

*Changing the Climate of Science Education*

**NSTA 2009 Area Conference on Science Education**

# Minneapolis

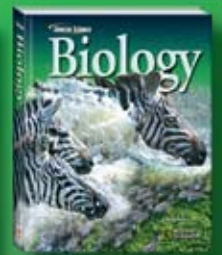
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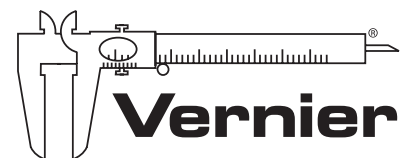
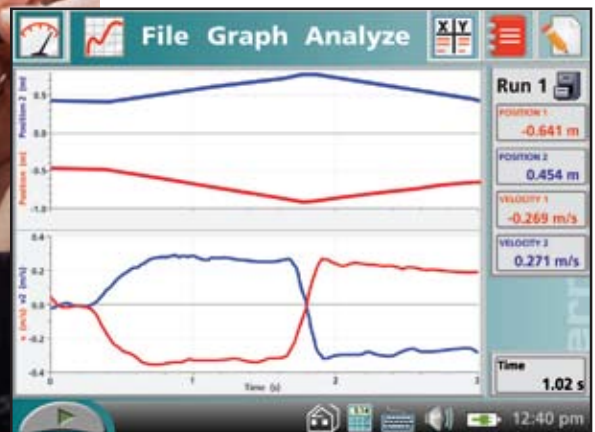
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# NSTA 2009 Conference on Science Education

Minneapolis, Minnesota • October 29–31, 2009

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### National Science Teachers Association

1840 Wilson Blvd.  
Arlington, VA 22201-3000  
703-243-7100  
E-mail: [conferences@nsta.org](mailto:conferences@nsta.org)  
[www.nsta.org](http://www.nsta.org)

### NSTA Affiliates

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

### Cover Photo

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Win a Tomas Bunk Periodic Table!



## What Elements Do You See?

A picture is worth a thousand words, or it can mean the difference between whether or not a student is engaged in learning science. That's why at *It's About Time* we focus on engaging and challenging students in science. *And, it works.* Research has proven that one of the most important features of a good science program is to first engage students in wanting to learn science.

To see how we accomplish this in our curricula attend one of our workshops or visit our booth #800. Fill out an entry form to win a Tomas Bunk Periodic Table. At the NSTA conference one winner will be drawn at each workshop and each day of the show.

*Tomas Bunk, is a renowned illustrator and artist. He has been featured in Mad Magazine for more than 15 years and was one of the Garbage Pail Kids artists.*



**What Inquiry Should Be**  
 Visit our booth # 800 or web site at [www.its-about-time.com](http://www.its-about-time.com)



# Welcome to Minneapolis

---



Jean Tushie, Clark Erickson, and Lynn Hartshorn

Welcome to the Twin Cities of Minneapolis/St. Paul. Fall in Minnesota is a great time—after the heat of summer and before the winter sets in.

President Obama's speech to the National Academy of Sciences made it clear that science will be a priority in the new administration, and a fresh political wind is stimulating the science education community. Keynote speaker Richard Louv will

give us pause to think deeply about expanding our vision of the science "classroom."

Be part of the new vision as we "Change the Climate of Science Education." The Minneapolis Conference Committee has organized the program around three strand themes—Science Teaching in a Greener World, Making Science Connections for Student Learning Across the Curriculum, and Sharpen and Shape Science Instruction and Assessment. Enrich your content knowledge at one of four special programs—Physics Day, Chemistry Day, Physical Science Day, and Biology Day.

Take the time to explore Minneapolis at one of our ticketed events. Get face-to-beak with nature's aerial predators or take a geology tour of the Twin Cities. On Thursday evening, join your colleagues for a social gathering with The Physics Force.

Come to Minneapolis, meet your friends and colleagues, and take advantage of all the Twin Cities has to offer.

2009 Minneapolis Conference Committee Leaders

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

## Conference Chairperson

Clark Erickson  
7760 Heritage Rd.  
Eden Prairie, MN 55346  
[ribcageclark33@yahoo.com](mailto:ribcageclark33@yahoo.com)

## Program Coordinator

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Eden Prairie High School  
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## Local Arrangements Coordinator

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University of St. Thomas  
OSS 402  
2115 Summit Ave.  
St. Paul, MN 55105  
[lghartshorn@stthomas.edu](mailto:lghartshorn@stthomas.edu)

## Minneapolis Conference Committee

---

### Program Committee

#### *Strand Leader: Science Teaching in a Greener World*

Robert Shaw  
Duluth, MN

#### *Strand Leader: Making Science Connections for Student Learning Across the Curriculum*

John Olson  
Minnesota Dept. of Education  
Roseville, MN

#### *Strand Leader: Sharpen and Shape Science Instruction and Assessment*

Brenda Heck  
Eden Prairie High School  
Eden Prairie, MN

#### *District IX Director*

Paul Keidel  
Wachter Middle School  
Bismarck, ND

### Local Arrangements Committee

#### *Exhibits Liaison*

Kathleen Lundgren  
Garlough Environmental Magnet School  
West St. Paul, MN

### Local Arrangements Committee

#### *Field Trips Manager*

Lee Schmitt  
Hamline University  
St. Paul, MN

#### *Guides Manager*

Mark Lex  
Benilde-St. Margaret's School  
St. Louis Park, MN

#### *Manager of Services for People with Disabilities*

Angela Osuji  
North High School  
Minneapolis, MN

#### *Publicity Manager*

Clark Erickson  
Eden Prairie, MN

#### *Social Functions Manager*

Nancy Houtkooper  
Retired Educator  
Wabasha, MN

#### *Volunteers Manager*

Bob Schumacher  
Lake Elmo, MN



# Explore NEW Resources from NSTA Press!



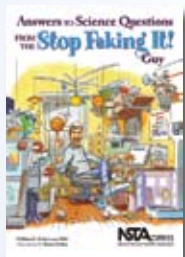
**The Big Ideas of Nanoscale Science and Engineering**  
Grades 7–12  
Member: \$22.36  
Nonmember: \$27.95



