Y.
Aleta Damm *(adamm@jpsmail.org),* Middle School at Parkside, Jackson, Mich.
Students can collect and use data about their eating and exercise and the food available in their communities to improve their quality of life.

Physical or Chemical? That Is the Question! **(Chem)**
(Elementary–Middle Level) *Hall D/Room 19, Convention Center*
Glenda L. Ogletree *(bobbin86@aol.com),* Armstrong Atlantic State University, Savannah, Ga.
Use physical and chemical properties of matter to help students distinguish between a physical change and a chemical change. Examine ways to enhance student understanding of these concepts.

Examining the Human Footprint: Population, Land Use, and the Global Environment **(Env)**
(Middle Level–High School) *Hall D/Room 22, Convention Center*
Pamela Wasserman *(pam@popconnect.org),* Population Connection, Washington, D.C.
Engage in innovative hands-on activities that explore human evolution and its impacts on ecosystems, biodiversity, climate, and natural resources. Receive extensive lesson plans on CD-ROM.

Using the Science IDEAS Model to Integrate Science and Literacy in Grades K–5 **(Gen)**
(Elementary/Supervision) *Hall D/Room 23, Convention Center*
Nancy Romance *(romance@fau.edu)* and **Catherine E. Christopher,** Florida Atlantic University, Boca Raton
We will share core strategies and curricular planning guidelines for integrating in-depth science instruction with reading and writing in grades K–5.

Centering Around the Science Standards, Grades 6–8 **(Gen)**
(Middle Level) *Hall D/Room 24, Convention Center*
Meri Johnson *(johnson_m@ccesc.org),* Clermont County Educational Service Center, Batavia, Ohio
Learn how to use and manage centers that teach science concepts to middle school students with various instructional needs.

Using Devonian Fossils to Connect Science Content Across the Curriculum **(Gen)**
(Elementary–Middle Level) *Hall D/Room 26, Convention Center*
Justin A. DiMatteo *(jdimatt1@dryden.k12.ny.us),* Dryden Elementary School, Dryden, N.Y.
Robert M. Ross *(rmr16@cornell.edu),* Museum of the Earth, Paleontological Research Institution, Ithaca, N.Y.
Barbara A. Crawford *(bac45@cornell.edu),* and **Daniel K. Capps** *(dkc39@cornell.edu),* Cornell University, Ithaca, N.Y.
Connect Devonian fossils with social studies, math, and English language curricula. Take home handouts of model lessons.

Inquiry Science: What's the Big Idea? **(Gen)**
(Preschool–Middle Level) *Hall D/Room 27, Convention Center*
Teresa A. Jones *(tejones@perry.k12.ok.us)* and **Jalee D. Dietrich** *(jdietrich@perry.k12.ok.us),* Perry Elementary School, Perry, Okla.
Investigations based on the "Big Ideas of Science" help scientists/students organize their thinking into connections and patterns that permeate all learning.

Teaching the Nature of Science **(Gen)**
(Elementary–Middle Level) *Hall D/Room 29, Convention Center*
Eric S. Brunsell *(brunsele@uwosh.edu),* University of Wisconsin, Oshkosh
Explore how different types of science inquiry can deepen students' understanding that science is more than experimentation.

Sally Ride Science and the U.S. Forest Service Symposium Session: How to Excite Students About Careers in Environmental Science **(Env)**
(Middle Level) *Franklin 10, Marriott*
Leesa Hubbard, Sally Ride Science, San Diego, Calif.
Learn about engaging careers in environmental science and scientists in these careers. Perform fun hands-on activities that help illustrate what environmental scientists do.

9:30–10:00 AM Presentation

SESSION 1
Strategies for Increasing K–12 Students' Interest in STEM Careers **(Gen)**
(Elementary–Middle Level/Inf.) *Hall D/Room 26, Conv. Center*
Stacie Harrison *(s.harrison@asee.org)* and **Dennis P. Cummings,** American Society for Engineering Education, Washington, D.C.
Presider: Robert Black, American Society for Engineering Education, Washington, D.C.
Explore some strategies for addressing the U.S. shortage of college graduates in engineering and science fields.

9:30–10:30 AM Presentations

SESSION 1

Hands on the Sun (Earth)

(Middle Level–High School) *103B, Convention Center*

Steele W. Hill *(steele.w.hill@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.

Engage your students' interest in the Sun with these hands-on activities, including exploring Sun-Earth size and scale, sensing UV light, safe ways to do direct solar observing, and tracking sunspots.

SESSION 2

Pre-Engineering: The Glue That Binds a Multidisciplinary Approach to Instruction (Gen)

(Middle Level–High School/Supv.) *106A/B, Convention Center*

Michelle L. Kutch *(michelle.kutch@bsd.k12.de.us),* Springer Middle School, Wilmington, Del.

Learn how we created a school-wide approach—combining science, math, business, technology education, language arts, and social studies—to solve real-world problems in pre-engineering, economics, and entrepreneurship.

SESSION 3

As the World Turns: Revolutions in Earth Science (Earth)

(General) *107A/B, Convention Center*

Ro Kinzler, David Randle *(drandle@amnh.org),* and **Julie Contino** *(semadmin@amnh.org),* American Museum of Natural History, New York, N.Y.

Explore recent developments in earth science research, from climate change to the latest technology.

SESSION 4

Motivating Students to Learn Biology Through Readers Theater (Bio)

(Middle Level–High School) *108A, Convention Center*

Jill Purdy *(jepurdy@cedarcrest.edu),* Cedar Crest College, Allentown, Pa.

Science and reading meet in this research conducted in ninth-grade biology classes. Significant increases in motivation and content mastery occurred when Readers Theater scripts were used.

SESSION 5

Science 2.0 (Bio)

(Elementary–High School) *109A/B, Convention Center*

Philip Vinogradov *(pvino1@mac.com),* William Tennent High School, Warminster, Pa.

Use Web 2.0 tools to support, enhance, and facilitate authentic collaboration and project-based learning

SESSION 6 (two presentations)

(Middle Level–High School) *110A/B, Convention Center*

Incorporating Reading in the Science Classroom (Bio)

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

Debra Barthold *(barthdeb@eastpennsd.org),* Emmaus High School, Emmaus, Pa.

Many students have problems reading current high school biology textbooks. We'll share some strategies for assisting struggling and/or motivationally challenged students.

Science Fairs: Integration into the Science Curriculum from a Student's Perspective (Bio)

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

Anisha Garg, Emmaus High School, Emmaus, Pa.

A teacher and a high school student discuss how the integration of science fair preparation into the curriculum impacts science learning.

SESSION 7

Sticky Tape and Other Electricity and Magnetism Activities (Phys)

(Middle Level–High School) *113A, Convention Center*

Robert Schanne *(schannr@lmsd.org),* Lower Merion High School, Ardmore, Pa.

These electricity and magnetism activities and demonstrations can be used with all levels of students and physics classes.

SESSION 8 (two presentations)

(Middle Level–High School/Informal) *113B, Convention Center*

Newton's Laws and City Transportation: The SEPTA Bus Project (Phys)

Mary Jo F. Grdina *(mfg29@drexel.edu),* Drexel University, Philadelphia, Pa.

Rosalind E. Echols *(rosalind.echols@gmail.com),* Science Leadership Academy, Philadelphia, Pa.

Students at the Science Leadership Academy in downtown Philly were introduced to Newton's laws when they were given the task of designing informational materials for people riding public transportation.

Physics in Philadelphia (Phys)
Mary Jo F. Grdina *(mfg29@drexel.edu),* Drexel University, Philadelphia, Pa.
The Physics in Philadelphia™ project aims to demonstrate that any city can become a STEM City by using city sites as the bases for physics instruction.

SESSION 9
A Process for Developing STEM Curriculum Materials (Gen)
(General) 202A, Convention Center
Hays B. Lantz, Jr. *(hlantz4446@gmail.com),* CurrTech Integrations, LLC, Baltimore, Md.
Discover a STEM curriculum design process/template that uses four sets of national standards, contemporary teaching pedagogies, and the Understanding by Design process.

SESSION 10
Digital Storytelling in the Science Classroom: Exploring Nature (Gen)
(General) 203A, Convention Center
Kathleen A. Fadigan *(kxf24@psu.edu)* and **Amy Hawkins** *(hawkinsa@tesd.net),* Penn State Great Valley, Malvern, Pa.
Here are practical strategies for introducing students to digital storytelling as a tool for studying nature and the environment and for developing science process skills through technology.

SESSION 11
Involving Girls in Science: Academic Strategies and Neurocognitive Gender Differences (Gen)
(Elementary–High School) 203B, Convention Center
Abigail Norfleet James *(anj3g@virginia.edu),* University of Virginia, Falls Church
These classroom strategies for increasing interest and involvement of young women in science are based on recent research on neurocognitive gender differences.

SESSION 12
Lab Inquiry: It's as Easy as ABC (Activity Before Concept) (Gen)
(General) Hall D/Room 4, Convention Center
Arthur Eisenkraft *(arthur.eisenkraft@umb.edu),* 2000–2001 NSTA President, and University of Massachusetts, Boston
Lab activities should precede concepts (ABC) in order to improve lab practice and outcomes and provide a level playing field for learning that will help decrease the achievement gap in your classroom.

SESSION 13
Inquiring Minds Want to Grow: Building Intentional Practice (Gen)
(Preschool–High School) Hall D/Room 12, Convention Center
Jeff Marshall *(marsha9@clemson.edu),* Clemson University, Clemson, S.C.
Make science more meaningful to your students while guiding them to become active investigators of the world around them. Learn how to become more intentional about improving your teaching.

SESSION 14
Double Duty: Elementary Science Trade Books and Inquiry Kits (Gen)
(Elementary) Hall D/Room 13, Convention Center
Karen M. Ferrari *(ferrark@garnetvalleyschools.com),* Garnet Valley School District, Glen Mills, Pa.
Learn how to use trade books in your science and/or language arts classroom to teach both science content and nonfiction reading skills while preserving inquiry.

SESSION 15
Notebooking: Scientific Illustrations with Kindergartners (Gen)
(Preschool–Middle Level/Informal) Hall D/Room 15, Conv. Center
Andrea Z. Andretta *(aandretta5@optonline.net),* Jefferson Science Magnet School, Norwalk, Conn.
Zackery Zdinak *(wildlife@lifedraw.com),* Life Drawing & Education, Flagstaff, Ariz.
Science standards for kindergartners have increased. Use science notebooks to provide an effective way to engage them with scientific illustrations, writing, and use of rubrics.

SESSION 16
That's Where Broccoli Came From? (Bio)
(Middle Level) Hall D/Room 18, Convention Center
Carolyn Ely and **Elizabeth Ladner,** Hall-Dale Middle School, Farmingdale, Maine
This inquiry-based project uses information from current seed catalogs to clarify students' understanding of the mechanism of artificial selection.

SESSION 17

Challenging All Students in a Middle School Classroom (Chem)

(Middle Level) *Hall D/Room 19, Convention Center*

Karen Weeks, Johns Hopkins University Center for Talented Youth, Baltimore, Md.

Learn how to embed chemistry content, process, and product differentiation in a heterogeneous middle school classroom. Take home sample lessons.

SESSION 18

The Color of Water: Mixing Art and Science (Env)

(General) *Hall D/Room 21, Convention Center*

Vivian Williams *(vwilliams@stroudcenter.org),* Stroud Water Research Center, Avondale, Pa.

Multimedia art is a wonderful vehicle for documenting environmental observations and tapping into nontraditional learning styles. We will showcase techniques for studying stream systems and assessing student understanding, much of it based on research from the Stroud Water Research Center.

SESSION 19

Teaching Strategies to Support Middle School Students in Constructing Evidence-based Scientific Explanations (Gen)

(Middle Level) *Hall D/Room 27, Convention Center*

Katherine L. McNeill *(kmcneill@bc.edu),* Boston College, Chestnut Hill, Mass.

Explore a framework for scientific explanation (claim, evidence, and reasoning) and some successful teaching strategies for integrating the framework.

SESSION 20

Sing a Little, Play a Little, Learn a Lot! (Gen)

(Elementary–Middle Level) *Hall D/Room 28, Convention Center*

Robin H. Zecca *(rzecca@dccs.org)* and **Christy J. Ware** *(cware@dccs.org),* Delaware County Christian School, Newtown Square, Pa.

Join us for a lively, interactive, fun session that will help you rejuvenate your lessons with music, art, and multidisciplinary activities.

SESSION 21

Teaching the Nature of Science Through Process Skills (Gen)

(Elementary–Middle Level) *Hall D/Room 29, Convention Center*

Randy L. Bell *(rlb6f@virginia.edu),* University of Virginia, Charlottesville

Kathy Cabe Trundle *(trundle.1@osu.edu),* The Ohio State University, Columbus

Teach about the nature of science through these hands-on, student-centered lessons. Take home resources.

9:30–10:30 AM Workshops

NanoScale PlanetWalk (Earth)

(General) *103A, Convention Center*

Robert E. Strong *(robert@smartcenter.org),* **Richard J. Pollack** *(energy@smartcenter.org),* and **Libby A. Strong** *(libby@smartcenter.org),* SMART-Center, Wheeling, W.Va.

Presider: Libby A. Strong

Experience a nanoscale solar system while interacting with a dimensionally accurate one-billionth scale model underwritten by the NASA West Virginia Space Grant Consortium.

Pressure, Wind, and Clouds (Earth)

(General) *105A/B, Convention Center*

Steven R. Carson *(steve_carson@monet.prs.k12.nj.us),* John Witherspoon Middle School, Princeton, N.J.

Explore how pressure differences in the atmosphere relate to strengths of wind and the formation of clouds with a set of hands-on activities.

Beyond Gumdrops: Advanced Learning Activities for Molecular Modeling (Bio)
(Middle Level–High School) *108B, Convention Center*
William C. Anderson, Unionville High School, Kennett Square, Pa.
Learn how to incorporate the use of molecular models in biochemistry, genetics, physiology, and other fields. Make a 3-D model of a peptide.

E.E.Z.E. Activities: Engaging, Explorative, Zingy, Experimental Activities (Chem)
(Middle Level–High School) *112A/B, Convention Center*
Kathryn E. Miller *(katy_miller@hempfieldsd.org)* and **Kirsten R. Dissinger** *(kirsten_dissinger@hempfieldsd.org),* Hempfield High School, Landisville, Pa.
Presider: Nanette Marcum-Dietrich, Millersville University of Pennsylvania, Millersville
These engaging hands-on physical science activities and projects increase student participation and learning and are aligned with state and national standards. Handouts and door prizes!

Engaging Your Students: Designing Lesson Plans Using the 5E Instructional Model (Gen)
(General) *113C, Convention Center*
Binaben H. Vanmali, Sandra K. Abell *(abells@missouri.edu),* **Aaron J. Sickel** *(ajsrhc@mizzou.edu),* and **Stephen B. Witzig** *(sbwitzig@mizzou.edu),* University of Missouri, Columbia
We engaged students in a college science course using the 5E instructional model. See how you can adapt it for your own course.

"Turning It On": Making the Connection Between Science and Reading (Gen)
(General) *201A, Convention Center*
Pam Caffery *(pamela.caffery@sdhc.k12.fl.us),* Hillsborough County Public Schools, Tampa, Fla.
Learn how to take a simple inquiry activity, like this one on electricity, and blend it with reading strategies.

No Teacher Left Inside: Using the Outdoors as Your Science Classroom (Env)
(Preschool–Elementary) *201B, Convention Center*
Nanette I. Dietrich *(ndietrich@millersville.edu),* **L. Lynn Marquez** *(lynn.marquez@millersville.edu),* and **Marcia Nell** *(marcia.nell@millersville.edu),* Millersville University of Pennsylvania, Millersville
Christina Medved *(cmedved@stroudcenter.org)* and **Susan Gill** *(sgill@stroudcenter.org),* Stroud Water Research Center, Avondale, Pa.
Explore ways preschool and elementary teachers can use "wild places" to teach classroom science content.

Science Vocabulary: Unburden Your Curriculum By Crossing Discipline Boundaries (Gen)
(General) *202B, Convention Center*
Suzanne Mecouch, Marple Newtown School District, Newtown Square, Pa.
Find out what science terms are really needed to reach scientific literacy! Participate in an innovative process that uses state standards to arrive at a cross-discipline list of the most necessary science terms and their connections to math, social studies, and language arts.

Understanding Science: How to Get Your Students Engaged in the Real World of Science (Gen)
(General) *204A, Convention Center*
Jennifer A. Collins *(jen@paleobio.org),* Deep Earth Academy, Washington, D.C.
The Understanding Science website and science flow chart can help make your lessons more scientific, incorporate real science examples, and address misconceptions.

NSTA Press Session: Extreme Science: Scales from Nano to Galactic (Gen)
(Middle Level–High School) *Hall D/Room 3, Convention Center*
M. Gail Jones, Brandi Thurmond *(bnthurmo@ncsu.edu),* and **Sarah W. Robert,** North Carolina State University, Raleigh
Amy R. Taylor *(taylorar@uncw.edu),* University of North Carolina, Wilmington
Laura Robertson, University School, East Tennessee State University, Johnson City
Explore size and scale across the science domains through an examination of egg size, behavior of nanoparticles, and limits to insect size.

Monarchs, Silkworms, and Painted Ladies: Developing the Elementary Learner's Proficiency in Scientific Inquiry (Bio)
(Elementary) *Hall D/Room 8, Convention Center*
J. William Hug *(hug@calu.edu),* California University of Pennsylvania, California
Explore successful techniques for raising butterflies through four stages. We'll share hands-on activities and strategies for teaching scientific inquiry.

Icy Motion (Phys)
(Preschool–Elementary) Hall D/Room 9, Convention Center
Bambi L. Bailey *(bambi_bailey@uttyler.edu)* and **Dona Packer,** The University of Texas at Tyler
Presider: Bambi L. Bailey
Deepen young children's understanding of motion by providing experiences with low-friction surfaces—ice trays/ramps!

Weather or Not! K–4 Connections for Weather Units (Earth)
(Elementary) Hall D/Room 10, Convention Center
Lynne H. Hehr *(lhehr@uark.edu)* and **John G. Hehr** *(jghehr@uark.edu),* University of Arkansas, Fayetteville
How can the science of weather be tied to language arts, math, and social studies? Explore ways of looking at weather from an integrated standpoint. We'll share loads of resource materials.

Smarter Science for Elementary School: Literacy and Numeracy in Action (Gen)
(Elementary) Hall D/Room 11, Convention Center
Brad Parolin *(brad.parolin@tdsb.on.ca),* Toronto District School Board, Toronto, Ont., Canada
Smarter Science's research-based inquiry program teaches key concepts and process skills through hands-on investigations. Handouts and door prizes.

Think Scientifically! Science Hidden in a Storybook (Gen)
(Preschool–Elementary) Hall D/Room 14, Convention Center
Aleya J. Van Doren *(aleya.j.vandoren@nasa.gov),* NASA Goddard Space Flight Center, Greenbelt, Md.
The *Think Scientifically* interdisciplinary storybooks are available free to elementary teachers through NASA's Solar Dynamics Observatory (SDO) at Goddard Space Flight Center. Come explore the program and try some activities.