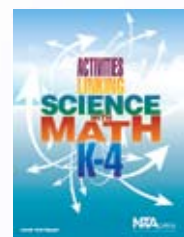
**More Everyday Science Mysteries**  
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Nonmember: \$24.95



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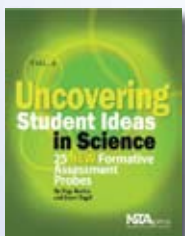
**Answers to Science Questions From the Stop Faking It! Guy**  
Grades K–8  
Member: \$19.16  
Nonmember: \$23.95



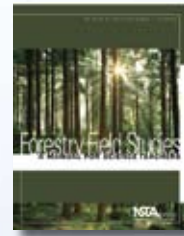
**Activities Linking Science With Math, 5–8**  
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**Uncovering Student Ideas in Science, Volume 4**  
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To preview a book or place an order,  
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**NSTA**press  
National Science Teachers Association

## President's Welcome

### The 3 R's of Science Teacher Retention: Resources, Respect, and Renewal



Welcome to the NSTA Minneapolis Area Conference, which will provide you with many exciting and enriching opportunities to help you grow professionally. You are here to be updated, network with colleagues, and see the latest exhibits. Personalizing the elements of my presidential theme, this conference offers you the opportunity to discover *resources*, learn much to support the *respect* you so richly deserve, and *renew* yourself as a professional.

The theme of this conference, "Changing the Climate of Science Education," indicates a focus on our world. The conference committee has developed a superior program around three strands: Science Teaching in a Greener World, Making Science Connections for Student Learning Across the Curriculum, and Sharpen and Shape Science Instruction and Assessment. The sessions connected to the strands as well as many other opportunities will help you with the changing times in science education.

In closing, in the spirit of David Letterman, following are the Top 10 benefits of attending the Minneapolis conference:

1. Performance—You and your students deserve to be excellent in science.

2. Leadership—New skills, knowledge, and activities help build educational leaders who influence others to do extraordinary things.
3. Discovery—Looking at the world with a new perspective brings innovation and creativity to the classroom.
4. Motivation—Expert speakers, educators, and scientists serve to inspire and stimulate.
5. Passion—Sharing with your peers, your mentors, and leaders in science education is contagious.
6. Expertise—Educators are best when they are well versed in their field.
7. Inspiration—You will hear stories from renowned author Richard Louv that will move you to act.
8. Growth—Your conference experience will expand your world personally and professionally.
9. Freebies—Exhibiting companies will offer you hundreds of classroom giveaways, new products, and samples.
10. Connections—You'll meet peers, mentors, leaders, and acquaintances for support and friendship.

Enjoy the conference! I look forward to seeing you at the sessions or as we pass in the halls.

Pat Shane  
2009–2010 NSTA President

## Contributors to the Minneapolis Conference

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

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American Physical Society (APS)  
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Minnesota Science Teachers Association  
Minnesota Section of the American Association of Physics Teachers (AAPT)  
National Association of Biology Teachers

  
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## NSTA Conferences Go Green!

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

### "Conference Previews"

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

### Online Conference Information and Personal Scheduler

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

### Final Conference Programs by E-mail

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

### Recycled Paper and Sustainable Print Services

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

### Eco-friendly Exhibition Practices

Our conference partner, GES Exposition Services, consistently looks for ways to deliver sustainable solutions. They offer many green product options and services at our conference exhibitions, including 100% recyclable carpet and padding, biodegrad-

able trash bags and wastebaskets made from recycled materials, and recycled exhibit structures. Their green efforts are extended operationally with energy-efficient lighting, materials recycling, and use of recycled paper and signage products.

### Green Initiatives at the Minneapolis Convention Center

The Minneapolis Convention Center, in a concerted effort to reduce use of resources and amount of waste, has initiated green practices in the following categories:

- **Recyclables**—Multi-stream containers collect paper, cans, bottles, and general waste throughout the convention center. The convention center recycles 35.46 tons yearly.
- **Cleaning Products and Measures**—Nearly 100% of cleaning products are green certified, and a new LEED-certified "FaST" cleaning machine is used to power-wash public restrooms.
- **Conservation**—Restrooms have water-saver spring-loaded faucets, the lighting system is computer controlled and monitored 24/7 (lights are dimmed or turned off whenever possible), and the heating and cooling system is monitored 24/7 to maximize efficiency (unused space is neither heated nor air conditioned).
- **Catering Practices**—Biodegradable products are used; unserved surplus food is collected and donated to People Serving People, St. Paul Evangelical Food Mission, and Kid's Café; and bulk condiments are used whenever possible.

### "Go Green" at the Minneapolis Conference!

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





# NSTA Membership

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---

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- E-newsletters and listservs—stay informed and current, daily, weekly and monthly.
- Web seminars and short courses to build your science knowledge.
- NSTA books just for science educators—topical, strategic, and pedagogical.
- Get connected with NSTA Communities—a unique networking platform developed just for science educators. Create your profile today and meet colleagues, friends and professional contacts that share your passion.



For more information or to become a member,  
visit [www.nsta.org/membership](http://www.nsta.org/membership) or call **1.800.722.6782**



## Meeting Location and Times

The conference headquarters hotel is the Hilton Minneapolis. Conference registration, the exhibits, the NSTA Exhibit Booth, the NSTA Science Bookstore, and most sessions will be located at the Minneapolis Convention Center. Other events will be held at the Hilton. The conference will begin on Thursday, October 29, at 8:00 AM, and end on Saturday, October 31, at 12 Noon.