Differentiating Science Instruction Through Questioning: Increasing Complexity By Widening Scope (Gen)
(Preschool–Elementary) Hall D/Room 16, Convention Center
Scott E. Sala *(scott_sala@dpsk12.org),* Denver (Colo.) Public Schools
M. Susan McWilliams *(smcwilliams@mail.uomaha.edu),* University of Nebraska at Omaha
Engage in three simple science investigations and see how the depth of the activity changes as the level of questioning increases in complexity.

The Little Things That Run the World (Env)
(Middle Level–High School) Hall D/Room 22, Convention Center
David L. Brock *(brockda@rpcs.org),* Roland Park Country School, Baltimore, Md.
Discover the realm of the amoeba! Learn how to engage your students in field studies exploring the ecology of the microscopic world.

Seeing Past and Present: Impression and Expression in Fossils and Ourselves! (Earth)
(Elementary–Middle Level) Hall D/Room 23, Convention Center
Barbara S. McClung *(bmcclungny@aol.com),* P.S. 184, Shuang Wen Academy, New York, N.Y.
Presider: Lauren Phillips, P.S. 184, Shuang Wen Academy, New York, N.Y.
These hands-on and demo lessons on fossils show the graceful and exciting relationship between science, history, and literacy through the Aesthetic Realism teaching method.

Native American Science on the Reservation (Gen)
(Elementary–Middle Level) Hall D/Room 24, Convention Center
Krystal Bellamy, Round Rock, Tex.
A hands-on science program improved science achievement on a remote Hopi reservation while attempting to address some Native American beliefs.

Sally Ride Science and the U.S. Forest Service Symposium Session: Carbon, Oxygen, Water, and Shade: Putting a Price on the Benefits of Your Schoolyard Trees! (Env)
(Middle Level–High School) Franklin 10, Marriott
Vicki Arthur *(varthur@fs.fed.us),* USDA Forest Service, Washington, D.C.
Trees play a vital role in the carbon cycle. Use the i-Tree tree benefits calculator to inventory schoolyard or community trees and calculate the benefits and services they provide.

9:30–11:30 AM Workshop

Using the National Science Facilities Standards to Plan and Design Your School Science Facility (Gen)

(General) *Hall D/Room 2, 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 Community College, Boca Raton, Fla.

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

Presider: LaMoine L. Motz

Join the NSTA Team on Planning School Science Facilities for a action-packed hands-on session on planning and designing your new science facilities. Learn how the latest research on effective teaching provides you with a guide to what makes effective, flexible/modular, and SAFE teaching spaces for science, and how YOUR input CAN influence the planning and designing of effective facilities. The authors of *NSTA Guide to Planning School Science Facilities* (Second Edition) will guide you through the planning process. Participants will receive a course packet and copy of *NSTA Guide to Planning School Science Facilities*, and view several of the area's newest science teaching facilities.

10:00–10:30 AM Presentation

SESSION 1

History Should Be Repeated (and Enhanced) in the Science Classroom (Gen)

(General) *Hall D/Room 5, Convention Center*

William C. Bowman *(wbowman@pkwy.k12.mo.us),* Parkway North High School, St. Louis, Mo.

Monica M. Bowman *(mbowman@ladue.k12.mo.us),* Ladue Horton Watkins High School, Ladue, Mo.

Intertwining history and science makes students better appreciate how historical events impacted the development of science and how science causes historical changes.

11:00–11:30 AM Presentations

SESSION 1

Science and Engineering Partnerships in Grades 3–5 (Earth)

(Elementary/Supervision) *Hall D/Room 10, Convention Center*

Augusto Z. Macalalag *(augusto.macalalag@stevens.edu),* Stevens Institute of Technology, Hoboken, N.J.

Learn about a successful professional development model that engages teachers and students in scientific inquiry and the engineering design process.

SESSION 2

Tapping the Full Potential of Your Next Science Museum Field Trip (Gen)

(Informal Education) *Hall D/Room 26, Convention Center*

Julie A. Holmes *(jholmes@latech.edu),* Louisiana Tech University, Ruston

Make your next field trip to a science museum a maximum learning experience. I'll share techniques and handouts.

11:00 AM–12 Noon Presentations

SESSION 1

The Great Space Race! (Earth)

(High School) *103A, Convention Center*

Diana Soehl *(dsoehl2@yahoo.com),* Elwood-John H. Glenn High School, East Northport, N.Y.

Where did life come from? Engage students with this question with an astrochemistry webquest. Using NRAO data, we'll determine the source of life and molecules to be discovered next in space!

SESSION 2

Silencing Genomes (Bio)

(High School–College) *103C, Convention Center*

Uwe Hilgert *(hilgert@cshl.edu),* Cold Spring Harbor Laboratory, Cold Spring Harbor, N.Y.

Bring the science revolution of RNA interference (RNAi) into your classroom and guide students through bioinformatics exercises and labs using RNAi in the nematode *C. elegans.*

SESSION 3

Coherently Implementing Model-based Inquiry Learning Across High School Chemistry and Physics Classes (Chem)

(High School–College) *104A/B, Convention Center*

Patrisha Ross *(pross@ucfsd.org)* and **Douglas P. Vallette** *(dvallette@ucfsd.org),* Unionville High School, Kennett Square, Pa.

Nanette I. Dietrich *(ndietrich@millersville.edu),* Millersville University of Pennsylvania, Millersville

Join a panel discussion on the successes and challenges of implementing model-based chemistry and physics while taking advantage of technology grants.

SESSION 4 (two presentations)

(General) *108A, Convention Center*

Presider: Bill Straus, Vassar College, Poughkeepsie, N.Y.

Crossing the Great Divide: Bridging the Gap Between K–12 and Higher Education (Bio)

Karen Snetselaar, Saint Joseph's University, Philadelphia, Pa.

Susan Glassman *(susang@wagnerfreeinstitute.org),* Wagner Free Institute of Science, Philadelphia, Pa.

GeoKids LINKS, an NSF-funded collaboration, partners a museum, university, and school district to fulfill a range of short- and long-term goals.

An Unidentified Resource in Science Education Outreach: The Undergraduate Science Major (Bio)

Brian C. Baldwin *(bruff73@yahoo.com),* Kean University, Union, N.J.

Bill Straus *(straus@vassar.edu)* and **Norene Coller** *(norenecoller@yahoo.com),* Vassar College, Poughkeepsie, N.Y.

Learn about a science outreach program between a liberal arts university and a local school district in which science undergraduates, not education graduate students, partnered with local teachers.

SESSION 5

Using a UDL Learning Community to Increase Student Success in STEM (Gen)

(High School–College) *112A/B, Convention Center*

Dawn A. Tamarkin *(tamarkin@stcc.edu),* Springfield Technical Community College, Springfield, Mass.

We will share a successful paradigm for STEM learning that incorporates learning communities (LCs) and a universal design for learning (UDL) approach.

SESSION 6

A Teacher-invented Tool for Curriculum Clarification: The Assessment Guide (Phys)

(Supervision/Administration) *113A, Convention Center*

Erin T. Peacock *(epeacock@mtsd.us),* Montgomery Township Board of Education, Skillman, N.J.

Experience the power of focused teaching! Our teachers have created a powerful tool and collaborative protocol for clarifying broad curriculum objectives or standards into clear learning expectations and evidence for success.

SESSION 7

Collaborative Instruction: Working Together So All May Learn (Phys)

(High School) *113B, Convention Center*

George M. Needham, Hopewell Valley Regional School District, Pennington, N.J.

We will explore the dynamics of collaborative instruction and share techniques, strategies, and specific lessons that have been developed in an inclusive classroom.

SESSION 8

The Inquiry Enigma: Differences in Perceptions Between Experts and Practitioners (Gen)

(General) *201A, Convention Center*

Julia T. Gooding *(chemteacher007@aim.com),* Science Education Consultant, Monaca, Pa.

The purpose of this study was to explore the differences in perceptions between experts and practitioners in the field of scientific inquiry.

SESSION 9

The Realities of Training and Mentoring New Science Teachers (Gen)

(General) *201B, Convention Center*

Pam Caffery *(pamela.caffery@sdhc.k12.fl.us),* Hillsborough County Public Schools, Tampa, Fla.

Michele Detwiler *(michele.detwiler@sdhc.k12.fl.us),* Turkey Creek Middle School, Plant City, Fla.

Presider: Andi Ringer, School District of Hillsborough County, Tampa, Fla.

Do you want real solutions and activities to train and mentor new teachers? Here is everything you need to get started!

SESSION 10

Making STEM Connections in K–12 Education (Gen)

(General) *202A, Convention Center*

Joey H. Rider-Bertrand *(riderj@lmsd.org),* Lower Merion School District, Ardmore, Pa.

Learn how to engineer a cohesive STEM program in which students develop inquiry, design, and problem-solving competencies that they transfer to academic and real-world contexts.

SESSION 11

How and Why to Ask Questions in Math and Science (Gen)

(General) *202B, Convention Center*

Cheryl A. Everett *(cheryle@cciu.org)* and **Marjorie Graeff** *(marjorieg@cciu.org),* Chester County Intermediate Unit, Downingtown, Pa.

Come investigate the features of effective questions and get practical ideas for their use.

SESSION 12

Tapping into the Digital Revolution: Revolutionizing Science Education Using "We Tools" (Gen)

(General) *203A, Convention Center*

Corey J. Peloquin *(corey.peloquin@technosavvyteacher.com)* and **Julie Ball** *(julie.ball@technosavvyteacher.com),* Techno Savvy Teacher Educational Consultants, Tampa, Fla.

Presider: Corey J. Peloquin

Transform your classroom to meet the needs of 21st-century learners. Digitize your curriculum using a variety of methods that have been teacher tested and student approved!

SESSION 13

Just the Facts: How to Write and Score Science Essays Consistently and Objectively (Gen)

(High School–College) *203B, Convention Center*

Israel Solon and **Tom Corley** *(tcorley@ets.org),* Educational Testing Service, Princeton, N.J.

Presider: Irene Kijak *(ikijak@ets.org),* Educational Testing Service, Princeton, N.J.

Test developers from ETS will describe how essays are developed for national science assessments that are reliable and valid for all students.

SESSION 14

Tips for New Chemistry Teachers (Chem)

(Middle Level–High School) *204B, Convention Center*

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

Ger some tips from a seasoned chemistry teacher that will help you survive your first few years.

SESSION 15

Using Web 2.0 Tools to Integrate Science, Language Arts, and Technology (Gen)

(General) *Hall D/Room 3, Convention Center*

Meg Griffin *(mgriffin@cbsd.org),* Cold Spring Elementary School, Doylestown, Pa.

Use Web 2.0 tools plus blogs and wikis to take your elementary students' science learning to a higher level.

SESSION 16

Thinking GREEN Literally: An Engaging Inquiry-based Way to Teach the Scientific Method Using Seeds and Plants (Gen)

(General) Hall D/Room 4, Convention Center

Barbara J. Simon-Waters *(barbarawaters@hotmail.com),* East Carteret High School, Beaufort, N.C.

Engage students in the scientific method using seeds and plants from *www.plantingscience.org.* Students post experiments/results online and interact with university mentors.

SESSION 17

Forget the Three Rs…Just Teach Science! (Gen)

(Elementary) Hall D/Room 15, Convention Center

Anthony E. Grisillo, Glenwood Elementary School, Media, Pa.

Judy Williams, Price Elementary School, Anaheim, Calif.

No time to teach it all? Design science lessons to teach it for you! We'll share simple techniques you can use to integrate other curricula into science, including Discovery Education, Project SMART, and other shared templates.

SESSION 18 (two presentations)

(Middle Level–High School) Hall D/Room 16, Convention Center

Connecting Science and Math Through Studies of Local Biodiversity (Gen)

Lisa Currie *(lisa.currie@nccvt.k12.de.us),* St. Georges Technical High School, Middletown, Del.

We'll share details and lesson plans from the first year of an integrated science program where students examine local biodiversity to explore Delaware's science and math curriculum.

Every Class Is a Reading Class (Gen)

Amy Alexander *(edn_aca_aa@nwoca.org),* Edon High School, Edon, Ohio

Reading high school science books is difficult when students lack literacy strategies to aid comprehension. I will demonstrate a variety of reading comprehension techniques.

11:00 AM–12 Noon Workshops

Radians of the Lost Arc (Earth)

(Middle Level–High School) 103B, Convention Center

Bruce H. Hemp *(bhemp@ntelos.net),* Fort Defiance High School, Fort Defiance, Va.

Presider: Jeff Adkins, Deer Valley High School, Antioch, Calif.

Free NASA materials and two hands-on activities will give you a better understanding of radians and how they relate mathematics to science.

Discovering Earth's Layered Interior with Seismic Waves (Earth)

(Middle Level–High School) 105A/B, Convention Center

Michael Hubenthal *(hubenth@iris.edu)* and **John Taber** *(taber@iris.edu),* IRIS Consortium, Washington, D.C.

Michael Wysession *(michael@wucore.wustl.edu),* Washington University in St. Louis

Finally an activity that addresses this standard! Explore new discoveries about Earth's dynamic interior through an activity that allows students to discover or dispel the presence of Earth's layers using seismic data.

Achieving Science Literacy for the 21st Century: A Curricular Tool That Aligns the Voices of Science Stakeholders (Gen)

(General) 107A/B, Convention Center

Donna Cleland and **Marlene Hilkowitz** *(mhilkowitz@mac.com),* Math Science Partnership of Greater Philadelphia, Conshohocken, Pa.

Come learn about (and walk away with) our Science Matrix, a curricular tool that aligns state, university, national, and workforce standards. What's most important?

Empowering Youth to Address the Threat of Climate Change: Reducing Carbon Dioxide Emissions in Your Community (Gen)

(General) 109A/B, Convention Center

Lynne Cherry, Children's Book Author/Illustrator/Movie Producer, Thurmont, Md.

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

Presider: Lynne Cherry

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

Water WOW! An Integrated Unit (Gen)
(Elementary–High School) 113C, Convention Center
Terri G. George, Henry County Schools, McDonough, Ga.
Learn how to use the water cycle as a unit to incorporate science, reading, writing, math, economics, and geography in grades 4–9.

D.I.Y. Forensics (Gen)
(Elementary–High School) 204A, Convention Center
Jennifer M. Edginton *(jennifer.edginton@msichicago.org)* and **April Chancellor** *(april.chancellor@msichicago.org),* Museum of Science and Industry, Chicago, Ill.
Learn how to develop forensic skills and activities on a budget—blood spatter, entomology, and more!

Making Curricular Connections Through Engineering Learning Activities in the Elementary Science Classroom (Gen)
(Elementary) Hall D/Room 12, Convention Center
Brenda M. Capobianco *(bcapo@purdue.edu),* Purdue University, West Lafayette, Ind.
Nancy Tyrie *(ntyrie@lsc.k12.in.us),* Vinton Elementary School, Lafayette, Ind.
Presider: Brenda M. Capobianco
Learn some discrete ways to integrate a series of standards-based, interdisciplinary engineering activities in the grades 3–5 science classroom. Handouts.

But I Am Not a Reading Teacher! Finding Literacy in Primary Science (Gen)
(Preschool–Elementary) Hall D/Room 13, Convention Center
Michael Joseph Bell *(mbell@wcupa.edu),* West Chester University, West Chester, Pa.
Try a wide variety of hands-on activities that emphasize strong literacy connections, with a focus on reading and writing skills.

FoodMASTER: Using Food as a Tool to Teach Math and Science (Gen)
(Elementary) Hall D/Room 14, Convention Center
Jana A. Hovland *(jah0830@ecu.edu)* and **Tammy Lee** *(leeta@ecu.edu),* East Carolina University, Greenville, N.C.
Participate in the hands-on Selecting Cereals lab and learn ways to use food as a tool to teach inquiry-based math, science, and nutrition concepts.

Life Science Life Support (Bio)
(Middle Level) Hall D/Room 18, Convention Center
Michael A. Kelly *(makelly78@yahoo.com),* Snellville Middle School, Snellville, Ga.
Lynda Pollock *(lynda_pollock@gwinnett.k12.ga.us),* J.E. Richards Middle School, Lawrenceville, Ga.
Here are lab activities and creative content-rich materials that you can use Monday in your classroom.

Bridges: Making the Connections (Phys)
(Elementary–Middle Level) Hall D/Room 19, Convention Center
Mary Pat Coburn *(coburnmp@yahoo.com),* Smith Middle School, Glastonbury, Conn.
Participate in inexpensive hands-on bridge-building activities that demonstrate the differences between bridge types. Handouts.

Wetlands Inquiry (Env)
(General) Hall D/Room 21, Convention Center
Judith Lucas-Odom *(judyps23@yahoo.com),* Chester-Upland School District, Chester, Pa.
Explore how watersheds are made and problem-solving techniques to help students identify factors that affect the wetland through point and non-point pollution.

Smash! Crash! Splat! What We Can Learn from Craters on the Moon (Earth)
(Elementary–Middle Level) Hall D/Room 22, Convention Center
Dawn Turney *(dawn.turney@jhuapl.edu),* The Johns Hopkins Applied Physics Laboratory, Laurel, Md.
In 2009, NASA's Lunar Reconnaissance Orbiter reopened the path forged by the Apollo explorers. Discover more while participating in a hands-on lunar activity.

It's Elementary! Using the Four-Question Strategy to Design Experiments (Gen)
(Elementary–Middle Level) Hall D/Room 25, Convention Center
Julie Alexander *(jualexan@columbia.k12.mo.us),* Columbia (Mo.) Public Schools
Discover a four-question strategy for designing and conducting experiments that can be easily incorporated into a hands-on science curriculum.

Energizing Your Lesson Using Science: An Interdisciplinary Process (Gen)
(Elementary–Middle Level) Hall D/Room 27, Convention Center
Felecia J. Lewis, Hofstra University, Hempstead, N.Y.
Galia M. Espinal *(marenubium76@aol.com),* Ron Brown Academy Middle School 57, Brooklyn, N.Y.
Presider: Catherine R. Beasley, Hofstra University, Uniondale, N.Y.
Learn how to make any lesson exciting using science along with language arts, social studies, and math. We'll share lesson plans, materials, and a CD.

Weaving Nature of Science into the K–8 Curriculum (Gen)
(Elementary–Middle Level) Hall D/Room 29, Convention Center
Janet C. MacNeil *(janet_macneil@brookline.k12.ma.us),* Brookline (Mass.) Public Schools
Learn how to overcome student misconceptions about what science is, how it works, and who scientists are. Take home a Nature of Science toolkit.

Literacy-based Science...Linking Science, Math, and Language Arts (Gen)
(Elementary) Hall D/Room 8, Convention Center
Chris A. Triola *(ctriolamail@verizon.net),* Learning Resources, Inc., Vernon Hills, Ill.
Discover science-based games and centers that link language arts and math to science while promoting accuracy and problem solving in young students.

Sally Ride Science and the U.S. Forest Service Symposium Session: *Natural Inquirer* Science Journals: Climate Change Collection (Env)
(Middle Level) Franklin 10, Marriott
Vicki Arthur *(varthur@fs.fed.us),* USDA Forest Service, Washington, D.C.
Incorporate the *Natural Inquirer* science education journal into your classroom to teach climate change topics. Explore hands-on climate change activities for your classroom.

11:30 AM–12 Noon Presentation

SESSION 1
Bridging from STEM Fundamentals to Career Readiness in Biotechnology (Bio)
(High School) 108B, Convention Center
Darryl Williams and **Rashmi Kumar** *(rashmik@dolphin.upenn.edu),* University of Pennsylvania, Philadelphia
High school teachers and students are often inadequately prepared to teach and benefit from the rapid growth in the biotechnology sector. Come analyze and re-conceptualize existing curricular structures, content, and practices aligned with research-based evidence.

Saturday, March 20

NESTA Earth and Space Science Resource Day Breakfast
By Ticket Through NESTA
Logans 1, Sheraton ..... 7:00–8:30 AM

NSTA Past Presidents' Breakfast
For NSTA Past Presidents Only
Lescaze, Loews ..... 7:30–8:15 AM

George Washington Carver Breakfast
By Invitation Only
Regency B, Loews ..... 7:30–9:30 AM

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

SESD Science-abled Breakfast Meeting
By Ticket Through SESD
Meeting Room 502, Marriott ..... 8:00–10:00 AM

Past Presidents Advisory Board Meeting
Lescaze, Loews ..... 8:15–9:15 AM

RAISE Meeting: Research About Science Teaching: Updates and Classroom Applications
Congress C, Loews ..... 9:00 AM–12 Noon

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

Science Matters Leadership Meeting
By Invitation Only
Grand Salon I, Marriott ..... 9:30–11:00 AM

Holt McDougal Luncheon
By Invitation Only
JW's, Marriott ..... 11:00 AM–1:00 PM

NSTA/SCST College Luncheon (M-10)
(Tickets Required: $55)
Commonwealth C, Loews ..... `12 Noon–1:30 PM

COSEE Luncheon
By Invitation Only
Logans 2, Sheraton ..... 12:00–1:30 PM

I Teach Inquiry Reception
By Invitation Only
Grand Salon I, Marriott ..... 1:00–6:00 PM

John Glenn Center Task Force Meeting
By Invitation Only
Registration I, Marriott ..... 3:30–5:30 PM

NESTA Annual Membership Meeting
Liberty A/B, Sheraton ..... 5:00–6:30 PM

Association of Astronomy Educators Members Meeting
Seminar A, Sheraton ..... 6:00–7:00 PM

Association of Astronomy Educators Members Meeting
By Invitation Only
Seminar B, Sheraton ..... 7:15–8:45 PM

President's Annual Banquet (M-11)
(Tickets Required: $80)
Millennium Hall, Loews ..... 7:00–9:30 PM

Sunday, March 21

Life Members Buffet Breakfast (M-12)
(Tickets Required: $45)
Rooms 304/305, Marriott ..... 7:00–9:00 AM

Academy of Model Aeronautics (Booth #646)

Saturday, March 20	10:00–11:30 AM	110A/B, Conv. Center	AeroLab (p. 51)

Bio-Rad Laboratories (Booth #1619)

Saturday, March 20	8:00–9:30 AM	103A, Conv. Center	Bio-Rad—Microbes and Health: What Causes Yogurtness?™ (p. 30)
Saturday, March 20	10:00–11:00 AM	103A, Conv. Center	Bio-Rad Genes in a Bottle™ Kit (p. 49)

BIOZONE International Ltd. (Booth #1234)

Saturday, March 20	10:00–11:30 AM	105A/B, Conv. Center	A Showcase of BIOZONE's Latest Workbooks and Presentation Media for Grades 9–12 (p. 50)

BrainPOP (Booth #2150)

Saturday, March 20	12 Noon–1:30 PM	105A/B, Conv. Center	How Do Natural Disasters Affect People? A Project-based Learning Lesson (p. 67)

Bureau of Land Management, U.S. Dept. of the Interior (Booth #1920)

Saturday, March 20	8:00–9:30 AM	105A/B, Conv. Center	Using Your Public Lands as Outdoor Classrooms or Laboratories (p. 31)

Carolina Biological Supply Co. (Booth #1105)

Saturday, March 20	8:00–9:30 AM	201B, Conv. Center	Exploring the World Through the Five Senses (p. 32)
Saturday, March 20	8:00–9:30 AM	204B, Conv. Center	Think Mink! Exploring Mammalian Anatomy with Carolina's Perfect Solution® Mink (p. 33)
Saturday, March 20	8:00–9:30 AM	204A, Conv. Center	Introduction to Electrophoresis (p. 33)
Saturday, March 20	10:00–11:30 AM	201B, Conv. Center	Do They Get It? Assessment Strategies for an Inquiry Classroom (p. 51)
Saturday, March 20	10:00–11:30 AM	204B, Conv. Center	Rats! Inquiry-based Dissection with Carolina's Perfect Solution® Specimens (p. 52)
Saturday, March 20	10:00–11:30 AM	204A, Conv. Center	Go APES! Explore Carolina's Quality AP® Environmental Science Series (p. 52)
Saturday, March 20	12 Noon–1:30 PM	204B, Conv. Center	Molecular Models in the Classroom (p. 69)
Saturday, March 20	12 Noon–1:30 PM	201B, Conv. Center	Hands-On/Minds-On Middle School Science (p. 68)
Saturday, March 20	12 Noon–1:30 PM	204A, Conv. Center	Teaching Genetics and Biotechnology with Carolina's Manipulative Kits (p. 69)
Saturday, March 20	2:00–3:30 PM	201B, Conv. Center	1, 2, 3, 4 … Boost Your Students' Math Scores (p. 91)
Saturday, March 20	2:00–3:30 PM	204A, Conv. Center	Exploring Gene Function in *C. elegans:* Mutations and RNA Interference (p. 92)
Saturday, March 20	2:00–3:30 PM	204B, Conv. Center	Butterflies in Your Classroom (p. 92)

CPO Science, School Specialty Science (Booth #1341)

Saturday, March 20	8:00–9:30 AM	108A, Conv. Center	The BEST Buoyancy Experiment Ever! Understanding Archimedes's Principle and Density (p. 32)
Saturday, March 20	10:00–11:30 AM	108A, Conv. Center	Race into Physics with the CPO Science Energy Car (p. 50)
Saturday, March 20	12 Noon–1:30 PM	108A, Conv. Center	Chemistry and the Atom: Fun with the Atom-building Game (p. 67)
Saturday, March 20	2:00–3:30 PM	108A, Conv. Center	Crazy Traits: Genetics and Adaptations Games for All (p. 91)

Delta Education, School Specialty Science–FOSS (Booth #1440)

Saturday, March 20	8:00–10:30 AM	107A/B, Conv. Center	Introducing Science Notebooks with FOSS K–6 (p. 35)
Saturday, March 20	11:00 AM–1:00 PM	107A/B, Conv. Center	FOSS Assessment—Valuing Academic Progress in Grades 3–6 (p. 65)
Saturday, March 20	1:30–4:00 PM	107A/B, Conv. Center	Making Sense of Science Notebooks with FOSS 3–6 (for Experienced Users) (p. 80)

Index of Exhibitor Workshops

Discovery Education (Booth #1022 and #1025)

Saturday, March 20	10:00–11:30 AM	103B, Conv. Center	Top 10 STEM Resources (p. 50)
Saturday, March 20	2:00–3:30 PM	103B, Conv. Center	Science of Everyday Life with the Discovery Education 3M Young Scientist Challenge (p. 90)

DS SolidWorks Corp. (Booth #2052)

Saturday, March 20	2:00–3:30 PM	202B, Conv. Center	The STEM Academy (p. 91)

Flinn Scientific, Inc. (Booth #1605)

Saturday, March 20	10:00–11:30 AM	103C, Conv. Center	Promote Inquiry Using Chemistry Demonstrations (p. 50)
Saturday, March 20	12 Noon–1:30 PM	103C, Conv. Center	Hands-On Integrated Science Activities for Middle School (p. 67)

Forestry Suppliers, Inc. (Booth #1804)

Saturday, March 20	8:00–9:30 AM	202B, Conv. Center	Bring the Outside In: Take A New Look at the Environment (p. 32)

GASTEC Corp. (Booth #1716)

Saturday, March 20	8:00–9:30 AM	103B, Conv. Center	It's a GAS! (p. 30)

Houghton Mifflin Harcourt (Booth #940)

Saturday, March 20	8:00–9:30 AM	304, Conv. Center	Science for Digital Natives (p. 33)
Saturday, March 20	10:00–11:30 AM	304, Conv. Center	Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (p. 52)

It's About Time (Booth #1229)

Saturday, March 20	8:00–9:00 AM	201A, Conv. Center	Physics for Everyday Thinking (PET) and Physical Science for Everyday Thinking (PSET) (p. 30)
Saturday, March 20	9:30–10:30 AM	201A, Conv. Center	*Active Physics*: Newly Revised Third Edition (p. 49)
Saturday, March 20	11:00 AM–12 Noon	201A, Conv. Center	Active Chemistry (p. 65)
Saturday, March 20	12:30–1:30 PM	201A, Conv. Center	Project Based Inquiry Science (PBIS): The Next Generation of Middle School Programs (p. 78)
Saturday, March 20	2:00–3:00 PM	201A, Conv. Center	Coordinated Science: Physical, Earth, and Space Sciences (p. 90)
Saturday, March 20	3:30–4:30 PM	201A, Conv. Center	Professional Development Worthy of Stimulus Funding (p. 102)

Key Curriculum Press (Booth #735)

Saturday, March 20	2:00–3:30 PM	110A/B, Conv. Center	Living by Chemistry: Feeling Under Pressure (p. 91)

The Keystone Center (Booth #957)

Saturday, March 20	10:00–11:30 AM	203B, Conv. Center	CSI: Climate Status Investigations (p. 52)

Kinetic Books (Booth #2106)

Saturday, March 20	8:00–9:30 AM	110A/B, Conv. Center	Experience a Digital Physics Curriculum (p. 32)

LAB-AIDS, Inc. (Booth #1529)

Saturday, March 20	8:00–9:30 AM	Hall D/2, Conv. Center	Inquiry Teaching and Learning: Gas Exchange (p. 34)
Saturday, March 20	10:00–11:30 AM	Hall D/2, Conv. Center	Inquiry Teaching and Learning: The Full Course (p. 52)
Saturday, March 20	12 Noon–1:30 PM	Hall D/2, Conv. Center	A Natural Approach to Chemistry: Teaching About Electrochemistry (p. 69)

LaMotte Co. (Booth #923)

Saturday, March 20	8:00–9:30 AM	203B, Conv. Center	Stream Ecology: Slimy Leaves for Clean Streams (p. 33)

National Geographic–The JASON Project (Booth #1641)

Saturday, March 20	8:00–9:30 AM	203A, Conv. Center	Integrating Video Games and Core Curriculum (p. 32)
Saturday, March 20	10:00–11:30 AM	203A, Conv. Center	The JASON Project (p. 51)
Saturday, March 20	12 Noon–1:30 PM	203A, Conv. Center	Incorporating Social Networking and Gaming into the Classroom (p. 68)

NASA and *USA Today* (Booth #1953)

Saturday, March 20	8:00–9:30 AM	109AB, Conv. Center	No Boundaries: NASA Career Exploration Competition (p. 32)

NASA, *USA Today,* and IGES (Booth #1953)

Saturday, March 20	10:00–11:30 AM	109AB, Conv. Center	Celebrating 20 Years of Hubble (p. 51)

National Youth Leadership Forum (Booth #2156)

Saturday, March 20	12 Noon–1:30 PM	109AB, Conv. Center	The National Youth Leadership Forum: Training Tomorrow's Science Leaders (p. 67)

NBC Learn (Booth #1760)

Saturday, March 20	2:00–3:30 PM	203A, Conv. Center	Science and the Real World: 21st-Century Learning Tools from NBC News (p. 92)

PASCO (Booth #805 and #914)

Saturday, March 20	8:00–9:00 AM	112A/B, Conv. Center	Tough Topics in Earth Science: Plate Tectonics with My World GIS™ (p. 30)
Saturday, March 20	8:00–9:00 AM	113A, Conv. Center	Advanced Placement® Physics: Momentum and Impulse (p. 30)
Saturday, March 20	9:30–10:30 AM	113A, Conv. Center	Tough Topics in Earth Science: Greenhouse Gases (p. 49)
Saturday, March 20	9:30–10:30 AM	112A/B, Conv. Center	Advanced Placement® Biology: Investigating Mitochondrial Genetics, A Novel Approach to AP® Biology Lab 6 (p. 49S)

Pearson (Booth #1405)

Saturday, March 20	8:00–9:30 AM	113B, Conv. Center	The Origin After 150 Years: Teaching the Science of Darwin's Great Idea in a Climate of Controversy (p. 32)
Saturday, March 20	10:00–11:30 AM	113B, Conv. Center	What's Up with the Flu? The Ecology and Evolution of Infectious Disease Come to Life (p. 51)
Saturday, March 20	12 Noon–1:30 PM	113B, Conv. Center	Untamed Science! How to Make Your Own Science Videos from Scratch (p. 68)
Saturday, March 20	2:00–3:30 PM	113B, Conv. Center	Inquiry in the Classroom (p. 91)

Region 4 Education Service Center (Booth #966)

Saturday, March 20	12 Noon–1:30 PM	203B, Conv. Center	Gateways to Biology (p. 68)

SAE International (Booth #617)

Saturday, March 20	8:00–9:30 AM	103C, Conv. Center	A World In Motion: The Middle School Design Experience (p. 30)

Index of Exhibitor Workshops

Sargent-Welch (Booth #1629)

Saturday, March 20	10:00–11:30 AM	106A/B, Conv. Center	Sing Along with Safety in the Science Classroom (p. 50)
Saturday, March 20	12 Noon–1:30 PM	104A/B, Conv. Center	Top 10 Countdown: Biotechnology Modules (p. 67)
Saturday, March 20	2:00–3:30 PM	104A/B, Conv. Center	Start or Improve Your Biotechnology Program (p. 90)
Saturday, March 20	2:00–3:30 PM	106A/B, Conv. Center	Hand Jive of Hands-On Chemistry (p. 91)
Saturday, March 20	4:00–5:30 PM	106A/B, Conv. Center	An Exclusive Engagement with NEW Cenco AP Physics Labs (p. 103)

Science Kit & Boreal Laboratories (Booth #1727)

Saturday, March 20	8:00–9:30 AM	106A/B, Conv. Center	Stuck in the Middle with You (p. 31)
Saturday, March 20	10:00–11:30 AM	104A/B, Conv. Center	Getting' Funky with the Fundamentals of Physics (p. 50)
Saturday, March 20	12 Noon–1:30 PM	106A/B, Conv. Center	Middle School Spectroscopy: Visualizing the Spectrum (p. 67)
Saturday, March 20	4:00–5:30 PM	104A/B, Conv. Center	Dancin' DNA on a Chain (p. 103)

Simulation Curriculum Corp. (Booth #741)

Saturday, March 20	12 Noon–1:30 PM	110A/B, Conv. Center	The Layered Earth! (p. 68)

Society for Neuroscience (Booth #1852)

Saturday, March 20	12 Noon–1:30 PM	304, Conv. Center	Neuroscience Core Concepts: The Basic Principles of Learning and Ways to Teach Effectively (p. 69)
Saturday, March 20	2:00–3:30 PM	304, Conv. Center	Neuromyth Busters (p. 92)

Spitz, Inc. (Booth #641)

Saturday, March 20	11:00 AM–12 Noon	Booth #641, Exhibit Hall	Moon Phases: Teaching in an Immersive Environment (p. 65)
Saturday, March 20	3:00–4:00 PM	Booth #641, Exhibit Hall	Moon Phases: Teaching in an Immersive Environment (p. 93)

U.S. Dept. of the Interior, Minerals Management Service (Booth #2006)

Saturday, March 20	2:00–3:30 PM	105A/B, Conv. Center	Exploring Ocean Resources—From Energy to the Environment K–12 (p. 90)

Vandalia Science Education (Booth #1720)

Saturday, March 20	12 Noon–1:30 PM	202B, Conv. Center	Mystery of Lyle and Louise Questioned Documents Analysis (p. 68)

Vernier Software & Technology (Booth #1417)

Saturday, March 20	8:00–9:30 AM	202A, Conv. Center	Biology with Vernier (p. 32)
Saturday, March 20	10:00–11:30 AM	202A, Conv. Center	Physics with Vernier (p. 51)
Saturday, March 20	12 Noon–1:30 PM	202A, Conv. Center	Inquiry Chemistry with Vernier (p. 68)
Saturday, March 20	2:00–3:30 PM	202A, Conv. Center	Human Physiology with Vernier (p. 91)

WARD's Natural Science (Booth #1826)

Saturday, March 20	8:00–9:30 AM	104A/B, Conv. Center	Dissection Disco (p. 31)

Water Environment Federation (Booth #1904)

Saturday, March 20	8:00–11:00 AM	108B, Conv. Center	Stream Assessment: An Active, Integrated Approach to Science Learning (p. 35)

WNET.ORG (Booth #2025)

Saturday, March 20	10:00–11:30 AM	202B, Conv. Center	Tapping The Music Instinct (p. 51)

Zula International (Booth #533)

Saturday, March 20	12 Noon–1:30 PM	103B, Conv. Center	Launching Early Science Inquiry with the *Zula Patrol* (p. 67)

Schedule at a Glance

G = General M = Middle School S = Supervision/Administration T = Teacher Preparation
P = Preschool H = High School I = Informal EducationE = Elementary
C = College R = Research