## Registration

Registration is required for participation in all conference activities and the exhibits. The lapel badge mailed to you with your confirmation, or issued to you at registration on-site, is your “ticket of admission” to the Exhibit Hall and all conference activities except those for which a separate fee is stated (e.g., short courses, field trips, and social events).

The NSTA Registration Area, located in Exhibit Hall B, will be open during the following hours:

Wed., Oct. 28	5:00–7:00 PM
Thu., Oct. 29	7:00 AM–5:00 PM
Fri., Oct. 30	7:00 AM–5:00 PM
Sat., Oct. 31	7:30 AM–12 Noon

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

## Purchasing Ticketed Events

The Minneapolis Planning Committee has scheduled a variety of ticketed events (USEL Conference, short courses, field trips, and social functions). Each of these events requires a separate fee and ticket. You may purchase tickets for these events, space permitting, in the NSTA Registration Area. See the Conference Program section (starting on page 24) for details. Note that some events may have required advance registration.

## Airlines

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

AirTran	866-683-8368	Event Code SCIENCE09
American	800-433-1790	NSTA Index No. A55H9AA
Continental	800-468-7022	NSTA Agreement Code AKYZQS
Midwest	800-452-2022	Discount Code CMZ7139
Northwest	800-328-1111	WorldFile NY22V
United	800-521-4041	Meeting ID Code 510CK

## Ground Transportation to/from Airport

SuperShuttle provides a discount for groups. Visit [www.supershuttle.com/default.aspx?GC=UZYYT](http://www.supershuttle.com/default.aspx?GC=UZYYT) to obtain a \$6 discount off a roundtrip ticket. For additional information on ground transportation options,

visit the Minneapolis-St. Paul International Airport website at [www.mspairport.com/groundtransportation.aspx](http://www.mspairport.com/groundtransportation.aspx).

## Getting Around Town

Minneapolis is compact and easy to get around, no matter what mode of transportation you choose. Experience the history, culture, and energy of Minneapolis by traveling by foot. Minneapolis is home to a unique system of glass “tunnels” located one story above ground. These skyways will get you almost anywhere in climate-controlled bliss. Metro Transit operates one of the largest public transportation systems in the country. Or you can take the Hiawatha Light Rail, which connects downtown Minneapolis with the airport and Mall of America and 17 other stations. Visit [www.minneapolis.org/page/1/getting-around-minneapolis-ground-transportation.jsp](http://www.minneapolis.org/page/1/getting-around-minneapolis-ground-transportation.jsp) for a wealth of information on navigating the Minneapolis area.

## Parking

Parking is easy to find at the Convention Center. Right across the street is an underground parking ramp that is connected by a climate-controlled skyway system to the Convention Center and several downtown accommodations and attractions. There are a dozen parking ramps within easy walking distance, most connected to the Convention Center by skyway.

## Discounted Rental Cars

Special car rental rates for conference attendees have been negotiated with Enterprise Rent-A-Car. Make your reservation in one of three ways: book on the internet, call 1-800-Rent-A-Car, or contact your local branch directly. You must use the NSTA corporate number 16AH230 to receive these special rates.

To make your reservation online, log on to [www.enterprise.com](http://www.enterprise.com). Enter your destination and dates of car rental and enter the NSTA corporate number 16AH230. Click on “search.” At the prompt, enter PIN “NST” and you’re on your way to discounted car rental!



## NSTA Hotels

### 1. Hilton Minneapolis

(Headquarters Hotel)