Biology/Life Science: Saturday

8:00–9:00 AM	H–C	Regency C1, Loews	Fighting the Good Fight: Altering America's Perception of Evolution (p. 20)
8:00–9:00 AM	M–C	Franklin 5, Marriott	Teaching Genetics with Inquiry (p. 26)
8:00–9:00 AM	H	Franklin 1, Marriott	Exploring the Connection Between Genetics and Natural Selection (p. 26)
8:00–9:00 AM	M–H	Franklin 4, Marriott	Tactile Learning Curriculum Modules: Teaching with Models (p. 26)
8:00–9:00 AM	M–C	Franklin 2, Marriott	Cellulosic (Second-Generation) Ethanol Biofuel: The Science and Corresponding Learning Opportunities (p. 21)
8:00–9:00 AM	M–C	Franklin 9, Marriott	Oh, Nuts! The Role of Microbes in the Production of Peanuts and Other Legumes (p. 28)
8:00–9:00 AM	H	Franklin 6, Marriott	Exploring Body Systems Conceptually: How to Link Every Biology Unit to Human Body Systems (p. 21)
8:00–9:30 AM	8	104A/B, Conv. Center	Dissection Disco (p. 31)
8:00–9:30 AM	9–12	113B, Conv. Center	The Origin After 150 Years: Teaching the Science of Darwin's Great Idea in a Climate of Controversy (p. 32)
8:00–9:30 AM	9–12	204A, Conv. Center	Introduction to Electrophoresis (p. 33)
8:00–9:30 AM	7–C	103A, Conv. Center	Bio-Rad—Microbes and Health: What Causes Yogurtness?™ (p. 30)
8:00–9:30 AM	6–8	Hall D/2, Conv. Center	Inquiry Teaching and Learning: Gas Exchange (p. 34)
8:00–9:30 AM	K–1	201B, Conv. Center	Exploring the World Through the Five Senses (p. 32)
8:00–9:30 AM	9–C	202A, Conv. Center	Biology with Vernier (p. 32)
8:00–9:30 AM	9–C	204B, Conv. Center	Think Mink! Exploring Mammalian Anatomy with Carolina's Perfect Solution® Mink (p. 33)
9:30–10:30 AM	G	303, Marriott	NSTA International Professional Development-Changing Teaching Behaviors, Attitudes and Perspective (p. 42)
9:30–10:30 AM	9–12	112A/B, Conv. Center	Advanced Placement® Biology: Investigating Mitochondrial Genetics, A Novel Approach to AP® Biology Lab 6 (p. 49)
9:30–10:30 AM	M–H	Franklin 8, Marriott	What's the Point? Helping Students Understand What They Learn (p. 47)
9:30–10:30 AM	G	Franklin 6, Marriott	NASA eClips for Secondary Students: Using Video Segments to Engage Millennial Learners (p. 43)
9:30–10:30 AM	M–H	Franklin 4, Marriott	A Deep Understanding of Cladograms…with Candy? (p. 47)
9:30–10:30 AM	G	Franklin 9, Marriott	Food Safety 101: What You Need to Know to Avoid the Onset of One-Bucket or Two-Bucket Disease (p. 43)
9:30–10:30 AM	G	Franklin 3, Marriott	Exploring Genetically Modified Crops in Food Products (p. 43)
9:30–10:30 AM	H	Franklin 1, Marriott	Exploring Bioethics: A New Model for High School Instruction (p. 46)
9:30–10:30 AM	P	Hall D/8, Conv. Center	Discovery Tree: Teaching Preschoolers Ecology by Connecting Literature and Visual Models (p. 45)
10:00–10:30 AM	H–C	Regency C1, Loews	World Disease: Learning Without Borders (p. 42)
9:30–10:00 AM	H–C	Regency C1, Loews	Science Teachers' Drawings of What is Inside the Human Body (p. 42)
9:30–10:30 AM	M–C	Franklin 5, Marriott	Using an Inquiry-based Approach to Improve Students' Performance in Biology (p. 47)
9:30–10:30 AM	H	Commonwealth D, Loews	AMSE Session: What's the Case? Using Case Studies to Maximize Instruction with Diverse Populations (p. 41)
9:30–10:30 AM	H	Hall D/1, Conv. Center	Taking a CHANCE: A New and Different Multimedia-based Pedagogical Tool for High-Impact Learning (p. 40)
10:00–11:00 AM	7–C	103A, Conv. Center	Bio-Rad Genes in a Bottle™ Kit (p. 49)
10:00–11:30 AM	9–C	204B, Conv. Center	Rats! Inquiry-based Dissection with Carolina's Perfect Solution® Specimens (p. 52)
10:00–11:30 AM	K–5	201B, Conv. Center	Do They Get It? Assessment Strategies for an Inquiry Classroom (p. 51)
10:00–11:30 AM	9–C	105A/B, Conv. Center	A Showcase of BIOZONE's Latest Workbooks and Presentation Media for Grades 9–12 (p. 50)
10:00–11:30 AM	6–8	Hall D/2, Conv. Center	Inquiry Teaching and Learning: The Full Course (p. 52)

10:00–11:30 AM	9–12	113B, Conv. Center	What's Up with the Flu? The Ecology and Evolution of Infectious Disease Come to Life (p. 51)
11:00–11:30 AM	E–M/I	Hall D/18, Conv. Center	Creating an Educational Experience Through Cutting-Edge Video Ride Simulation (p. 54)
11:00 AM–12 Noon	M	Franklin 8, Marriott	Using Rare Diseases to Teach About Scientific Inquiry (p. 64)
11:30 AM–12 Noon	H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: The Effects of a Modeling Approach on Student Learning in a Grade 11 Biology Course (p. 59)
11:00 –11:30 AM	H–C	Regency C1, Loews	Using Cell Phones to Develop a Learning Community in Undergraduate Science Instruction (p. 56)
11:30 AM–12 Noon	M–C	Independence C, Sheraton	COSEE Session: The Smithsonian Ocean Portal, COSEE, and Encyclopedia of Life: Digital Media for Science Education (p. 60)
11:00 AM–12 Noon	M–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Inquiry Does Work: Using Backward Design and Alternative Assessments in Biology (p. 59)
11:00 AM–12 Noon	G	Franklin 5, Marriott	Get 'em Up and At It! Using Student Interactive Demonstrations to Model Cellular Processes in Genetics (p. 64)
11:00 AM–12 Noon	P–E	Hall D/8, Conv. Center	Show What You Know! (p. 62)
11:30 AM–12 Noon	H–C	Regency C1, Loews	Scientific Inquiry with Virtual Laboratories in Diverse School Environments (p. 56)
11:00 AM–12 Noon	H	Franklin 4, Marriott	Constructing Phylogeny and Phylogenetic Trees for Learning Evolution (p. 64)
12:00–1:30 PM	9–C	204A, Conv. Center	Teaching Genetics and Biotechnology with Carolina's Manipulative Kits (p. 69)
12:00–1:30 PM	9–11	203B, Conv. Center	Gateways to Biology (p. 69)
12:00–1:30 PM	9–12	104A/B, Conv. Center	Top 10 Countdown: Biotechnology Modules (p. 67)
12:00–1:30 PM	8–12	304, Conv. Center	Neuroscience Core Concepts: The Basic Principles of Learning and Ways to Teach Effectively (p. 69)
12:30–1:30 PM	H–C	Franklin 8, Marriott	Using Medicine to Engage Students Studying Evolution (p. 76)
12:30–1:30 PM	G	Franklin 2, Marriott	Evolution Revolution (p. 72)
1:00–1:30 PM	H	Franklin 3, Marriott	Using "Secrets of the Sequence" in Biology Classrooms (p. 72)
12:30–1:30 PM	H	Franklin 1, Marriott	Examining the Bioethics of Animals in Research (p. 76)
12:30–1:30 PM	M–C	Franklin 9, Marriott	With a Pinch of Salt or More: Looking at Food Preservation and Preparation from an Extreme Microbe's Angle (p. 76)
12:30–1:00 PM	H–C	Regency C1, Loews	Biochemical Changes During Embryogenesis: Promoting Interdisciplinary Connections and Expanding Learning Outcomes in Developmental Biology (p. 72)
1:00–1:30 PM	H–C	Regency C1, Loews	New Tools for Teaching Respiration and Photosynthesis (p. 72)
12:30–1:30 PM	G	Franklin 6, Marriott	A Coral Reef in Your Classroom: Creating a Unique Opportunity for Student Research (p. 72)
12:30–1:30 PM	M–C	Franklin 5, Marriott	Experimental Design and Data Analysis in Biology: Using Model Systems in the Classroom (p. 76)
12:30–1:30 PM	M	Hall D/18, Conv. Center	An Online Game That Teaches About Alcohol Abuse: It's an Adventure! (p. 71)
12:30–1:00 PM	H	Franklin 3, Marriott	The Great Stem Cell Debate (p. 72)
12:30–1:30 PM	M–H	Hall D/6, Conv. Center	Connecting Math, Science, and Literacy for the Good of All! (p. 74)
12:30–1:30 PM	M–H	Franklin 4, Marriott	The Mathematics of Human Population Growth (p. 76)
1:00–1:30 PM	H	Hall D/1, Conv. Center	Creating Biologically Realistic 3-D Animations to Encourage Inquiry in the Classroom (p. 70)
1:30–2:00 PM	M–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Creating and Implementing POGIL in the Biology Classroom (p. 78)
2:00–2:30 PM	I	Franklin 9, Marriott	Statewide E-Mail Listserv Supporting Food and Nutrition Sciences Teaching in K–12 Classrooms (p. 81)
2:00–3:00 PM	M–H	Franklin 6, Marriott	BioMedTech: Engineering for Your Health (p. 85)
2:00–3:00 PM	G	Franklin 3, Marriott	Urban Youth and Sustainable Gardening: Cleveland Botanical Garden's Green Corps (p. 85)
2:00–3:00 PM	M–H	Franklin 1, Marriott	Smiling Faces—Amazingly Simple Enzyme Assays (p. 88)
2:00–3:00 PM	M–H	Hall D/6, Conv. Center	Mitosis, DNA, and Me! (p. 87)
2:00–3:00 PM	H	Franklin 4, Marriott	Using Proportional Reasoning to Estimate the Size of a Population (p. 88)
2:00–3:00 PM	G	Franklin 2, Marriott	HiGene: A Genome Sequencing Project for High Schools (p. 85)
2:00–3:00 PM	E–H	Franklin 5, Marriott	Helicopter Seeds and Hypotheses…That's Funny! (p. 88)
2:00–3:30 PM	K–12	204B, Conv. Center	Butterflies in Your Classroom (p. 92)

2:00–3:30 PM	9–C	204A, Conv. Center	Exploring Gene Function in *C. elegans:* Mutations and RNA Interference (p. 92)
2:00–3:30 PM	9–C	202A, Conv. Center	Human Physiology with Vernier (p. 91)
2:00–3:30 PM	5–12	108A, Conv. Center	Crazy Traits: Genetics and Adaptations Games for All (p. 91)
2:00–3:30 PM	9–C	104A/B, Conv. Center	Start or Improve Your Biotechnology Program (p. 90)
2:00–3:30 PM	7–12	304, Conv. Center	Neuromyth Busters (p. 92)
3:30–4:30 PM	H–C	Regency C1, Loews	Genome Science (p. 96)
3:30–4:30 PM	G	Franklin 5, Marriott	Shades of Green (p. 101)
3:30–4:30 PM	M	Hall D/18, Conv. Center	Making Science Matter (p. 100)
3:30–4:30 PM	G	Franklin 6, Marriott	Cool Web Resources for Human Biology and Health (p. 97)
3:30–4:30 PM	M–H	Franklin 3, Marriott	The Census of Marine Life: Bring a Decade of Global Research to Your Classroom! (p. 96)
3:30–4:30 PM	M–H	Franklin 4, Marriott	Building a Beak: Linking Student Ideas of Adaptation to Modern Evolution (p. 101)
3:30–4:30 PM	E	Hall D/8, Conv. Center	Get the Buzz on Bees: Connecting Students to Technology and Ecosystem Studies Through Agricultural Simulation (p. 99)
3:30–4:30 PM	M–H	Franklin 1, Marriott	Biology Activities for Beginning Teachers (p. 100)
3:30–4:30 PM	P	Hall D/6, Conv. Center	Connecting Children to Nature with Growing Up WILD (p. 98)
4:00–5:30 PM	6–10	104A/B, Conv. Center	Dancin' DNA on a Chain (p. 103)
5:00–5:30 PM	M–H/S	Grand Salon D, Marriott	NSTA Press Session: *The Biology Teacher's Handbook* Is Here to Help You! (p. 103)
5:00–6:00 PM	M–H/I	Franklin 2, Marriott	Predators and Dangerous Prey: Plankton, Toxins, and Evolution (p. 106)
5:00–6:00 PM	M–C	Franklin 5, Marriott	Introduction to Bioethics (p. 108)
5:00–6:00 PM	H	Franklin 8, Marriott	Collaborative Student Lessons in Biology (p. 106)
5:00–6:00 PM	H	Franklin 6, Marriott	Biology…Revived! (p. 106)
5:00–6:00 PM	H	Franklin 4, Marriott	Evolving Dianogas! (p. 108)
5:00–6:00 PM	E	Hall D/8, Conv. Center	Don't Overlook Seeds When Teaching Inquiry (p. 107)
5:00–6:00 PM	M	Hall D/18, Conv. Center	You Are the Center (p. 108)
5:00–6:00 PM	M–H	Franklin 1, Marriott	Who's the Daddy? A Problem-based Learning (PBL) Unit on DNA Structure and Analysis (p. 108)
5:30–6:00 PM	C	Regency C1, Loews	Improve Student Retention by Enhancing Your Lecture Notes (p. 109)

Biology/Life Science: Sunday

8:00–9:00 AM	M–H	110A/B, Conv. Center	Medieval Medicine: A Hands-On Activity for Eighth-Grade Students (p. 114)
8:00–9:00 AM	H–C	103C, Conv. Center	Best Practices in Molecular Biology: Efficient Transformations, Faster Gels, Stronger Science (p. 113)
8:00–9:00 AM	H	109A/B, Conv. Center	Epidemiology, ELISA, and HIV (p. 116)
8:00–9:00 AM	H	108A, Conv. Center	Co-Teaching Genetics and Evolution (p. 114)
8:00–9:00 AM	E–M	Hall D/18, Conv. Center	Science in the Everyday Lives of Students (p. 117)
8:00–9:00 AM	E	Hall D/8, Conv. Center	Spirit of the Standards: Authentic Assessments (p. 117)
8:00–9:00 AM	M–C	108B, Conv. Center	Digital Cameras: An Inexpensive Tool for Motivating, Formatively Assessing, and Enhancing Instruction (p. 114)
9:30–10:30 AM	M	Hall D/18, Conv. Center	That's Where Broccoli Came From? (p. 120)
9:30–10:30 AM	M–H	108A, Conv. Center	Motivating Students to Learn Biology Through Readers Theater (p. 119)
10:00–10:30 AM	M–H	110A/B, Conv. Center	Science Fairs: Integration into the Science Curriculum from a Student's Perspective (p. 119)
9:30–10:00 AM	H	110A/B, Conv. Center	Incorporating Reading in the Science Classroom (p. 119)
9:30–10:30 AM	E–H	109A/B, Conv. Center	Science 2.0 (p. 119)
9:30–10:30 AM	M–H	108B, Conv. Center	Beyond Gumdrops: Advanced Learning Activities for Molecular Modeling (p. 122)
9:30–10:30 AM	E	Hall D/8, Conv. Center	Monarchs, Silkworms, and Painted Ladies: Developing the Elementary Learner's Proficiency in Scientific Inquiry (p. 124)
11:30 AM–12 Noon	G	108A, Conv. Center	An Unidentified Resource in Science Education Outreach: The Undergraduate Science Major (p. 125)
11:00 AM–12 Noon	H–C	103C, Conv. Center	Silencing Genomes (p. 125)
11:30 AM–12 Noon	S	108A, Conv. Center	Crossing the Great Divide: Bridging the Gap Between K–12 and Higher Education (p. 125)

11:00 AM–12 Noon	M	Hall D/18, Conv. Center	Life Science Life Support (p. 128)
11:30 AM–12 Noon	H	108B, Conv. Center	Bridging from STEM Fundamentals to Career Readiness in Biotechnology (p. 129)

Chemistry/Physical Science: Saturday

8:00–8:30 AM	H	305/306, Marriott	Use of Guided Inquiry in Rural High School Physical Science Classrooms (p. 17)
8:00–9:00 AM	M–H	Grand Salon A, Marriott	Polymers: New Twists on Old Favorites (p. 28)
8:00–9:00 AM	H	Grand Salon L, Marriott	Science Fiction Fantastics! (p. 22)
8:00–9:00 AM	G	Grand Salon D, Marriott	NSTA Press Session: Five Types of Teacher-Student Interactions That Promote Whole-Class Inquiry (p. 22)
8:00–9:00 AM	H–C	Congress B, Loews	Teaching Chemistry Through Guided Inquiry (p. 20)
9:30–10:00 AM	M–H	305/306, Marriott	We're Learning This to Do…WHAT?? (p. 42)
10:00–10:30 AM	H–C	Congress B, Loews	Simple Chemistry Experiments Using Spreadsheets (p. 41)
9:30–10:30 AM	M–H	Grand Salon A, Marriott	Solution to Solutions (p. 47)
9:30–10:30 AM	H	Grand Salon L, Marriott	Stoichiometry the D2UM2 Way (p. 44)
9:30–10:00 AM	H–C	Congress B, Loews	Bridging the Gap Between Education and Industry: The Introduction of Real-Life Experience into the High School Classroom (p. 41)
9:30–10:30 AM	M–H	Grand Salon K, Marriott	Technology Binds Mathematics and Science (p. 47)
9:30–10:30 AM	M	Commonwealth C, Loews	NMLSTA Session: HOP 2: A Scientific Investigation (p. 46)
10:00–11:30 AM	9–12	103C, Conv. Center	Promote Inquiry Using Chemistry Demonstrations (p. 50)
11:00 AM–12 Noon	9–12	201A, Conv. Center	Active Chemistry (p. 65)
11:00 AM–12 Noon	H	Grand Salon A, Marriott	Investigating Foods Using the Merck Index (p. 64)
11:00–11:30 AM	H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Differences in Learning Outcomes Between a Nonmodeling Instruction and a Modeling Instruction Chemistry Curriculum (p. 59)
11:00 AM–12 Noon	M–H	Hall D/6, Conv. Center	The Making of Lava Lamps: An Interdisciplinary Project Supporting STEM Education (p. 62)
11:00 AM–12 Noon	M–H	Grand Salon L, Marriott	Copper Extraction and the Power of Story (p. 60)
11:00 AM–12 Noon	M	Hall D/19, Conv. Center	The Impact of Polymers on Impact Sports (p. 63)
11:00 AM–12 Noon	M–H/I	Grand Salon K, Marriott	See It Today, Use It Tomorrow (p. 64)
11:30 AM–12 Noon	H–C	Congress B, Loews	Periodic Nomenclature (p. 66)
12:00–1:30 PM	10–12	Hall D/2, Conv. Center	*A Natural Approach to Chemistry:* Teaching About Electrochemistry (p. 69)
12:00–1:30 PM	9–12	204B, Conv. Center	Molecular Models in the Classroom (p. 69)
12:00–1:30 PM	9–C	202A, Conv. Center	Inquiry Chemistry with Vernier (p. 68)
12:00–1:30 PM	5–12	108A, Conv. Center	Chemistry and the Atom: Fun with the Atom-building Game (p. 67)
12:30–1:00 PM	M–C	305/306, Marriott	Teaching Plasma Phase to Middle School Students (p. 70)
1:00–1:30 PM	G	Hall D/7, Conv. Center	Accessing Chemistry: Reaching All Students (p. 71)
12:30–1:30 PM	H	Grand Salon K, Marriott	Have Einstein, Curie, and Newton Visit Your Classroom! Embedding the History of Science into Your Teaching (p. 77)
1:00–1:30 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: The Impact of Student-produced Webcasts on Achievement and Attitude in Science Class (p. 73)
12:30–1:30 PM	H/S	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Inquiry Learning Communities: Use of POGIL in a High School Chemistry Class (p. 72)
12:30–1:30 PM	M–H	Grand Salon A, Marriott	Science Homework: A Family Event! (p. 76)
2:00–3:00 PM	H	Grand Salon L, Marriott	Solids: The Neglected "State" of Chemistry (p. 85)
2:00–3:00 PM	M–H	Grand Salon A, Marriott	Polymer Serendipity Discoveries (p. 88)
2:30–3:00 PM	H	305/306, Marriott	Creating Successful Collaborations in Professional Learning Communities (p. 84)
2:00–3:30 PM	9–12	110A/B, Conv. Center	Living by Chemistry: Feeling Under Pressure (p. 91)
2:00–3:30 PM	6–12	106A/B, Conv. Center	Hand Jive of Hands-On Chemistry (p. 91)
3:30–4:00 PM	H	305/306, Marriott	Why Use Service Learning in the Science Classroom? (p. 93)
3:30–4:30 PM	H	Grand Salon L, Marriott	Let the Games Begin: Molympics! (p. 97)
3:30–4:30 PM	M	Hall D/19, Conv. Center	Baking to Reinforce Chemistry Topics (p. 95)
4:00–4:30 PM	H	Hall D/1, Conv. Center	Teaching Chemistry to High School Students at a Cyber Charter School (p. 94)
3:30–4:30 PM	M–H	Grand Salon A, Marriott	From UFOs to Elves: Connecting Science to Science Fiction (p. 101)
3:30–4:00 PM	H	Hall D/1, Conv. Center	Using Virtual Labs to Fuel Inquiry and Promote Student Achievement (p. 95)

3:30–4:30 PM	M–H/S	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Collegial Inquiry: Structured Professional Development Model That Uses Research to Tailor Lessons (p. 98)
5:00–6:00 PM	H–C	Hall D/7, Conv. Center	"Simple"y the Best Demos (p. 104)
5:00–6:00 PM	M–C	305/306, Marriott	Hands-On, Activity-enhanced Analogical Pedagogy in Effective Thermochemistry Teaching (p. 106)
5:00–6:00 PM	H	Grand Salon A, Marriott	The Science of Stuff: Materials Science in the High School Classroom (p. 109)
5:30–6:00 PM	G	303, Marriott	Climate Change in the Chemistry Classroom (p. 105)
5:00–5:30 PM	M–C	303, Marriott	Interactive Safety Exercise for a Freshman Science Major Laboratory Course in Chemistry (p. 105)
5:00–6:00 PM	H	Grand Salon L, Marriott	Kindle the Fire: Teaching Biology and Chemistry Using Alcohol Pharmacology (p. 107)

Chemistry: Sunday

8:00–9:00 AM	E–H	112A/B, Conv. Center	Scientific Methods Using Bubble-ology Techniques (p. 116)
8:00–9:00 AM	E–M	Hall D/19, Conv. Center	Physical or Chemical? That Is the Question! (p. 117)
8:00–9:00 AM	H–C	104A/B, Conv. Center	Integrating Case Studies into High School Chemistry Labs (p. 113)
9:30–10:30 AM	M–H	112A/B, Conv. Center	E.E.Z.E. Activities: Engaging, Explorative, Zingy, Experimental Activities (p. 122)
9:30–10:30 AM	M	Hall D/19, Conv. Center	Challenging All Students in a Middle School Classroom (p. 120)
11:00 AM–12 Noon	H–C	104A/B, Conv. Center	Coherently Implementing Model-based Inquiry Learning Across High School Chemistry and Physics Classes (p. 125)
11:00 AM–12 Noon	M–H	204B, Conv. Center	Tips for New Chemistry Teachers (p. 126)

Earth/Space Science: Saturday

8:00–9:00 AM	E–M	Hall D/7, Conv. Center	Living and Working in Space: A Simulation Adapted for Classroom Use (p. 24)
8:00–9:00 AM	M–C	Freedom E, Sheraton	Free Telescope Access from NASA and the Fermi Space Telescope (p. 28)
8:00–9:00 AM	H–C	Freedom F, Sheraton	The College Moon Project (p. 22)
8:00–9:00 AM	M–H	Freedom G, Sheraton	Data Puzzles: Using Math Skills and Scientific Data to Reason about Earth's Processes (p. 28)
8:00–9:00 AM	M–H	Independence B, Sheraton	Connecting Climate to Curriculum (p. 22)
8:00–9:00 AM	6–12	112A/B, Conv. Center	Tough Topics in Earth Science: Plate Tectonics with My World GIS™ (p. 30)
8:00–9:30 AM	6–12	109A/B, Conv. Center	No Boundaries: NASA Career Exploration Competition (p. 32)
9:30–10:00 AM	G	Independence C, Sheraton	COSEE Session: Culturally Relevant Ocean Sciences Education in Hawaii (p. 38)
9:30–10:30 AM	E–M/I	Independence A, Sheraton	Cloudy Day Activities Bridging Cloud Science, Literacy, and Art (p. 48)
9:30–10:30 AM	E–H	Liberty A/B, Sheraton	NESTA Session: National Earth Science Teachers Association Earth System Science and the Environment Share-a-Thon (p. 48)
10:00–10:30 AM	E–H	Freedom F, Sheraton	Close Enough: A Journey into Solar System Modeling for Hands-On Thinking (p. 44)
9:30–10:30 AM	E	Hall D/10, Conv. Center	Dancing Lights: Exploring the Aurora through Art and Writing (p. 45)
9:30–10:00 AM	G	Freedom F, Sheraton	Astronomy Conversations: A Partnership Between University of Chicago and Adler Planetarium (p. 44)
9:30–10:30 AM	M–H	Freedom G, Sheraton	Exploring Sea Floor Spreading with Data from the Integrated Ocean Drilling Program (IODP) (p. 48)
9:30–10:30 AM	I	Freedom E, Sheraton	Sometimes It's Okay to Divide By Zero (p. 47)
9:30–10:30 AM	6–12	113A, Conv. Center	Tough Topics in Earth Science: Greenhouse Gases (p. 49)
10:00–11:00 AM	I	Independence C, Sheraton	COSEE Session: Scientist-Educator Partnerships to Enhance Rural Ocean Literacy (p. 49)
10:00–11:30 AM	5–12	203B, Conv. Center	CSI: Climate Status Investigations (p. 52)
10:00–11:30 AM	6–C	109A/B, Conv. Center	Celebrating 20 Years of Hubble (p. 51)
11:00 AM–12 Noon	K–8	Booth #641, Exhibit Hall	Moon Phases: Teaching in an Immersive Environment (p. 65)
11:00 AM–12 Noon	M–H	Philadelphia S, Sheraton	Unveiling the Mysteries of the Universe (p. 65)
11:00 AM–12 Noon	E–H	Liberty A/B, Sheraton	NESTA Session: Advances in Earth and Space Science Lecture: Meteorology Drives Everything: The Sensitivity of Pollution Episodes to Atmospheric Conditions in the Mid-Atlantic Region (p. 60)

11:00 AM–12 Noon	E–H	Freedom F, Sheraton	Interdisciplinary Space Exploration Using the WorldWide Telescope (p. 60)
11:00 AM–12 Noon	H	Independence B, Sheraton	Using the Integrated Data Viewer Software to Promote Scientific Inquiry (p. 60)
11:00 AM–12 Noon	M–H	Freedom G, Sheraton	Climate and the Coast (p. 65)
11:00 AM–12 Noon	E–H	Freedom E, Sheraton	NASA: Exploring Magnetism in Space Science (p. 64)
11:00 AM–12 Noon	M	Independence A, Sheraton	Caving in the Classroom (p. 65)
12:00–1:30 PM	8–12	110A/B, Conv. Center	The Layered Earth! (p. 68)
12:30–1:00 PM	G	Liberty C, Sheraton	Developing a Martian Constitution (p. 70)
12:30–1:30 PM	M–H	Independence B, Sheraton	Algebraic Fluency: Sometimes It IS Rocket Science (p. 74)
12:30–1:30 PM	E–H	Liberty A/B, Sheraton	NESTA Session: Advances in Earth and Space Science Lecture: Changing Seas, Changing Life: Paleontological Research with Student Participation (p. 74)
12:30–1:30 PM	E	Hall D/10, Conv. Center	Exploring the Solar System Through the Eyes of Scientists (p. 75)
1:30–2:00 PM	E–M	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Using Formative Assessment to Enhance Teaching and Learning in Problem-based Curricula (p. 78)
2:00–2:30 PM	I	Independence B, Sheraton	Profound Ideas About the Earth System (p. 86)
2:00–3:00 PM	E–H	Liberty A/B, Sheraton	NESTA Session: Advances in Earth and Space Science Lecture: Environmental Earth System Science for Education in Urban Areas (p. 86)
2:00–3:00 PM	H–C	Freedom G, Sheraton	Exploring the Heavens with Computer Simulations (p. 89)
2:00–3:00 PM	E–M	Independence A, Sheraton	Investigating Fossils Using Inquiry for English Language Learners (p. 86)
2:00–3:00 PM	E	Hall D/10, Conv. Center	I Can Use Science Where? (p. 87)
2:30–3:00 PM	M–H	Independence B, Sheraton	Using NSF-supported Modules to Teach High School Honors Earth System Science and AP Environmental Science (p. 86)
2:00–3:00 PM	MN	Philadelphia N, Sheraton	Field Studies, Design Projects, Secondary Research: Similarities and Differences with Controlled Experiments (p. 89)
2:00–3:00 PM	G	Freedom E, Sheraton	An Out-of-This-World Blog-o-Spheric Experience! (p. 89)
2:00–3:00 PM	M	Franklin 10, Marriott	Sally Ride Science and the U.S. Forest Service Symposium Session: An Opportunity to Take Pictures of the Moon (p. 88)
3:00–4:00 PM	K–12	Booth #641, Exhibit Hall	Moon Phases: Teaching in an Immersive Environment (p. 92)
3:30–4:00 PM	M	Salon 3/4, Sheraton	Investigating Soil Degradation: Using Photovoice to Engage Students in Community-based Inquiry (p. 93)
3:30–4:30 PM	E–H	Independence B, Sheraton	Hubble Space Telescope: Eyes On the Universe! (p. 99)
3:30–4:30 PM	G	Freedom E, Sheraton	Fly Me to the Moon: Blast Off for an Out-of-This-World World WebQuest Experience (p. 101)
3:30–4:30 PM	G	Independence C, Sheraton	COSEE Session: Practical Applications of the Ocean Literacy Principles Scope & Sequence (p. 102)
3:30–4:30 PM	E–M	Independence A, Sheraton	Engaging Upper Elementary and Middle School Students in International Science Inquiry (p. 98)
3:30–4:30 PM	H	307, Conv. Center	NSTA Avenue Session: Pete Conrad Spirit of Innovation Awards (p. 95)
3:30–5:00 PM	G	Liberty A/B, Sheraton	NESTA Session: National Earth Science Teachers Association Rock and Mineral Raffle (p. 101)
5:00–6:00 PM	P–E	Hall D/10, Conv. Center	The Temperature's Rising in Early Childhood Classrooms (p. 107)
5:00–6:00 PM	M–H/I	Freedom G, Sheraton	Helping Students Develop Scientific Explanations Based On Claims, Evidence, and Reasoning (p. 109)
5:00–6:00 PM	H	Freedom E, Sheraton	Exploring Lunar Data in the Classroom (p. 109)
5:00–6:00 PM	M	Independence B, Sheraton	Virtual Manipulatives to Improve Understanding in the Science Classroom (p. 107)

Earth/Space Science: Sunday

8:00–9:00 AM	G	107A/B, Conv. Center	NASA eClips for Elementary Students: Effective ways to Engage Students in Science and Mathematics (p. 114)
8:30–9:00 AM	M–H	103A, Conv. Center	Who Wants to Be an Astronaut? (p. 113)
8:00–9:00 AM	M–H	103B, Conv. Center	Cosmic Times: Astronomy History and Science for the Classroom (p. 116)
8:00–9:00 AM	M–H	105A/B, Conv. Center	Mineral Identification Using a Student-friendly Dichotomous Key (p. 113)
8:00–8:30 AM	G	103A, Conv. Center	Extreme Exploration: Journey to the Radiation Belts (p. 113)
8:00–9:00 AM	E	Hall D/10, Conv. Center	It's Not Made of Green Cheese, You Know! (p. 117)

9:30–10:30 AM	M–H	103B, Conv. Center	Hands On the Sun (p. 119)
9:30–10:30 AM	E	Hall D/10, Conv. Center	Weather or Not! K–4 Connections for Weather Units (p. 123)
9:30–10:30 AM	E–M	Hall D/23, Conv. Center	Seeing Past and Present, Impression and Expression in Fossils and Ourselves! (p. 123)
9:30–10:30 AM	G	103A, Conv. Center	NanoScale PlanetWalk (p. 122)
9:30–10:30 AM	G	105A/B, Conv. Center	Pressure, Wind, and Clouds (p. 122)
9:30–10:30 AM	G	107A/B, Conv. Center	As the World Turns: Revolutions in Earth Science (p. 119)
11:00–11:30 AM	E/S	Hall D/10, Conv. Center	Science and Engineering Partnerships in Grades 3–5 (p. 124)
11:00 AM–12 Noon	H	103A, Conv. Center	The Great Space Race! (p. 125)
11:00 AM–12 Noon	M–H	105A/B, Conv. Center	Discovering Earth's Layered Interior with Seismic Waves (p. 127)
11:00 AM–12 Noon	E–M	Hall D/22, Conv. Center	Smash! Crash! Splat! What We Can Learn from Craters on the Moon (p. 128)
11:00 AM–12 Noon	M–H	103B, Conv. Center	Radians of the Lost Arc (p. 127)

Environmental Science: Saturday

8:00–9:00 AM	G	Freedom H, Sheraton	iEARN and Four Rivers One World (p. 22)
8:00–9:00 AM	G	Hall D/5, Conv. Center	¡Youth & the Ocean! (¡YO!): An Academic Achievement and Research Program for Underrepresented Middle School Students (p. 17)
8:00–9:00 AM	I	Liberty C, Sheraton	Climate Change and Birds—It's Not Just Penguins Anymore! (p. 22)
8:00–9:00 AM	M–H/I	Philadelphia S, Sheraton	Tackling the Global Warming Challenge in a Rapidly Changing World (p. 28)
8:00–9:00 AM	M–H/I	Salon 3/4, Sheraton	The BioBlitz Program: Citizen Science and Biodiversity in the National Parks (p. 22)
8:00–9:30 AM	4–C	203B, Conv. Center	Stream Ecology: Slimy Leaves for Clean Streams (p. 33
8:00–9:30 AM	G	202B, Conv. Center	Bring the Outside In: Take A New Look at the Environment (p. 32)
8:00–9:30 AM	5–9	103B, Conv. Center	It's a GAS! (p. 30)
8:00–11:00 AM	7–12	108B, Conv. Center	Stream Assessment: An Active, Integrated Approach to Science Learning (p. 35)
8:00 AM–12 Noon	G	Commonwealth B, Loews	NSTA/SCST College Symposium: The Future of Quality Waters: An Educational Symposium Jointly Sponsored by NSTA and SCST (p. 36)
9:00–10:00 AM	G	Independence C, Sheraton	COSEE Session: COSEE Alaska: Ways of Knowing Ocean Climate Change (p. 38)
9:30–10:30 AM	E/I	Hall D/9, Conv. Center	The Design and Evaluation of an Urban Watershed Education Program (p. 40)
9:30–10:30 AM	G	Hall D/5, Conv. Center	Meaningful Environmental Science for Urban Learners (p. 40)
9:30–10:30 AM	M–H	Philadelphia S, Sheraton	UMass STEM Polar Connections: Using Polar Studies for Cross-Disciplinary Investigations in the Middle and High School Classroom (p. 48)
9:30–10:30 AM	M	Liberty C, Sheraton	Using Google Earth to Investigate Energy Resources (p. 44)
9:30–10:30 AM	M–H	Freedom H, Sheraton	Investigate the State: Collaborating to Study Science Issues Through Local Inquiry (p. 44)
10:00–11:30 AM	9–12	204A, Conv. Center	Go APES! Explore Carolina's Quality AP® Environmental Science Series (p. 52)
11:00 AM–12 Noon	M–H/I	Salon 3/4, Sheraton	Enhance Student Fieldwork with National Geographic FieldScope (p. 62)
11:00 AM–12 Noon	E–M	307, Conv. Center	NSTA Avenue Session: Disney's Planet Challenge (DPC) (p. 55)
11:00 AM–12 Noon	M–H	Liberty C, Sheraton	Incredible Invisible Soil Robots (p. 65)
11:00 AM–12 Noon	P–M	Commonwealth D, Loews	AMSE Session: How Urban Children Construct Their Concepts of Ecosystems: A Two-Year Field-based Study of a Salt Marsh (p. 56)
11:00–11:30 AM	M–H	Independence C, Sheraton	COSEE Session: Linking the Ocean to the Classroom (p. 60)
12:00–1:30 PM	3–8	105A/B, Conv. Center	How Do Natural Disasters Affect People? A Project-Based Learning Lesson (p. 67)
12:30–1:30 PM	E–H	Salon 3/4, Sheraton	Virtual Scat: Using Blogs and Conferencing Tools to Engage Students in Scientific Inquiry (p. 74)
12:30–1:30 PM	E–H	Freedom H, Sheraton	The Scientific Method: Unleashed, Uncut, and Outdoors (p. 74)
12:30–1:30 PM	M	Independence A, Sheraton	Three Rivers Water Quality Project (p. 77)
12:30–1:30 PM	I	Freedom F, Sheraton	Ocean Data for a Changing Climate: The NOAA National Oceanographic Data Center's Educational Partnerships and Projects (p. 74)
12:30–1:30 PM	M–H	Philadelphia S, Sheraton	Dirtology: A Soil Science (p. 77)
1:00–1:30 PM	C	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Environmental Stewardship and Active Democracy in Preservice Teacher Education (p. 73)
1:30–2:00 PM	G	Independence C, Sheraton	COSEE Session: COSEE-West Online Workshops: Providing Access to Scientists and Enhancing Teachers' Skills in the Digital World (p. 79)