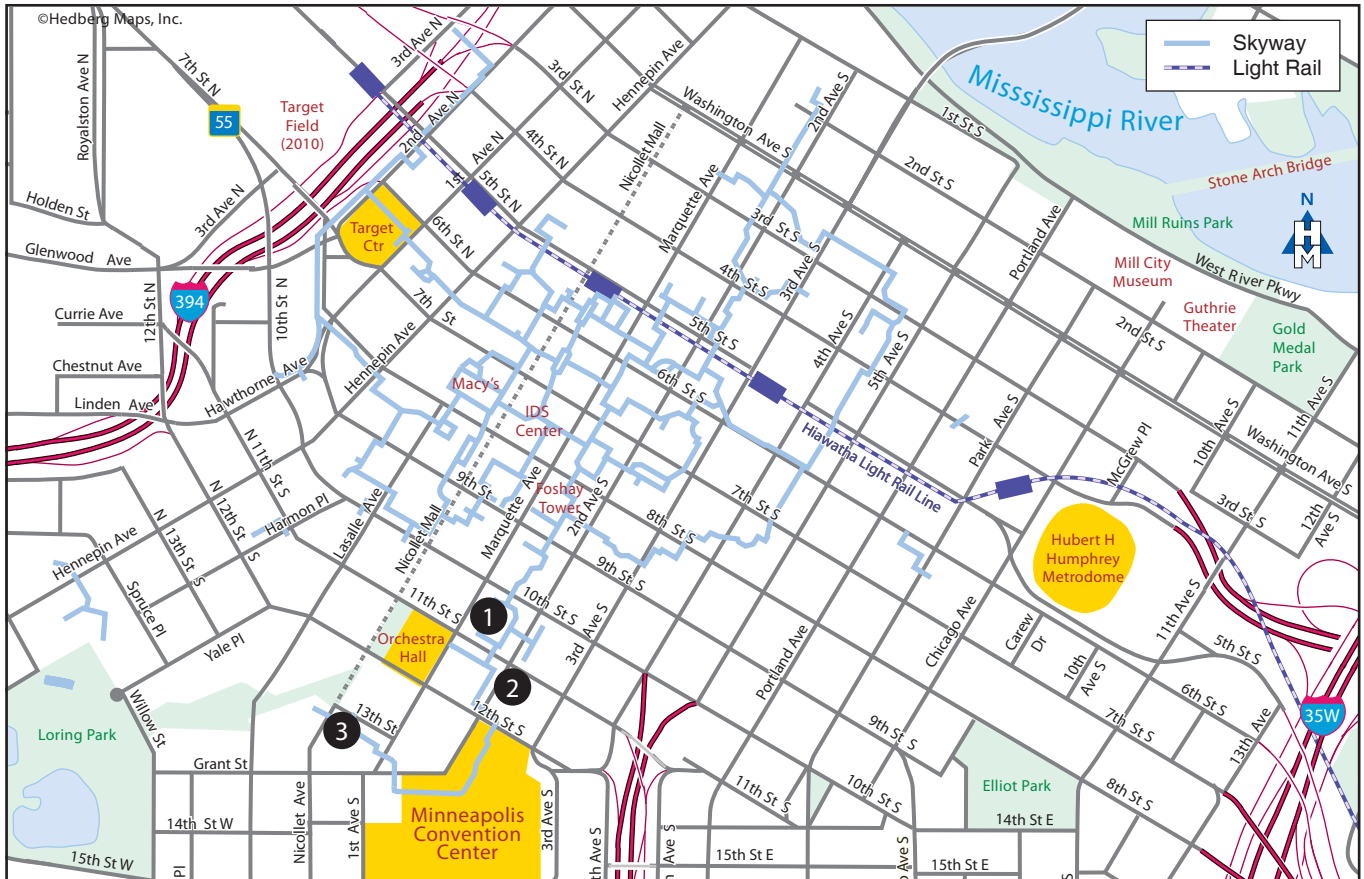
1001 Marquette Avenue South

### 2. Holiday Inn Express & Suites

225 S. 11th St.

### 3. Millennium Minneapolis

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### NSTA Exhibits

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

The lapel badge mailed to you with your confirmation, or issued to you at registration on-site, is your “ticket of admission” to the Exhibit Hall and all conference activities. A complete list of exhibitors and contact information starts on page 119. A

### Graduate Credit Opportunity

Graduate credit through Hamline University is available for conference attendees through the graduate-level course SCED 6093 (NSTA Midwest Regional Conference: Impact on Teaching). Tuition is \$195.50 for this one-semester credit course. Registration will be at the Minnesota Science Teachers Association (MnSTA) booth. For further information, please e-mail Ed Hessler at Hamline University at [ehessler01@hamline.edu](mailto:ehessler01@hamline.edu).

foldout map of the Exhibit Hall floor plan is available at Program Pickup.

**Exhibit Hall Hours.** Located at the Minneapolis Convention Center (Hall B), exhibits will be open for viewing during the following hours:

Thu. Oct. 29	11:00 AM–5:00 PM
Fri. Oct. 30	9:00 AM–5:00 PM
Sat. Oct. 31	9:00 AM–12 Noon

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

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

**Exhibitor Workshops.** Exhibitor-sponsored workshops for science teachers are offered throughout the conference. These workshops give you an opportunity to use a variety of commercial instructional materials. Attendance is on a first-come, first-served basis. See page 131 for a complete listing of exhibitor workshops.

### NSTA Avenue

Stop by NSTA Avenue and learn about NSTA’s benefits, services, programs, and partners...all created for you! Share with others, expand your knowledge, and earn rewards for you and your students. See page 126 for a complete list of NSTA services and programs.

### NSTA Science Bookstore

Don’t miss the opportunity to shop and browse the NSTA Science Bookstore for hundreds of the best books and resources in science education. The Science Bookstore is located in the NSTA Registration Area. NSTA members save 20% on all NSTA Press® products and 10% on products by other publishers. Enjoy our free shipping option as an added attendee benefit!

### Welcome and Information Center

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

### MnSTA Booth

The Minnesota Science Teachers Association (MnSTA) booth is located in the NSTA Registration Area. Stop by for information about Minnesota and the benefits of becoming a member of MnSTA! Membership forms and information on association activities will be available, along with registration forms for graduate credit sponsored by Hamline University. Find out what’s happening in science education in Minnesota!

### Evaluation Booth/Presenters and Presiders Check-In

If you are presenting or presiding at a session, please check in and pick up your ribbon at the Evaluation Booth in the Registration Area after you have registered for the conference and received your name badge. Session presenters should also pick up an evaluation packet for each session presented (see facing page).

### Conference Evaluation

All conference attendees are invited to complete a conference evaluation form online at [http://ecommerce.nsta.org/2009min/conference\\_evaluation.asp](http://ecommerce.nsta.org/2009min/conference_evaluation.asp).

### First Aid Services

The First Aid room is located in Lobby C of the Convention Center. For assistance, call the Security Office at 612-335-6040 or extension 2013 from any beige house phone. The 2013 extension is posted above all the house phones for emergencies.

### Lost and Found

All lost-and-found items will be turned in at the Exhibitor Registration counter at the Convention Center.

### Audiovisual Needs

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

Room 202 A/B, Convention Center  
Directors Row 1, Hilton

### Message Center

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

### Business Services

FedEx Kinko's Business Center offers a variety of services from the main floor of the Convention Center (outside Exhibit Hall B). Services include shipping, copying, binding, printing, and signage needs. From last-minute supplies to overnight shipping, the Business Center is available to serve your business demands. Hours are: 8:00 AM–6:00 PM Wednesday, 7:30 AM–5:30 PM on Thursday and Friday, and 8:00 AM–4:00 PM on Saturday.

The Hilton also has a business center, located on the Lobby Level next to the Bell Stand. Hours are: 7:30 AM–4:30 PM Monday–Friday (full service). 24-hour self-serve is also available daily (including Saturday and Sunday).