2:00–2:30 PM	G	Independence C, Sheraton	COSEE Session: COSEE SE: Broadening Participation of Rural Students with Estuarine Scientists (p. 79)
2:00–3:00 PM	M–H	Freedom H, Sheraton	Fuel of the Future: Hydrogen Fuel Cells (p. 89)
2:00–3:00 PM	MN	Philadelphia S, Sheraton	Getting Students Involved in Climate Change Research with Project BudBurst (p. 89)
2:00–3:00 PM	M–H	Hall D/5, Conv. Center	Applied Geosciences in the City for Middle School Students (p. 82)
2:00–3:00 PM	I	Freedom F, Sheraton	Digital Storytelling: Picture THIS—Taking Human Impact Seriously (p. 86)
2:00–3:00 PM	M–H	Hall D/1, Conv. Center	Teach Locally, Collaborate Globally (p. 82)
2:00–3:00 PM	E–M	Liberty C, Sheraton	Educational Gaming: New Teaching Strategies (p. 86)
3:30–4:30 PM	M–H/I	204C, Conv. Center	National Lab Day Is for Teachers! (p. 95)
3:30–4:30 PM	G	Liberty C, Sheraton	Human Health and Global Environmental Change (p. 102)
3:30–4:30 PM	I	Freedom F, Sheraton	Outdoor Science Field Trips and Student Actions, Reactions, and Reflections (p. 98)
3:30–4:30 PM	M–H/I	Freedom H, Sheraton	Renewable Energy and the Electrical Power Grid (p. 98)
3:30–4:30 PM	M	Franklin 10, Marriott	Sally Ride Science and the U.S. Forest Service Symposium Session: Looking at Our Changing Earth from Space (p. 100)
5:00–6:00 PM	M	Franklin 10, Marriott	Sally Ride Science and the U.S. Forest Service Symposium Session: Introducing the Climate Change, Wildlife, and Wildlands Toolkit (p. 108)
5:00–6:00 PM	H	Salon 3/4, Sheraton	Help! I Need Labs for Environmental Science (p. 106)
5:00–6:00 PM	M–H	Freedom H, Sheraton	Using Trees in the Urban Classroom: The Trees Finally Have a Voice (p. 107)
5:00–6:00 PM	MN	Liberty C, Sheraton	Climate Change: Classroom Tools to Explore the Past, Present, and Future (p. 108)

Environmental Science: Sunday

8:00–9:00 AM	G	Hall D/21, Conv. Center	Turning Learning Inside Out: Self-directed Professional Development (p. 116)
8:00–9:00 AM	M–H	Hall D/5, Conv. Center	The Urban Advantage of Field Science Investigations (p. 115)
8:00–9:00 AM	M–H	Hall D/22, Conv. Center	Examining the Human Footprint: Population, Land Use, and the Global Environment (p. 117)
8:00–9:00 AM	M	Franklin 10, Marriott	Sally Ride Science and the U.S. Forest Service Symposium Session: How to Excite Students About Careers in Environmental Science (p. 118)
9:30–10:30 AM	M–H	Franklin 10, Marriott	Sally Ride Science and the U.S. Forest Service Symposium Session: Carbon, Oxygen, Water, and Shade: Putting a Price on the Benefits of Your Schoolyard Trees! (p. 124)
9:30–10:30 AM	M–H	Hall D/22, Conv. Center	The Little Things That Run the World (p. 123)
9:30–10:30 AM	G	Hall D/21, Conv. Center	The Color of Water: Mixing Art and Science (p. 121)
9:30–10:30 AM	P–E	201B, Conv. Center	No Teacher Left Inside: Using the Outdoors as Your Science Classroom (p. 122)
11:00 AM–12 Noon	G	Hall D/21, Conv. Center	Wetlands Inquiry (p. 128)
11:00 AM–12 Noon	M	Franklin 10, Marriott	Sally Ride Science and the U.S. Forest Service Symposium Session: Natural In quirer Science Journals: Climate Change Collection (p. 129)

Integrated/General Science: Saturday

8:00–9:00 AM	M–H	Washington A, Loews	Digital Immersive Science Learning: Meet the SCUBE! (p. 26)
8:00–9:00 AM	G	Hall D/18, Conv. Center	Engaging Students, Developing Science Knowledge, and Teaching Science Literacy Skills with Quality Nonfiction Science Books (p. 18)
8:00–9:00 AM	M–H	Commonwealth A, Loews	Crime Pays Big Dividends in the Science Classroom (p. 26)
8:00–8:30 AM	H/S	Regency C2, Loews	In-School Instructional Science Coaching: Experiences from the Field (p. 20)
8:00–9:00 AM	M–C	Hall D/29, Conv. Center	Some of the Above? Writing Good Science Multiple-Choice Questions (p. 18)
8:00–9:00 AM	E–M	Hall D/22, Conv. Center	Invention Convention (p. 25)
8:00–9:00 AM	P–M	Hall D/15, Conv. Center	Mathnificent Scientific Experience, Part 1 (p. 24)
8:00–9:00 AM	P–H/S	Regency A, Loews	Ready, Set, SCIENCE! The Four Strands of Science Learning (p. 26)
8:00–9:00 AM	M	Commonwealth D, Loews	NMLSTA Session: Classroom Demonstrations on a Budget (p. 18)
8:00–9:00 AM	G	Hall D/27, Conv. Center	Everybody's Twittering: Building Collaborative Scientific Communities via Technology (p. 18)
8:00–9:00 AM	G	Hall D/1, Conv. Center	Creating Science Media Collaboratively: Teacher/Student Science Documentaries (p. 17)

8:00–9:00 AM	E–H	Congress A, Loews	Knowing What They Know: Eliciting Student Thinking (p. 18)
8:00–9:00 AM	M–H	Salon 10, Sheraton	Exploring Biofuels: Future Fuels from Forests? (p. 24)
8:00–9:00 AM	G	Hall D/26, Conv. Center	Using Diagnostic Assessment to Address Preservice Teachers' Science Misconceptions (p. 18)
8:00–9:00 AM	G	Hall D/30, Conv. Center	Brain Research and Science: Wiring Science into All Subject Areas (p. 26)
8:00–9:00 AM	M	Hall D/20, Conv. Center	Abstract Concepts for the Concrete Mind: Techniques and Lessons to Engage Middle School Students (p. 18)
8:00–9:00 AM	G	Hall D/28, Conv. Center	Uncertainty in Scientific Inquiry: Using Information and Error in Decision Making (p. 25)
8:00–9:00 AM	G	Hall D/10, Conv. Center	Butterfly Bonanza (p. 24)
8:00–9:00 AM	E	Hall D/14, Conv. Center	FREE Guides and Online Professional Development for New and Experienced Elementary Teachers from PBS' FETCH! (p. 24)
8:00–9:00 AM	E	Hall D/16, Conv. Center	Negotiation in Science for Early Elementary (p. 24)
8:00–9:00 AM	E–M/I	Hall D/21, Conv. Center	Making Connections Between Elementary Science in School and After-School Science Programs (p. 25)
8:00–9:00 AM	G	Hall D/11, Conv. Center	Project-Based Learning Through Children's Engineering (p. 17)
8:00–9:00 AM	P–M/I	Hall D/23, Conv. Center	Engaging Classroom Science Centers for the Young Learners, K–1 (p. 18)
8:00–9:00 AM	E–M	Hall D/25, Conv. Center	Science for All: Meaningful Science with Meaningful Inclusion (p. 25)
8:00–9:00 AM	H	Washington C, Loews	Implementing STEM: A Snapshot (p. 20)
8:00–9:00 AM	H	Grand Salon G, Marriott	Creating a Cohesive Multi-Year High School Science Curriculum to Promote Student Understandings (p. 22)
8:00–9:00 AM	H	304, Marriott	Using Global Projects to Create Inquiry-based Learning Programs (p. 20)
8:00–9:00 AM	G	308, Marriott	Starting an NSTA Student Chapter: Faculty and Student Perspectives (p. 20)
8:00–9:00 AM	M–H	307, Marriott	DuPont Presents—Polymers and Packaging (p. 26)
8:00–9:30 AM	6–9	203A, Conv. Center	Integrating Video Games and Core Curriculum (p. 32)
8:00–9:30 AM	4–C	105A/B, Conv. Center	Using Your Public Lands as Outdoor Classrooms or Laboratories (p. 31)
8:00–9:30 AM	K–12	304, Conv. Center	Science for Digital Natives (p. 33)
8:00–9:30 AM	5–9	106A/B, Conv. Center	Stuck in the Middle with You (p. 31)
8:00–10:00 AM	E	Millennium Hall, Loews	CESI Session: CESI Make 'n' Take (p. 34)
8:00–10:30 AM	K–6	107A/B, Conv. Center	Introducing Science Notebooks with FOSS K–6 (p. 35)
8:30–9:00 AM	S	Regency C2, Loews	Rethinking Methods and Approaches to Science Teacher Professional Development (p. 20)
8:30–9:00 AM	H	303, Marriott	Making Our Students Competitive: Why Nanotechnology Literacy Is Crucial (p. 20)
8:30–9:00 AM	G	Hall D/8, Conv. Center	TextBook 2.0 (p. 37)
8:30–9:30 AM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Poster Session for Teachers and Teacher Educators Inquiring into Science Learning and Teaching (p. 38)
9:30–10:00 AM	G	Washington B, Loews	Research Experiences for Teachers: Transformative Professional Development (p. 40)
9:30–10:00 AM	M–C/S	Regency C2, Loews	Cycles and Spirals: Using Action Research to Improve Teacher and Student Understanding and Performance (p. 40)
9:30–10:30 AM	G	Hall D/30, Conv. Center	Thinking Like a Scientist (p. 46)
9:30–10:30 AM	M–H	Commonwealth A, Loews	The Dead T-Shirt Contest! (p. 46)
9:30–10:30 AM	E–M	Hall D/25, Conv. Center	Beat the Science Blues! Transform Activities into Inquiry (p. 46)
9:30–10:30 AM	E–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Co-generating Positive K–12 Science Learning Environments Through Dialogue (p. 47)
9:30–10:30 AM	M–H	304, Marriott	DOE's Academies for Creating Teacher Scientists: It's Worth Every Penny (p. 42)
9:30–10:30 AM	E–M/I	Hall D/21, Conv. Center	Afterschool Science Plus! (p. 45)
9:30–10:30 AM	P–E	Hall D/16, Conv. Center	Concept Mapping with Young Learners (p. 45)
9:30–10:30 AM	M	Hall D/23, Conv. Center	Activity + Reflection = Learning (p. 45)
9:30–10:30 AM	H	Washington C, Loews	Creating a Transdisciplinary STEM Curriculum (p. 42)
9:30–10:30 AM	M–H	Grand Salon G, Marriott	Virtual Reality Study Buddies: Filling the Digital Generation Gap (p. 43)
9:30–10:30 AM	E–M/S	Regency A, Loews	Work Smarter, Not Harder! Compacting Literacy and Science with Your Inquiry Science Program (p. 46)
9:30–10:30 AM	P–M	Hall D/15, Conv. Center	Mathnificent Scientific Experience: Part 2 (p. 45)
9:30–10:30 AM	G	Hall D/28, Conv. Center	Developing Differentiated Science Lesson Plans (p. 46)

9:30–10:30 AM	E	Hall D/14, Conv. Center	The Effective Teacher: From Good to Great! (p. 41)
9:30–10:30 AM	I	Hall D/17, Conv. Center	The Elements Unearthed: Documenting the History of Chemistry Through Student-created Vodcasts (p. 41)
9:30–10:30 AM	M–C	Hall D/26, Conv. Center	Strengthening NBPTS Inquiry Entries using Nature of Science (p. 41)
9:30–10:00 AM	G	Hall D/11, Conv. Center	Managing Inquiry: What Does It Take to "Pull It Off"? (p. 40)
9:30–10:30 AM	G	Washington A, Loews	Using Neuroscience to Support Science Learning (p. 46)
10:00–10:30 AM	M–H	305/306, Marriott	Twenty Science Questions Teenagers Frequently Ask (p. 42)
10:00–10:30 AM	G	Hall D/11, Conv. Center	Classroom Management Hints from Science Teachers and Research Findings (p. 41)
9:30–10:30 AM	G	Grand Salon D, Marriott	NSTA Press Session: Spotlighting Books Co-published by NSTA and NSELA and How to Use Them to Inform Science Programs, K–16 (p. 43)
9:30–10:30 AM	E–M	Hall D/7, Conv. Center	Edible Science: Science Good Enough to Eat! (p. 45)
9:30–10:30 AM	M	Hall D/22, Conv. Center	Literacy Across the Curriculum: "Cubing" Lets You Think Outside the Box! (p. 45)
9:30–10:30 AM	G	Congress A, Loews	NSELA Session: Leading for Science Learning (p. 41)
9:30–10:30 AM	G	Salon 3/4, Sheraton	Connecting Students to Real-World Science Issues with National Geographic's Online Resources (p. 44)
9:30–10:30 AM	G	Franklin 2, Marriott	Addressing Barriers for Students with Disabilities (p. 42)
9:30–10:30 AM	G	Grand Salon H, Marriott	NSTA-CBC Outstanding Science Trade Books (p. 43)
9:30–10:30 AM	E–H	Hall D/27, Conv. Center	Become an Einstein Fellow! (p. 41)
10:00–11:30 AM	6–12	106A/B, Conv. Center	Sing Along with Safety in the Science Classroom (p. 50)
10:00–11:30 AM	3–12	103B, Conv. Center	Top 10 STEM Resources (p. 50)
10:00–11:30 AM	K–8	304, Conv. Center	Misconception Mania: Exciting and Engaging Ways to Address Common Misunderstandings in K–8 Science (p. 52)
10:00–11:30 AM	6–9	202B, Conv. Center	Tapping The Music Instinct (p. 51)
10:30–11:00 AM	E–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Self-Study of the Evolution of a "Deferred Judgment Questioning" Discussion Mode (Sounding) in a Middle School Science Teacher (p. 53)
10:30–11:00 AM	M–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Building a Community of Science Learners (p. 53)
10:30–11:00 AM	M–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Developing a Collaborative Mentoring Relationship Between New Science Teachers (p. 52)
10:30–11:00 AM	M	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Effective Inquiry in a Middle School Science Classroom (p. 52)
10:30 AM–12 Noon	G	201C, Conv. Center	Shell Science Seminar: Collision of Chemical and Biological Space: The Emergence of Cross-disciplinary Fields for Individualized Medicine (p. 53)
10:30 AM–12 Noon	G	204C, Conv. Center	Shell Science Seminar: Misconceptions About Science (Especially Astronomy), Their Origins, and Ways to Deal with Them (p. 54)
11:00–11:30 AM	G	Hall D/29, Conv. Center	Science Teacher Efficacy as a Predictor of High School Biology Test Scores (p. 54)
11:00–11:30 AM	M–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Motivating the Unmotivated Child (p. 54)
11:00–11:30 AM	G	Hall D/27, Conv. Center	Integrating with Science: Strategies and Models for the K–12 Classroom (p. 54)
11:00 AM–12 Noon	G	114, Conv. Center	Paul F-Brandwein Lecture: Young Voices on Climate Change: Empowered and Inspired Youth Find Global-warming Solutions (p. 55)
11:00 AM–12 Noon	G	Hall D/11, Conv. Center	Using a Biomaterials Nanotechnology Problem to Teach Biology and Chemistry Concepts (p. 55)
11:00 AM–12 Noon	P–M	Hall D/30, Conv. Center	Exploring Engineering with Elementary-Level Children and Their Parents (p. 63)
11:00 –11:30 AM	M–C/S	Regency C2, Loews	Supporting AP Initiatives in Urban Classrooms: The Role of University STEM Graduate Students (p. 56)
11:00–11:30 AM	P–M	Grand Salon E/F, Marriott	Teacher Researcher Day Session: School/Home Science Connections: Take-Home Science Journals (PreK–6) (p. 59)
11:00 AM–12 Noon	G	Hall D/26, Conv. Center	Podcasts: Assessments That Students Beg for More Of! (p. 56)
11:00 AM–12 Noon	H	304, Marriott	Teaching the Nature of Science: Modeling Inquiry and the Enterprise of Science (p. 58)
11:30 AM–12 Noon	M–C/S	Regency C2, Loews	An Urban University Teacher Preparation Program in a Nonurban Environment (p. 57)
11:00 AM–12 Noon	E–M/I	Hall D/21, Conv. Center	Science After the Bell Rings (p. 63)
11:30 AM–12 Noon	S	Hall D/7, Conv. Center	Surviving Your First Year as a Science Chairperson (p. 55)

11:30 AM–12 Noon	M–H	303, Marriott	Differentiation in the Secondary Science Classroom: It Can Be Done! (p. 58)
11:00 AM–12 Noon	M–H/S	Regency A, Loews	Using Formative Assessment in the Classroom to Make Students Responsible for Their Own Learning (p. 63)
11:00 AM–12 Noon	E	Washington A, Loews	CESI Session: Science Sen$e: Easy, Inexpensive Activities for Elementary Classrooms Using Everyday Items (p. 64)
11:00 AM–12 Noon	H	Salon 10, Sheraton	Science at Work at NASA (p. 62)
11:00 AM–12 Noon	G	Washington B, Loews	Improving Science Teaching and Learning Through Informal/Formal Education Partnerships (p. 57)
11:00 AM–12 Noon	E	Hall D/14, Conv. Center	Differentiating Instruction Within a Hands-On, Inquiry-based Elementary Science Program (p. 62)
11:00 AM–12 Noon	M–H	Commonwealth A, Loews	Interactive Science Notebooks: A Resource Students Can Build and Use to Develop Understanding (p. 63)
11:00 AM–12 Noon	G	Hall D/5, Conv. Center	Interactive Science Notebooks for Inspiring Young Scientists (p. 62)
11:00 AM–12 Noon	M	Hall D/20, Conv. Center	The Science and Math of Hurricanes (p. 56)
11:00–11:30 AM	S	Hall D/7, Conv. Center	Mentoring for Success: Supporting the First-Year Science Teacher (p. 55)
11:00 AM–12 Noon	E–H	Hall D/28, Conv. Center	Why Science? Class Activities to Get Them Thinking on the First Day (p. 63)
11:00–11:30 AM	M–H	303, Marriott	Middle and High School Science and Special Education: How to Make It Work (p. 58)
11:00 AM–12 Noon	E–M/I	Hall D/25, Conv. Center	Modifying Curricula and Attitudes to Develop Self-Efficacy in Girls (p. 63)
11:00 AM–12 Noon	E–H	Congress A, Loews	Inquiry Skills and Experimental Design: What Best Prepares Students for Success in High School and Beyond? (p. 56)
11:00 AM–12 Noon	P–E	Hall D/16, Conv. Center	Connecting Science and Math Inquiry at the Early Childhood Level (p. 63)
11:00 AM–12 Noon	M–H	Grand Salon G, Marriott	Understanding but Not Necessarily Believing: Teaching Evolution to Religious Students (p. 59)
11:00 AM–12 Noon	M–C	Hall D/15, Conv. Center	Our Brain Needs Drugs: Produce Them on Your Own! (p. 62)
11:00 AM–12 Noon	G	308, Marriott	Before and After Retirement: Practicalities and Possibilities (p. 58)
11:00 AM–12 Noon	G	Grand Salon H, Marriott	K–12 Share Session with a Multicultural Flair (p. 60)
11:00 AM–12 Noon	E–M	Grand Salon D, Marriott	NSTA Press Session: Teaching for Conceptual Change (p. 59)
11:00 AM–12 Noon	H	Washington C, Loews	High School STEM Redesign with a Modeling Instruction Twist (p. 57)
11:00 AM–12 Noon	E–M	Hall D/22, Conv. Center	Bridging the Gap in Content Knowledge from Elementary Through Middle School (p. 63)
11:00 AM–12 Noon	I	Franklin 1, Marriott	Volunteer Scientists and Hands-On Learning in Your Classroom (p. 64)
11:00 AM–12 Noon	G	305/306, Marriott	New National Collaboration Will Create Framework to Guide K–12 Science Standards (p. 58)
11:00 AM–12 Noon	I	Hall D/17, Conv. Center	Anatomy of a Lesson: Using Technology to Enhance Planning (p. 56)
11:00 AM–1:00 PM	3–6	107A/B, Conv. Center	FOSS Assessment—Valuing Academic Progress in Grades 3–6 (p. 65)
11:30 AM–12 Noon	G	Hall D/10, Conv. Center	Multisensory Formative and Summative Assessments for the Motivationally Impaired (p. 66)
12:00–12:30 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Science Inquiry Group Network (p. 66)
12:00–1:30 PM	6–9	203A, Conv. Center	Incorporating Social Networking and Gaming into the Classroom (p. 68)
12:00–1:30 PM	6–8	201B, Conv. Center	Hands-On/Minds-On Middle School Science (p. 68)
12:00–1:30 PM	K–12	113B, Conv. Center	Untamed Science! How to Make Your Own Science Videos from Scratch (p. 68)
12:00–1:30 PM	6–8	103C, Conv. Center	Hands-On Integrated Science Activities for Middle School (p. 67)
12:00–1:30 PM	7–C	202B, Conv. Center	Mystery of Lyle and Louise Questioned Documents Analysis (p. 68)
12:00–1:30 PM	K–3	103B, Conv. Center	Launching Early Science Inquiry with The Zula Patrol (p. 67)
12:00–1:30 PM	3–12	109A/B, Conv. Center	The National Youth Leadership Forum: Training Tomorrow's Science Leaders (p. 67)
12:30–1:00 PM	S	Regency C2, Loews	Planning to Manage the Science Classroom: A Preventive Problem-solving Approach (p. 70)
12:30–1:00 PM	I	Hall D/17, Conv. Center	Does Playing Video Games Enhance Short-Term Memory? (p. 69)
12:30–1:30 PM	G	Washington B, Loews	The Realistic Professional Learning Community (p. 72)
12:30–1:30 PM	M–H	Washington A, Loews	The Consequences of Undisclosed Science Knowledge: Bright Students Failing in STEM Majors (p. 76)
12:30–1:30 PM	M–H	304, Marriott	National Board Certification and Renewal: What, How, Why? (p. 72)
12:30–1:00 PM	H	Hall D/1, Conv. Center	Using Students' Already-developed Technology Skills (p. 70)

12:30–1:30 PM	M–H	Grand Salon D, Marriott	NSTA Press Session: Making Science Reading Come Alive (p. 76)
12:30–1:00 PM	E–M	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Mixed-Methods Study on the Effect of Classroom Interruptions on Teacher Instruction (p. 73)
12:30–1:30 PM	E–M/I	Hall D/22, Conv. Center	Engaging Girls in Science with SciGirls (p. 75)
12:30–1:30 PM	P–M/I	Hall D/8, Conv. Center	Outside the Classroom Walls: Creating a Backpack Lesson to Expand Student Learning (p. 71)
1:00–1:30 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Inquiry for Equity: Increasing Learning Opportunities Through Classroom-based Research (p. 73)
12:30–1:30 PM	M–C	Hall D/20, Conv. Center	Reflective Science: A Metacognitive Approach to Learning Science (p. 71)
12:30–1:30 PM	E–M	Hall D/25, Conv. Center	London Bridge Is Falling Down! (p. 75)
12:30–1:30 PM	M/S	Regency A, Loews	Inspire the Next Generation of Engineers with Free Resources from PBS's Design Squad (p. 75)
12:30–1:00 PM	G	Congress A, Loews	Science Accommodations and Resources for Students with Special Needs: Providing Science Instruction for All Students (p. 71)
12:30–1:30 PM	E–M	Hall D/21, Conv. Center	Science + Writing = Learning (p. 75)
12:30–1:30 PM	E	Hall D/16, Conv. Center	Invertebrates Are Elementary (p. 75)
12:30–1:00 PM	M	Hall D/27, Conv. Center	Cognitive Study Skills for Middle School Students: Increasing Learning Through Strategy Instruction (p. 69)
12:30–1:30 PM	M–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Problem-Baased Learning: An Action Research Roundtable (p. 73)
12:30–1:00 PM	M–H	Hall D/7, Conv. Center	Sticky Notes and Student Identification of Variables in Science Investigations (p. 70)
1:00–1:30 PM	E–H	Congress A, Loews	Engaging Science Instruction for Special Needs Students (p. 71)
12:30–1:30 PM	E–H	Hall D/30, Conv. Center	The Good, the Bad, and the Ugly: Turning Bad Labs into Good Labs (p. 75)
12:30–1:30 PM	M–H	Grand Salon G, Marriott	Global Warming? Global Cooling? Climate Change? What's a Teacher to Teach? (p. 73)
12:30–1:30 PM	P–E	Hall D/15, Conv. Center	Linking Home and School with P.A.S.S.© (Portable Affordable Simple Science) (p. 75)
12:30–1:30 PM	H	Commonwealth A, Loews	Helping High School Students Write Their Own Scientific Experiments (p. 75)
12:30–1:30 PM	G	Hall D/5, Conv. Center	ELD Strategies in Science (p. 70)
12:30–1:30 PM	6–8	201A, Conv. Center	Project-Based Inquiry Science (PBIS): The Next Generation of Middle School Programs (p. 78)
12:30–1:00 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Visions of Teaching Science (p. 73)
12:30–1:30 PM	C/S	Commonwealth B, Loews	Revising the NSTA Science Teacher Preparation Program Standards (p. 71)
1:30–2:00 PM	M–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Learning to Teach by Listening to My Students Learn (p. 78)
1:30–3:00 PM	G	114, Conv. Center	Shell Science Seminar: Talent Knows No Color Line (p. 79)
1:30–3:00 PM	G	204C, Conv. Center	Shell Science Seminar: Authentic Astronomical Data Analysis in Educational Settings (p. 80)
1:30–4:00 PM	3–6	107A/B, Conv. Center	Making Sense of Science Notebooks with FOSS 3–6 (for Experienced Users) (p. 80)
2:00–2:30 PM	E–M	Commonwealth D, Loews	AMSE Session: Science for All Children—And Their Parents! (p. 80)
2:00–2:30 PM	M–C	Hall D/11, Conv. Center	Is Your Science Lab a Safe Place to Work for Students? (p. 80)
2:00–2:30 PM	E	Hall D/16, Conv. Center	Student-led Science Investigations for All Subjects (p. 82)
2:00–3:00 PM	G	201C, Conv. Center	NSTA/ASE Honors Exchange Lecture: Professionalism and Science Learning in the 2010s (p. 81)
2:00–3:00 PM	E	Hall D/29, Conv. Center	Nurturing Urban, Low-Income Students' Learning of Science by Integrating Literacy Tools and Hands-On Activities (p. 83)
2:00–3:00 PM	E/S	Regency A, Loews	Developing Science Leaders: An Elementary Science Professional Learning Community (p. 87)
2:00–3:00 PM	M–H	Washington C, Loews	Inquiry, Assessment, Technology, Misconceptions, and More: Insights from Teacher-Researchers (p. 84)
2:00–3:00 PM	G	Hall D/30, Conv. Center	Teaching the Small Particle Model of Matter: An Inquiry Approach (p. 87)
2:00–3:00 PM	G	Hall D/7, Conv. Center	Moving Beyond Retention: Setting the Stage for the Next Generation of Teacher Leaders (p. 82)
2:00–3:00 PM	M–H	303, Marriott	Visualizing Biotechnology (p. 84)

2:00–3:00 PM	G	Hall D/27, Conv. Center	NSTA Press Session: Planning and Designing Safe, Sustainable, and Flexible Facilities for Inquiry-based Science (p. 83)
2:00–3:00 PM	H–C	Congress B, Loews	Research Experiences for Teachers (RET) at Vanderbilt University (p. 84)
2:00–3:00 PM	P–M	Hall D/21, Conv. Center	Become an Environmental Investigator (p. 87)
2:00–3:00 PM	H	Grand Salon C, Marriott	Rigor vs. Rhetoric: Developing Scientific Skepticism in Our Students (p. 88)
2:00–3:00 PM	E–H	307, Conv. Center	NSTA Avenue Session: The Shell Science Teaching Award—Learn More, Be Successful (p. 82)
2:00–3:00 PM	G	Hall D/20, Conv. Center	Getting Your Students to Talk: Discussion-based Activities for Large Enrollment Courses (p. 82)
2:00–3:00 PM	E–M	Hall D/25, Conv. Center	Energize Your Students with Inquiry-based Water and Energy Investigations (p. 87)
2:00–3:00 PM	E	Hall D/15, Conv. Center	Inquiry Experiences in Science and Math: Making the Most of Technology (p. 87)
2:00–3:00 PM	G	Hall D/28, Conv. Center	How Can a Lighter Extinguish a Burning Candle? Exploring Combustion (p. 87)
2:00–3:00 PM	H	Grand Salon K, Marriott	Classroom Symposium: A Model of Scientific Talk (p. 88)
2:00–3:00 PM	E–M	Hall D/22, Conv. Center	Culturally Competent Science for American Indian Students (p. 83)
2:00–2:30 PM	M–H	305/306, Marriott	A Description of the Implementation of Science Co-teaching at Radnor High School (p. 84)
2:00–3:00 PM	I	Hall D/17, Conv. Center	NASA's Do-It-Yourself Podcast (p. 82)
2:00–3:00 PM	M–H	304, Marriott	Using Assessment to Improve Learning: Self- and Peer-Assessment (p. 84)
2:00–3:00 PM	M–H	Washington A, Loews	Improving Your Students' Graphing and Graph Interpretation Practices (p. 88)
2:00–3:00 PM	G	Hall D/26, Conv. Center	Warming Up Your Wiki: An Interdisciplinary Online Approach to Teaching the Topic of Climate Change (p. 83)
2:30–3:00 PM	E	Hall D/16, Conv. Center	Project GEMS: Developing Talent in the STEM Disciplines (p. 82)
2:00–3:00 PM	G	Washington B, Loews	Are You Teaching What You Think You're Teaching? (p. 84)
2:00–3:00 PM	G	Congress A, Loews	Hands-On Science and Literacy: How Deaf Kids Connect Science, Math, and Language (p. 83)
2:00–3:00 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Keynote Speaker: The Pretzel Theory of Inquiry (p. 81)
2:00–3:00 PM	9–12	201A, Conv. Center	Coordinated Science: Physical, Earth, and Space Sciences (p. 90)
2:00–3:00 PM	S	Regency C2, Loews	High Poverty *and* High Student Achievement: Yes, We Can…Yes, We Do! (p. 84)
2:00–3:00 PM	M–H	Commonwealth A, Loews	Conference Freebies: How to Really Use Them in Your Classroom (p. 87)
2:00–3:00 PM	G	Grand Salon D, Marriott	NSTA Press Session: Using Science Notebooks in the Elementary Classroom (p. 85)
2:00–3:30 PM	G	203A, Conv. Center	Science and the Real World: 21st-Century Learning Tools from NBC News (p. 91)
2:00–3:30 PM	K–12	105A/B, Conv. Center	Exploring Ocean Resources—From Energy to the Environment K–12 (p. 90)
2:00–3:30 PM	G	202B, Conv. Center	The STEM Academy (p. 91)
2:00–3:30 PM	5–8	103B, Conv. Center	Science of Everyday Life with the Discovery Education 3M Young Scientist Challenge (p. 90)
2:00–3:30 PM	K–8	113B, Conv. Center	Inquiry in the Classroom (p. 91)
2:00–3:30 PM	K–5	201B, Conv. Center	1, 2, 3, 4 … Boost Your Students' Math Scores (p. 91)
2:30–3:30 PM	E–H	Independence C, Sheraton	COSEE Session: The Ocean Literacy Scope & Sequence (p. 92)
2:30–4:30 PM	G	Regency B, Loews	AoA Session: 21st-Century Skills: Research and Practice (p. 92)
3:30–4:00 PM	G	Hall D/20, Conv. Center	Exploring the Pros and Cons of an Elementary Science Kit Program (p. 93)
3:30–4:00 PM	G	Hall D/10, Conv. Center	Project SMART: A Partnership for Recruiting Science and Math Teachers (p. 93)
3:30–4:30 PM	G	201C, Conv. Center	Robert Karplus Lecture: CSTEM—From Cradle to Career: Using Connectivity to Create Continuous Improvement in the Sciences (p. 93)
3:30–4:30 PM	G	114, Conv. Center	Featured Presentation: Explaining Global Warming to the Mass Audience (p. 94)
3:30–4:30 PM	M–H	304, Marriott	Using Assessment to Improve Learning: Effective Questioning (p. 97)
3:30–4:30 PM	M–H	303, Marriott	Computers and Inquiry: Using Interactive Science Simulations to Promote Student-centered Instruction (p. 97)
3:30–4:30 PM	HC	Congress B, Loews	Helping Teachers Adopt Merit's Collaborative Learning Techniques Through the MIST Summer Teacher Workshop (p. 96)
3:30–4:30 PM	G	Commonwealth D, Loews	What Can Four-Year-Olds Know and Do in Science? (p. 95)
3:30–4:30 PM	G	Regency A, Loews	Newton on the Cheap (p. 100)
3:30–4:30 PM	M	Hall D/9, Conv. Center	Energy Flowing Through the Middle School Cycles (p. 99)
3:30–4:30 PM	E–H	Washington B, Loews	Ellis Island…Science and Immigration Policy (p. 97)
3:30–4:30 PM	P–E	Hall D/14, Conv. Center	Starting Early: Working Together to Determine How the Pre-Kinder Child Learns Science (p. 95)

3:30–4:30 PM	H	Congress A, Loews	Standards-based Inquiry: Planning and Implementation of a Freshman Year Science Course (p. 96)
3:30–4:30 PM	E–M	Hall D/5, Conv. Center	City Science: Using Your City as a Classroom (p. 99)
4:00–4:30 PM	G	Hall D/27, Conv. Center	Integrating Placed-based Scientific Inquiry into Other Disciplines (p. 96)
3:30–4:30 PM	E–M	Hall D/21, Conv. Center	Questions, Claims, Evidence: How to Use Language to Learn Science (p. 100)
3:30–4:30 PM	M	Hall D/22, Conv. Center	Science Is Summer Fun! (p. 95)
3:30–4:30 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Bridging the Gap Between Research and Practice in the Urban Science Classroom (p. 98)
3:30–4:30 PM	E–M	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Cultural Relevance in Science Pedagogy (CRISP): Action Research Network (p. 98)
3:30–4:30 PM	G	Hall D/26, Conv. Center	The Science Exposition (p. 95)
3:30–4:30 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: First-Year Science Teaching as a Project Nexus Graduate (p. 101)
3:30–4:30 PM	E–H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Science Notebook Strategies to Enhance Science and Literacy Integration (p. 98)
3:30–4:30 PM	M–H	Washington C, Loews	Admit and Exit Slips: Simple, Ongoing, Formative Assessment for Effective Science Lessons (p. 97)
3:30–4:30 PM	G	Hall D/11, Conv. Center	Using Action Reasearch in the Classroom: How to Make It Work for You (p. 95)
3:30–4:30 PM	E–H	Hall D/28, Conv. Center	Science Notebooking: A Convenient and Cost-effective Approach (p. 100)
3:30–4:30 PM	I	Hall D/17, Conv. Center	Celebrating Unsung Heroes of Science: A Sociocultural Approach to Science Biography (p. 100)
3:30–4:30 PM	E	Hall D/15, Conv. Center	All That Glitters: Developing a School-wide Interdisciplinary Unit on "Treasures" (p. 99)
3:30–4:30 PM	E–M	Grand Salon D, Marriott	NSTA Press Session: Outdoor Science Classroom (p. 97)
3:30–4:30 PM	G	Hall D/29, Conv. Center	Data: It's Not a Four-Letter Word (p. 96)
3:30–4:00 PM	G	Hall D/27, Conv. Center	The Initial Impact of NCLB on Elementary Science—Now What? (p. 96)
3:30–4:30 PM	M	Hall D/25, Conv. Center	Integrating Science Simulations into Science Curriculum and Assessment Systems (p. 99)
3:30–4:30 PM	G	Hall D/30, Conv. Center	Soar into Spring with Kites (p. 100)
3:30–4:30 PM	E–H	Franklin 8, Marriott	Helping Students "Get" What They Read (p. 101)
3:30–4:30 PM	G	Washington A, Loews	CESI Session: Creativity in the Science Classroom (p. 100)
3:30–5:30 PM	G	Grand Salon K, Marriott	NSTA ESP Symposium III (p. 102)
4:30–5:00 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Fostering Teacher Researcher Collaborations (p. 102)
5:30–6:00 PM	H/S	Regency C2, Loews	INSPIRE: Designing an online community for students interested in STEM and NASA (p. 105)
5:00–6:00 PM	H–C	Congress B, Loews	mtDNA: Where Biology, Chemistry and Anthropology Meet (p. 104)
5:30–6:00 PM	E–H	Hall D/11, Conv. Center	Teachers as Experts: Using Teacher Knowledge to Guide Collaboration and Innovation (p. 103)
5:00–6:00 PM	E–M/I	Hall D/6, Conv. Center	Infusing Energy Education into Science, Mathematics, and Social Studies (p. 107)
5:00–6:00 PM	P–E	Hall D/15, Conv. Center	Use What You GOT to Make Science HOT! (p. 107)
5:00–5:30 PM		Regency C2, Loews	Bringing Teachers into the Woods: Science Methods Instruction in the Outdoors (p. 105)
5:00–6:00 PM	M	Hall D/22, Conv. Center	Purposeful Learning: Hook, Line, and Thinker (p. 104)
5:00–6:00 PM	E	Hall D/16, Conv. Center	Design Challenges in the Elementary Classroom (p. 108)
5:30–6:00 PM	G	Hall D/1, Conv. Center	Tablet PCs Promote Classroom Interaction in Math and Science (p. 103)
5:30–6:00 PM	M–C	Hall D/27, Conv. Center	Coteaching Science with Preservice Educators (p. 104)
5:00–5:30 PM	G	Hall D/27, Conv. Center	Improving Students' Performance via Mentoring Science Teachers (p. 104)
5:00–6:00 PM	C	Congress A, Loews	Inquiry Science for Elementary and Early Childhood Preservice Students (p. 105)
5:00–6:00 PM	M	Hall D/25, Conv. Center	Using Stories in the Science Classroom (p. 108)
5:00–5:30 PM	G	Hall D/11, Conv. Center	Ensuring Success in Professional Development (p. 104)
5:30–6:00 PM	G	Hall D/29, Conv. Center	An International Perspective: Science Education in Qatar (p. 105)
5:00–6:00 PM	I	Hall D/17, Conv. Center	Reading the Landscape: Inquiry into Local Story (p. 108)
5:00–6:00 PM	H	Washington A, Loews	Assessing Students' Scientific Literacy (p. 107)