---

## Session Evaluations and Tracking Professional Development

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

**Session presenters** (teacher presentations and workshops) are required to check in at the Presenters/Presiders/Evaluation booth in the NSTA Registration Area and pick up a session evaluation packet.

**Each exhibitor workshop provider** is required to check in at the Exhibitor Registration counter in the NSTA Registration Area and pick up his or her company's workshop evaluation packets. All presenters then distribute evaluation forms to attendees at the latter part of the session.

**Attendees** will complete this short evaluation and deposit the form in the evaluation drop-off boxes located in the Convention Center. Since these forms will be used to "track" professional development hours, all evaluations must be placed in these drop-off boxes no later than 12:30 PM on Saturday.

*Note:* You MUST enter your badge number accurately (up to seven digits) on the evaluation form to have your attendance at the session documented.

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

Three weeks after the last day of the conference, an attendee can visit the NSTA website <http://ecommerce2.nsta.org/transcript/> to access a transcript of his or her attendance at specific sessions and to document credit for activities that are not being evaluated (e.g., field trips, short courses, Exhibit Hall visits, featured speakers, and meetings or sessions for which the presenter did not provide an evaluation form). Each attendee is responsible for tracking his/her own attendance at such events.

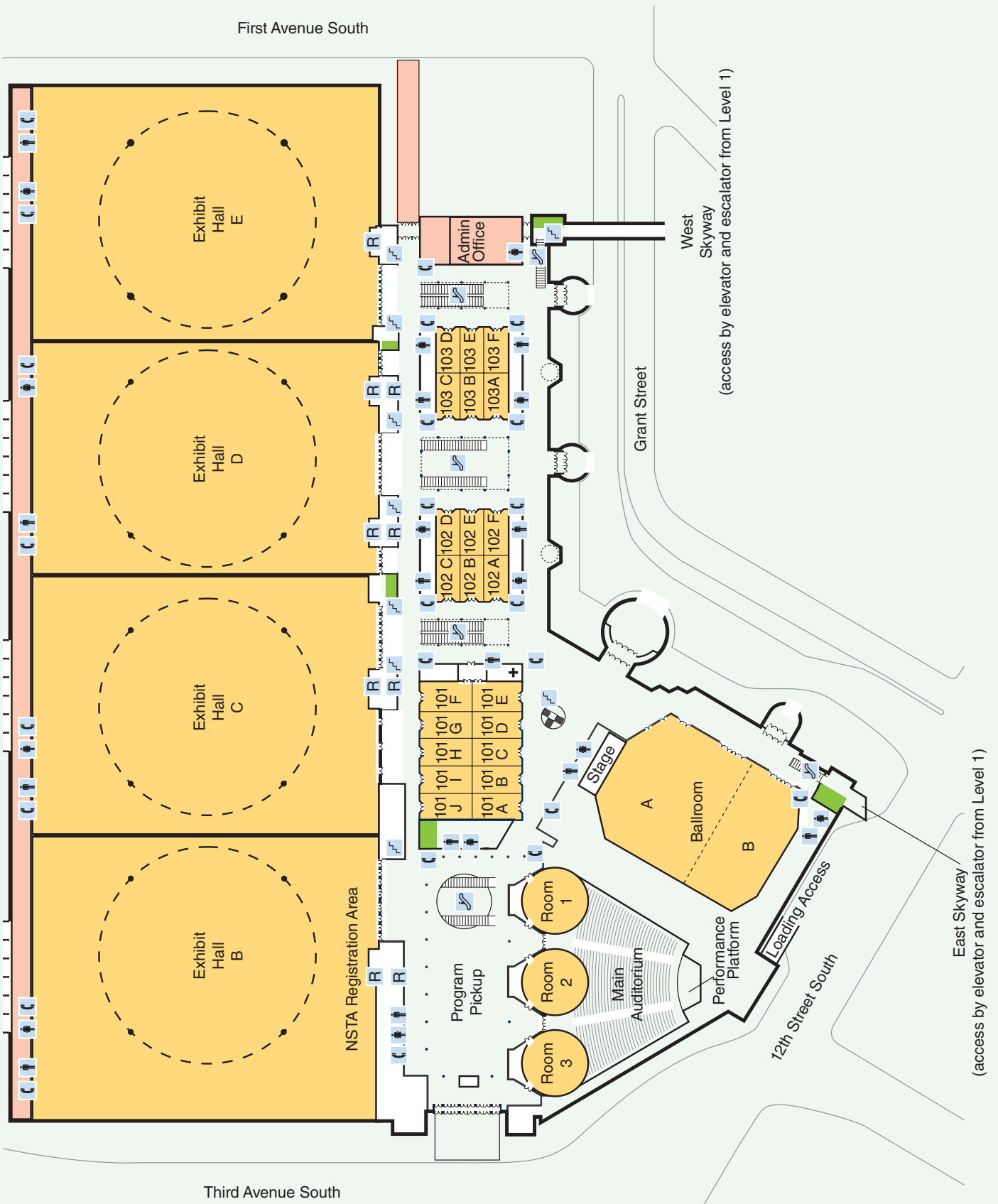
*A Professional Development Documentation Form is included following page 40 to help attendees keep track of sessions/events attended that were NOT evaluated.*

The transcript can be printed from the NSTA website <http://ecommerce2.nsta.org/transcript/> and presented to an administrator who requires documentation of participation in the conference. All information in these transcripts will be maintained (and can be accessed) indefinitely as part of an attendee's individual profile.