5:00–6:00 PM	H	Washington C, Loews	What Does Global Competence in Science Look Like? (p. 105)
5:00–6:00 PM	P–M	Hall D/21, Conv. Center	Who Says Orange Is the Opposite of Blue? Use Retinal Fatigue to Explore Color (p. 108)
5:00–6:00 PM	G	Hall D/20, Conv. Center	Learning and Teaching Through Telepresence (p. 104)
5:00–6:00 PM	G	Hall D/5, Conv. Center	Engineer Your Life: Inspiring Girls to Explore Engineering (p. 103)
5:00–5:30 PM	G	Hall D/29, Conv. Center	Using English as the Language of Instruction for Science in Qatar (p. 105)
5:00–6:00 PM	M–C	Hall D/26, Conv. Center	Multidiscipline Creek Study: It's Easy, Fun, and Great Research for Students! (p. 104)
5:00–6:00 PM	M–H	304, Marriott	Raising the Level of Inquiry in Your Classroom by Modifying Traditional Lab Activities (p. 106)
5:00–5:30 PM	M–H	Hall D/1, Conv. Center	Using a Social Media Tool to Motivate Learning (p. 103)
6:00 PM–12 Mid	G	Regency A, Loews	A Video Showcase of Inspiring Award-winning Teachers and Their Engaging Courses, Part III (p. 110)

Integrated/General Science: Sunday

8:30–9:00 AM	S	106A/B, Conv. Center	Improving the Way We Grade Science (p. 113)
8:00–9:00 AM	E	Hall D/16, Conv. Center	Launching Science Notebooks System-wide: It Just Makes Sense! (p. 116)
8:00–9:00 AM	P–M	Hall D/27, Conv. Center	Inquiry Science: What's the Big Idea? (p. 118)
8:00–9:00 AM	G	113C, Conv. Center	Using Strand Maps (p. 114)
8:00–9:00 AM	E–M	Hall D/29, Conv. Center	Teaching the Nature of Science (p. 118)
8:00–9:00 AM	E–H	202A, Conv. Center	Free Open-Source Software for STEM (p. 114)
8:00–9:00 AM	G	Hall D/4, Conv. Center	After-School Math Plus/After-School Inclusive Math (p. 117)
8:00–9:00 AM	E–M	Hall D/26, Conv. Center	Using Devonian Fossils to Connect Science Content Across the Curriculum (p. 118)
8:00–9:00 AM	E–M	203B, Conv. Center	Progressively Challenging Science Investigations for K–8 Elementary Teachers: Immersion in Science (p. 115)
8:00–9:00 AM	G	201B, Conv. Center	Planning Effective Research-based Professional Development for Science Teachers (p. 114)
8:00–9:00 AM	E/S	Hall D/23, Conv. Center	Using the Science IDEAS Model to Integrate Science and Literacy in Grades K–5 (p. 118)
8:00–9:00 AM	E	Hall D/13, Conv. Center	Cultivating Budding Scientists Through Children's Literature (p. 115)
8:00–8:30 AM	E/C/S	106A/B, Conv. Center	Using Assessments to Guide Professional Development for Urban Elementary Teachers (p. 113)
8:00–9:00 AM	P–E	Hall D/15, Conv. Center	Energy Concepts Measure Up (p. 117)
8:00–9:00 AM	E–H	201A, Conv. Center	Developing Reasoning Skills Through Inquiry (p. 114)
8:00–9:00 AM	M	Hall D/25, Conv. Center	Closing the Achievement Gap: Anecdotal Evidence for Improving Performance and Proficiency of Low-Income Students (p. 116)
8:00–9:00 AM	E	Hall D/12, Conv. Center	Going to the Zoo, Zoo, Zoo—Get Activities, Activities, Activities (p. 117)
8:00–9:00 AM	E–M/C	204B, Conv. Center	A Good Symbiosis: Connecting Science with Reading and Writing (p. 115)
8:00–9:00 AM	E–M	Hall D/28, Conv. Center	Art-Full Science (p. 116)
8:00–9:00 AM	E–H	203A, Conv. Center	Science 2.0 (p. 117)
8:00–9:00 AM	M	Hall D/24, Conv. Center	Centering Around the Science Standards Grades 6–8 (p. 118)
8:00–9:00 AM	G	Hall D/3, Conv. Center	How Science and History Affect Your Understanding of Current Events: Improving Students' Informal Learning (p. 115)
8:00–9:00 AM	E	Hall D/11, Conv. Center	Science in the Summer (p. 117)
9:30–10:30 AM	E–M	Hall D/24, Conv. Center	Native American Science on the Reservation (p. 123)
9:30–10:30 AM	G	Hall D/5, Conv. Center	History Should Be Repeated (and Enhanced) in the Science Classroom (p. 121)
9:30–10:30 AM	P–E	Hall D/14, Conv. Center	Think Scientifically! Science Hidden in a Storybook (p. 123)
9:30–10:30 AM	M–H	Hall D/3, Conv. Center	NSTA Press Session: Extreme Science: Scales from Nano to Galactic (p. 123)
9:30–10:30 AM	P–E	Hall D/16, Conv. Center	Differentiating Science Instruction Through Questioning: Increasing Complexity by Widening Scope (p. 123)
9:30–10:30 AM	G	113C, Conv. Center	Engaging Your Students: Designing Lesson Plans Using the 5E Instructional Model (p. 122)
9:30–10:30 AM	G	202A, Conv. Center	A Process for Developing STEM Curriculum Materials (p. 120)
9:30–10:30 AM	E–M	Hall D/28, Conv. Center	Sing a Little, Play a Little, Learn a Lot! (p. 121)

9:30–10:30 AM	M–H	204B, Conv. Center	But Scientists Don't Write! Integrating Writing into Science Classrooms (p. 123)
9:30–10:30 AM	E–H	203B, Conv. Center	Involving Girls in Science: Academic Strategies and Neurocognitive Gender Differences (p. 120)
9:30–10:30 AM	G	Hall D/4, Conv. Center	Lab Inquiry: It's as Easy as ABC (Activity Before Concept) (p. 120)
9:30–10:30 AM	G	202B, Conv. Center	Science Vocabulary: Unburden Your Curriculum by Crossing Discipline Boundaries (p. 122)
9:30–10:30 AM	E–M	Hall D/29, Conv. Center	Teaching the Nature of Science Through Process Skills (p. 121)
9:30–10:30 AM	P–M/I	Hall D/15, Conv. Center	Notebooking: Scientific Illustrations with Kindergartners (p. 120)
9:30–10:30 AM	E	Hall D/11, Conv. Center	Smarter Science for Elementary School: Literacy and Numeracy in Action (p. 123)
9:30–10:30 AM	M	Hall D/27, Conv. Center	Teaching Strategies to Support Middle School Students in Constructing Evidence-based Scientific Explanations (p. 121)
9:30–10:30 AM	G	203A, Conv. Center	Digital Storytelling in the Science Classroom: Exploring Nature (p. 120)
9:30–10:30 AM	G	204A, Conv. Center	Understanding Science: How to Get Your Students Engaged in the Real World of Science (p. 122)
9:30–10:30 AM	M–H/S	106A/B, Conv. Center	Pre-Engineering: The Glue That Binds a Multidisciplinary Approach to Instruction (p. 119)
9:30–10:30 AM	G	201A, Conv. Center	"Turning It On": Making the Connection Between Science and Reading (p. 122)
9:30–10:30 AM	E	Hall D/13, Conv. Center	Double Duty: Elementary Science Trade Books and Inquiry Kits (p. 120)
9:30–10:30 AM	E–M/I	Hall D/26, Conv. Center	Strategies for Increasing K–12 Students' Interest in STEM Careers (p. 118)
9:30–11:30 AM	G	Hall D/2, Conv. Center	Using the National Science Facilities Standards to Plan and Design Your School Science Facility (p. 124)
11:00–11:30 AM	I	Hall D/26, Conv. Center	Tapping the Full Potential of Your Next Science Museum Field Trip (p. 124)
11:00 AM–12 Noon	E	Hall D/15, Conv. Center	Forget the Three Rs…Just Teach Science! (p. 126)
11:00 AM–12 Noon	E–H	113C, Conv. Center	Water WOW! An Integrated Unit (p. 127)
11:00 AM–12 Noon	H–C	112A/B, Conv. Center	Using a UDL Learning Community to Increase Student Success in STEM (p. 125)
11:00 AM–12 Noon	E–M	Hall D/29, Conv. Center	Weaving Nature of Science Into the K–8 Curriculum (p. 129)
11:00 AM–12 Noon	E	Hall D/12, Conv. Center	Making Curricular Connections Through Engineering Learning Activities in the Elementary Science Classroom (p. 128)
11:00–11:30 AM	H	Hall D/16, Conv. Center	Connecting Science and Math Through Studies of Local Biodiversity (p. 126)
11:00 AM–12 Noon	G	202A, Conv. Center	Making STEM Connections in K–12 Education (p. 126)
11:30 AM–12 Noon	M–H	Hall D/16, Conv. Center	Every Class Is a Reading Class (p. 127)
11:00 AM–12 Noon	E–M	Hall D/25, Conv. Center	It's Elementary! Using the Four-Question Strategy to Design Experiments (p. 128)
11:00 AM–12 Noon	E	Hall D/14, Conv. Center	FoodMASTER: Using Food as a Tool to Teach Math and Science (p. 128)
11:00 AM–12 Noon	G	Hall D/3, Conv. Center	Using Web 2.0 Tools to Integrate Science, Language Arts, and Technology (p. 127)
11:00 AM–12 Noon	E–M	Hall D/27, Conv. Center	Energizing Your Lesson Using Science: An Interdisciplinary Process (p. 128)
11:00 AM–12 Noon	G	109A/B, Conv. Center	Empowering Youth to Address the Threat of Climate Change: Reducing Carbon Dioxide Emissions in Your Community (p. 127)
11:00 AM–12 Noon	E	Hall D/8, Conv. Center	Literacy-based Science…Linking Science, Math, and Language Arts (p. 129)
11:00 AM–12 Noon	G	202B, Conv. Center	How and Why to Ask Questions in Math and Science (p. 126)
11:00 AM–12 Noon	G	107A/B, Conv. Center	Achieving Science Literacy for the 21st Century: A Curricular Tool That Aligns the Voices of Science Stakeholders (p. 127)
11:00 AM–12 Noon	P–E	Hall D/13, Conv. Center	But I Am Not a Reading Teacher! Finding Literacy in Primary Science (p. 128)
11:00 AM–12 Noon	H–C	203B, Conv. Center	Just the Facts: How to Write and Score Science Essays Consistently and Objectively (p. 126)
11:00 AM–12 Noon	G	Hall D/4, Conv. Center	Thinking GREEN Literally: An Engaging Inquiry-based Way to Teach the Scientific Method Using Seeds and Plants (p. 127)
11:00 AM–12 Noon	E–H	204A, Conv. Center	D.I.Y. Forensics (p. 128)
11:00 AM–12 Noon	G	201B, Conv. Center	The Realities of Training and Mentoring New Science Teachers (p. 126)
11:00 AM–12 Noon	G	203A, Conv. Center	Tapping into the Digital Revolution: Revolutionizing Science Education Using "We Tools" (p. 126)

Physics/Physical Science: Saturday

8:00–9:00 AM	9–12	113A, Conv. Center	Advanced Placement® Physics: Momentum and Impulse (p. 30)
8:00–9:00 AM	C	201A, Conv. Center	Physics for Everyday Thinking (PET) and Physical Science for Everyday Thinking (PSET) (p. 30)
8:00–9:00 AM	M–H	Grand Salon J, Marriott	Graphing: Where Science, Math, and Literacy Intersect (p. 28)
8:00–9:00 AM	H–C/I	Commonwealth C, Loews	Edgy Science 3 (p. 26)
8:00–9:00 AM	M–H	Franklin 7, Marriott	KidWind Challenge (p. 21)
8:00–9:00 AM	H	Grand Salon C, Marriott	High School Nanotechnology Absorption (p. 28)
8:00–9:00 AM	E	Hall D/9, Conv. Center	Go Green! Design an Electric Car (p. 24)
8:00–9:00 AM	I	Independence C, Sheraton	COSEE Session: Bridge/COSEE NOW Activity: Can't Take the Heat? (p. 28)
8:00–9:00 AM	M–C/S	Grand Salon B, Marriott	MOSART: Assessing the Effects of Professional Development on Teacher and Student Content Knowledge (p. 21)
8:00–9:30 AM	9–C	110A/B, Conv. Center	Experience a Digital Physics Curriculum (p. 32)
8:00–9:30 AM	5–12	108A, Conv. Center	The BEST Buoyancy Experiment Ever! Understanding Archimedes's Principle and Density (p. 32)
8:00–9:30 AM	6–8	103C, Conv. Center	A World In Motion: The Middle School Design Experience (p. 30)
9:30–10:30 AM	9–12	201A, Conv. Center	*Active Physics*: Newly Revised Third Edition (p. 49)
9:30–10:30 AM	G	Grand Salon C, Marriott	Sensors, Control Technology, and Robotics (p. 47)
9:30–10:30 AM	M–H	Franklin 7, Marriott	Powerful, Free Simulations for Physics Teaching (p. 43)
9:30–10:30 AM	M–C	Hall D/6, Conv. Center	Physics and Art (p. 40)
9:30–10:30 AM	E–M	Hall D/19, Conv. Center	Aerodynamics: Balloon Rocketry (p. 45)
9:30–10:30 AM	I	Grand Salon J, Marriott	Next Stop: The Moon (p. 47)
10:00–11:30 AM	6–12	110A/B, Conv. Center	AeroLab (p. 51)
10:00–11:30 AM	6–8	203A, Conv. Center	The JASON Project (p. 51)
10:00–11:30 AM	5–12	108A, Conv. Center	Race into Physics with the CPO Science Energy Car (p. 50)
10:00–11:30 AM	9–C	202A, Conv. Center	Physics with Vernier (p. 51)
10:00–11:30 AM	7–12	104A/B, Conv. Center	Getting' Funky with the Fundamentals of Physics (p. 50)
10:30–11:00 AM	H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Effects of the Modeling Approach on Student Learning in a Ninth-Grade Physics Course (p. 53)
11:30 AM–12 Noon	M–C	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Amusement Park Physics Unit Using Video and Data Analysis (p. 59)
11:00 AM–12 Noon	M–H	Franklin 7, Marriott	ZAP! It's Electrifying! (p. 58)
11:00 AM–12 Noon	M–C/S	Grand Salon B, Marriott	Innovative Teaching and Learning of Physics in Secondary Schools in Mauritius (p. 58)
11:00 AM–12 Noon	E	Hall D/9, Conv. Center	WHOOSH! Balloon Car Engineering Design (p. 62)
11:00 AM–12 Noon	M–H	Grand Salon J, Marriott	Exploring the Dual Nature of Light (p. 64)
11:00 AM–12 Noon	G	Grand Salon C, Marriott	Your Bicycle and Gears: It's All in the Teeth (p. 64)
12:00–1:30 PM	6–9	106A/B, Conv. Center	Middle School Spectroscopy: Visualizing the Spectrum (p. 67)
12:30–1:30 PM	E/I	Hall D/9, Conv. Center	Learning Physics in the Real World (p. 74)
12:30–1:30 PM	E–M/I	Hall D/19, Conv. Center	Juggling in After-School Programs: Science, Fitness, and Fun—It's a Balancing Act! (p. 75)
12:30–1:30 PM	M–H/I	Grand Salon J, Marriott	Electro Luminescence: Light Imitating Art (p. 76)
12:30–1:30 PM	H	Grand Salon C, Marriott	Beyond Introductory Circuits: Electronics (p. 76)
12:30–1:00 PM	H	Grand Salon E/F, Marriott	Teacher Researcher Day Session: The Effects of a PCB Modeling-based Course Sequence on Upper-Level Electives (p. 73)
12:30–1:30 PM	M–H	Franklin 7, Marriott	Dollar Store Physics: Inexpensive Demos That Address Physics Misconceptions (p. 72)
1:30–2:00 PM	G	Grand Salon E/F, Marriott	Teacher Researcher Day Session: Using Physics as the Context for Literacy Learning (p. 78)
2:00–3:00 PM	M–C	Franklin 7, Marriott	Kitchen Physics (p. 85)
2:00–3:00 PM	M–H	Grand Salon B, Marriott	Teaching Physical Science and IT Principles Through the Design of an Underwater Robot (p. 85)
2:00–3:00 PM	M–H	Grand Salon J, Marriott	Investigate the Scientific Basis of ElectroPollution with Paul and Mike (p. 88)

2:00–3:00 PM	M	Hall D/19, Conv. Center	Rube Goldberg: A Project-based Learning Experience for All! (p. 82)
3:30–4:30 PM	G	Hall D/7, Conv. Center	Captivate Your Students with Magic! (p. 99)
3:30–4:30 PM	M–H	Grand Salon J, Marriott	Cut and Glue to Learn About Uniform and Accelerated Motion (p. 101)
3:30–4:30 PM	M–H	Franklin 7, Marriott	Strategies for Supporting the ELL Learner of Physics (p. 97)
3:30–4:30 PM	H	Franklin 9, Marriott	The Journey of a Photon: Engaging High School Students Through Immersive Media Development (p. 101)
3:30–4:30 PM	6–12	201A, Conv. Center	Professional Development Worthy of Stimulus Funding (p. 102)
4:00–5:30 PM	8–12	106A/B, Conv. Center	An Exclusive Engagement with NEW Cenco AP Physics Labs (p. 103)
5:00–6:00 PM	H	Franklin 7, Marriott	Physics for All: Differentiating Instruction (p. 106)
5:00–6:00 PM	M–H	Grand Salon B, Marriott	Elluminate: A Virtual Learning Environment (p. 106)
5:00–6:00 PM	H	Franklin 3, Marriott	Sixty Labs You Can Do with Little or No Budget (p. 105)

Physics/Physical Science: Sunday

8:00–9:00 AM	P–E	Hall D/9, Conv. Center	Dripping, Flowing, Sinking, and Floating: Water Inquiries in Kindergarten (p. 115)
8:00–9:00 AM	H	113A, Conv. Center	Rampage: Building Energy Concepts with Ramps (p. 116)
8:00–9:00 AM	H	113B, Conv. Center	The Fly Prison: Modeling Self-Assembly in Nanofabrication (p. 114)
9:30–10:30 AM	P–E	Hall D/9, Conv. Center	Icy Motion (p. 124)
10:00–10:30 AM	MN	113B, Conv. Center	Physics in Philadelphia (p. 120)
9:30–10:30 AM	M–H	113A, Conv. Center	Sticky Tape and Other Electricity and Magnetism Activities (p. 119)
9:30–10:00 AM	M–H	113B, Conv. Center	Newton's Laws and City Transportation: The SEPTA Bus Project (p. 119)
11:00 AM–12 Noon	E–M	Hall D/19, Conv. Center	Bridges: Making the Connections (p. 128)
11:00 AM–12 Noon	S	113A, Conv. Center	A Teacher-invented Tool for Curriculum Clarification: The Assessment Guide (p. 125)
11:00 AM–12 Noon	H	113B, Conv. Center	Collaborative Instruction: Working Together So All May Learn (p. 125)

Index of Participants

D

E

F

G

M

N

O

P

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