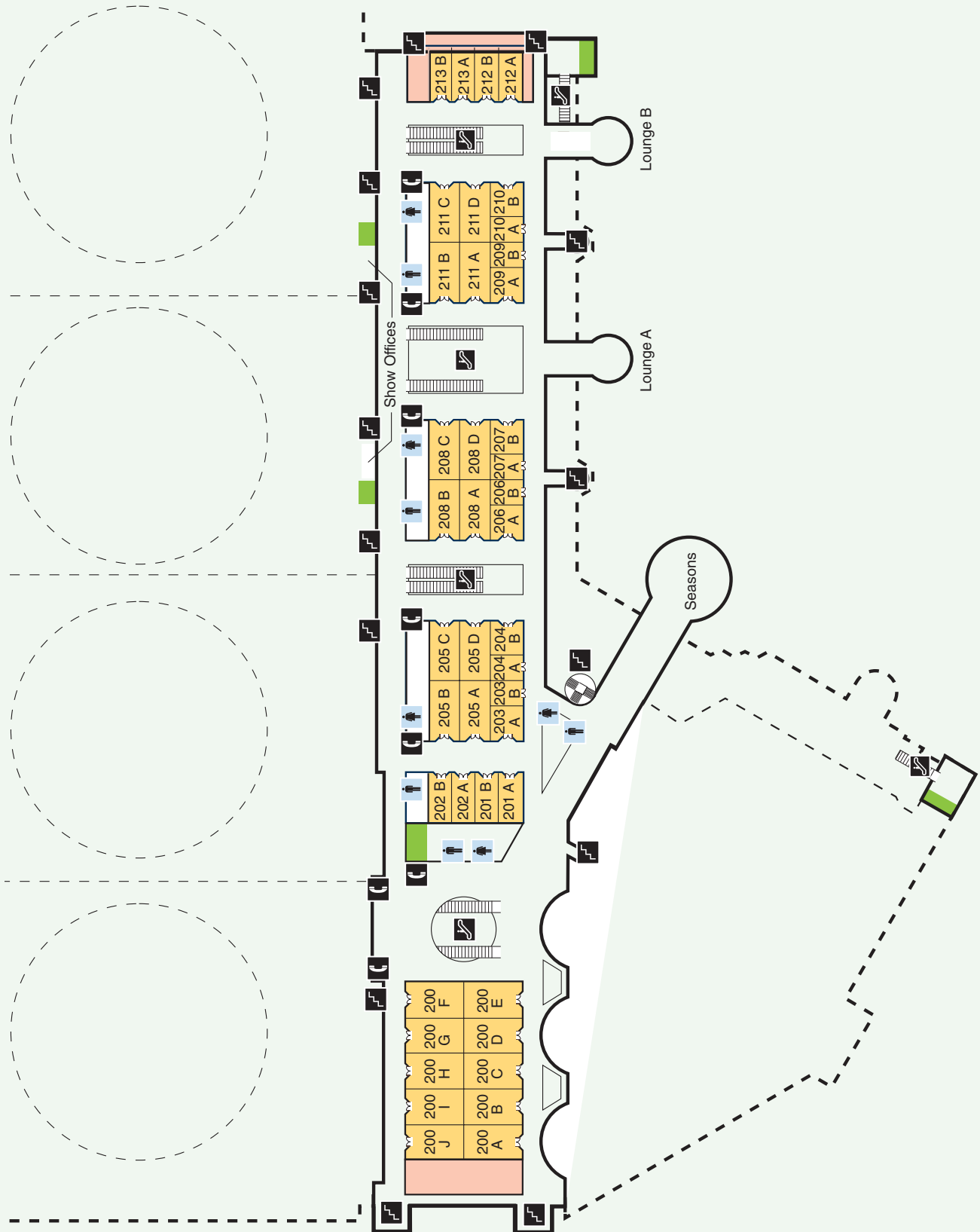
# Minneapolis Convention Center

## Level 1



# Minneapolis Convention Center

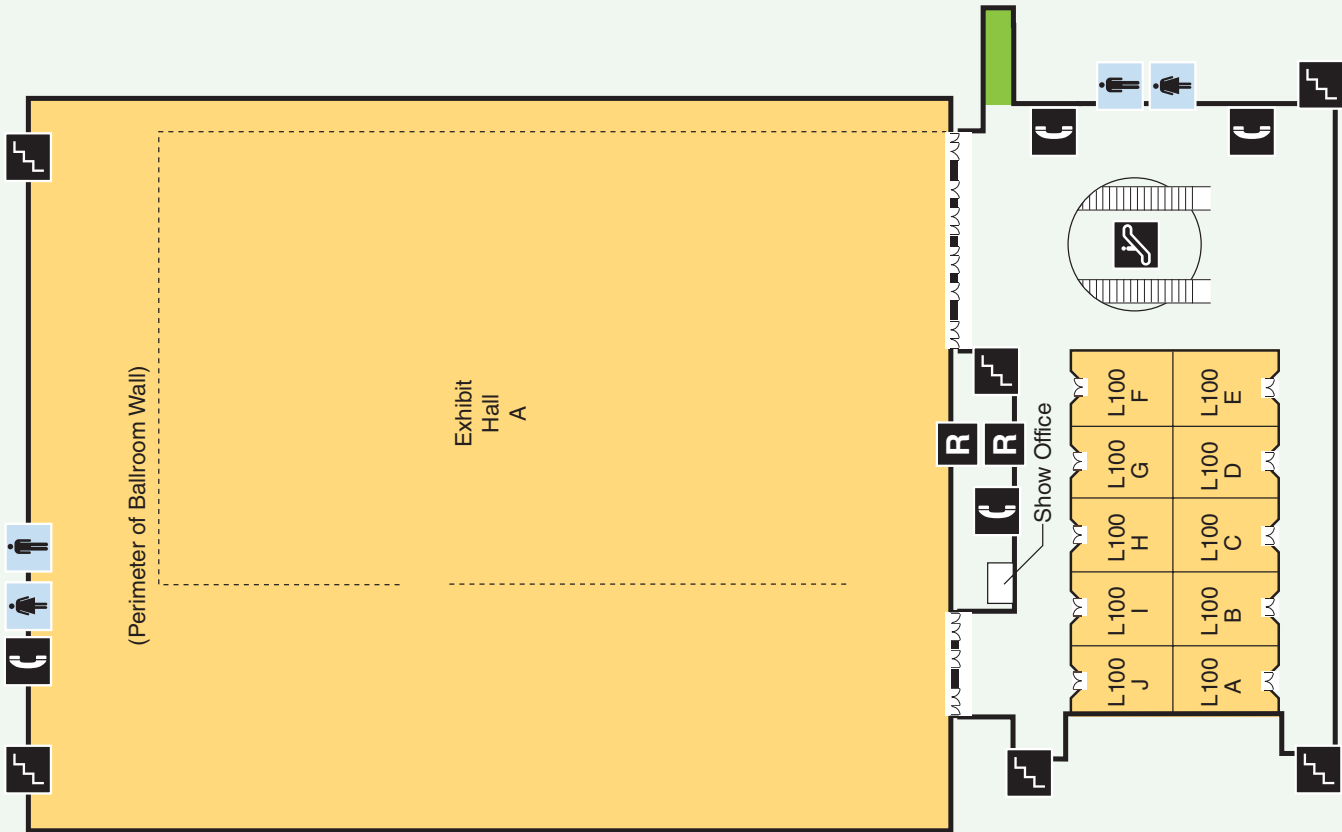
## Level 2



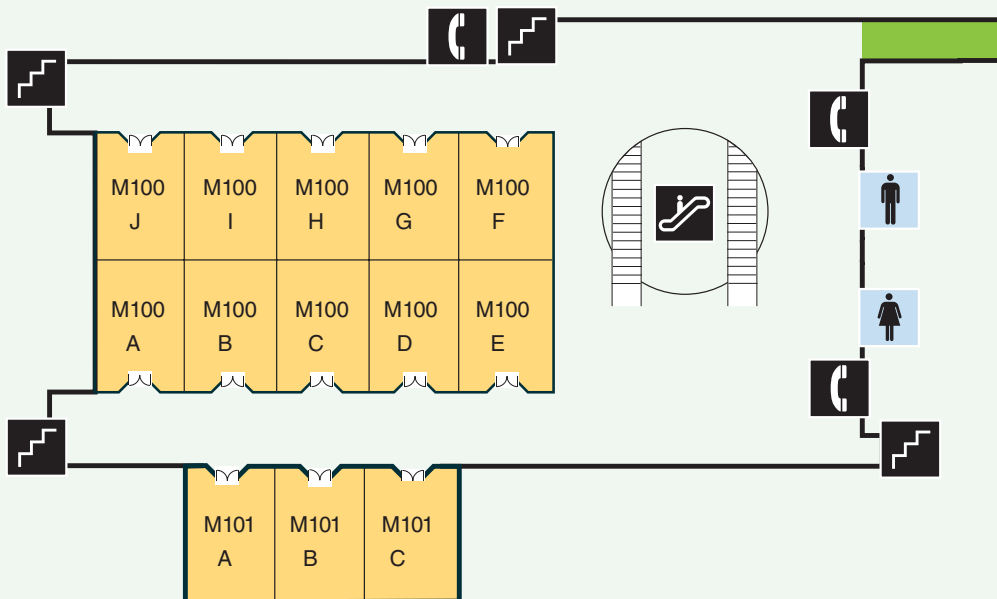


# Minneapolis Convention Center

## Lower Level



## Mezzanine Level



# Hilton Minneapolis

## Second Floor



## Third Floor





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### *NSTA Mission Statement*

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

*All cities are subject to change pending final negotiation.*

**National Conferences on Science Education**

Philadelphia, Pennsylvania  
March 18–21, 2010

San Francisco, California  
March 10–13, 2011

**Area Conferences on Science Education**

**2009 Area Conferences**

Fort Lauderdale, Florida  
November 12–14

Phoenix, AZ  
December 3–5

**2010 Area Conferences**

Kansas City, Missouri  
October 28–30

Baltimore, Maryland  
November 11–13

Nashville, Tennessee  
December 2–4

**2011 Area Conferences**

Hartford, Connecticut  
October 27–29

To Be Determined

Seattle, Washington  
December 8–10



**Submit a session proposal  
for an NSTA conference**

**...GET INVOLVED!**

**2010 Area Conferences on Science Education**

*Deadline: January 15, 2010*

Kansas City, MO  
October 28–30, 2010

Baltimore, MD  
November 11–13, 2010

Nashville, TN  
December 2–4, 2010

**2011 National Conference on Science Education**

*Deadline: April 15, 2010*

San Francisco, CA  
March 10–13, 2011

[www.nsta.org/conferences](http://www.nsta.org/conferences)





# Science Educators— Advance Your Career

## NSTA's National Conference on Science Education

**Philadelphia, PA  
March 18–21, 2010**

### Who Should Attend?

- Elementary Teachers of Science
- Science Teachers
- Preservice Teachers
- Science Coordinators
- Curriculum Specialists
- Administrators
- Principals
- College Methods Professors
- College Science Educators
- Policymakers

### And Why?

- In-depth programs on physics, chemistry, biology, and physical science.
- Personal and professional growth  
Develop content knowledge, new teaching strategies, best practices.
- Expertise and inspiration
- Presentations, workshops, and sessions in your discipline and grade band
- Competence on relevant issues—literacy, assessment, inquiry—and more
- Networking with peers and professionals
- Exhibition Hall: Top companies, top products, top giveaways.

### Professional Development Strands

- Meeting the Unique Needs of Urban and Rural Science Learners
- Connecting Content: Between, Within, and Among Subjects
- Closing the Digital Generation Gap Between Teachers and Students
- Rekindling the Fires of Science Teaching and Learning

Visit [www.nsta.org/philadelphia](http://www.nsta.org/philadelphia)  
or call 1-800-328-8998 for more information.



## Conference Program • Highlights

### Is This Your First NSTA Conference?

Yes, you say? Then you are invited to attend a special session on Thursday, 8:00–9:00 AM. Learn how you can gain the most from your conference experience and have fun doing it! See page 41 for details.

### Ribbon-cutting Ceremony

An opening ceremony is scheduled on Thursday at 11:00 AM at the main entrance to Exhibit Halls B&C.

### Thursday, October 29

8:00–9:00 AM	First-Timers Conference Attendees' Orientation . . . . .	41
9:15–10:30 AM	General Session: Richard Louv . . . . .	47
11:00–11:10 AM	Exhibits Opening/Ribbon Cutting Ceremony . . . . .	48
11:10 AM–5:00 PM	Exhibits . . . . .	49
2:00–3:00 PM	Featured Speaker: William Sommers . . . . .	55
3:30–4:30 PM	Featured Speaker: Page Keeley . . . . .	61
5:00–6:45 PM	Social Gathering with The Physics Force (M-1) . . . . .	66

### Friday, October 30

8:00 AM–4:30 PM	Biology Day . . . . .	70, 80, 90, 95, 100, 105
8:00 AM–4:30 PM	Physics Day . . . . .	70, 80, 90, 95, 101, 106
8:00 AM–4:30 PM	Chemistry Day . . . . .	72, 82, 91, 97, 101, 106
8:00 AM–4:30 PM	Physical Science Day . . . . .	72, 82, 91, 97, 101, 106
9:00–10:30 AM	Preservice and New Teachers Breakfast (M-2) . . . . .	76
9:00 AM–5:00 PM	Exhibits . . . . .	76
9:30–10:30 AM	Featured Speaker: Winona LaDuke . . . . .	78
9:30–11:30 AM	NSTA ESP Symposium I . . . . .	84
11:00 AM–12 Noon	Featured Speaker: Michael Klentschy . . . . .	89
12 Noon–2:00 PM	PreK–8 CESI Luncheon (M-3) . . . . .	94
3:30–4:30 PM	NSTA ESP Symposium II . . . . .	104

### Saturday, October 31

9:00–11:00 AM	Special Event: <i>Science Matters</i> in Minneapolis . . . . .	114
9:00 AM–12 Noon	Exhibits . . . . .	114



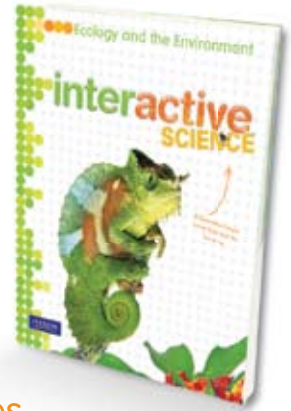
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## Conference Program • Conference Strands

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



### Science Teaching in a Greener World

Recent global and regional events have focused attention on environmental issues such as climate change, energy resources, and transportation concerns. As a result, teachers are being asked to understand and teach these topics as well as apply them to their classroom and school environments. Teachers are also being asked to expand learning opportunities outside the classroom. This strand focuses on “green” concepts, how to teach them, and how to go green in your own classroom.



### Making Science Connections for Student Learning Across the Curriculum

Science instruction should support and expand learning in math, literacy, and the arts. Incorporating technology enables the connection of science to other disciplines and resources. Partnerships and collaborations enhance science teaching. This strand will provide strategies for connecting learning in various disciplines as well as to resources outside the school, such as informal partnerships with business and industry.



### Sharpen and Shape Science Instruction and Assessment

How do you know whether students are learning the essential science concepts and what do you do when they have not? This strand will provide strategies for sharpening the focus of science instruction and assessment, such as Response to Instruction (RtI), formative assessment, lesson studies, and professional learning communities. Participants will also learn how to focus curriculum using NSTA Science Anchors and by targeting student misconceptions.

#### Thursday, October 29

##### 8:00–9:00 AM

The Ecological Footprint Dilemma: A Case Study

Backyard Packs Promote Outdoor Activity for Learning and Fitness

##### 12:30–1:30 PM

Open the Door, Let’s Explore: Seasonal Activities for Young Children

##### 1:00–4:00 PM

Field Trip: Great River Energy: Splendor in the Glass (By Ticket: T-2)

##### 1:15–4:00 PM

Field Trip: The Raptor Center: Face-to-Beak with Nature’s Aerial Predators (By Ticket: T-3)

##### 2:00–3:00 PM

Ice, Ice Baby

##### 3:30–4:30 PM

Tackling the Global Warming Challenge in a Rapidly Changing World

#### Science Teaching in a Greener World

#### Friday, October 30

##### 8:00–9:00 AM

Strengthening High School Environmental Science Courses: Wisconsin’s Approach

##### 8:30 AM–1:00 PM

Field Trip: Minnesota Zoo Adventure (By Ticket: F-1)

##### 9:00 AM–12:30 PM

Field Trip: Minnesota’s Retreating Waterfalls: A Geology Tour of the Twin Cities (By Ticket: F-2)

##### 9:30–10:30 AM

Featured Presentation: Building a Greener World: Indigenous Strategies for a Sustainable Future (Speaker: Winona LaDuke)

Wise About Waste: A School and Museum Collaboration

An Inquiry-based Approach to the Study of Plant Disease Control

##### 11:00 AM–12 Noon

Exploring Solar Energy

##### 3:30–4:00 PM

Assessment and Management of Natural Resources

#### Saturday, October 31

##### 8:00–9:00 AM

Teaching Green

##### 9:30–10:30 AM

Light-Emitting Diodes (LEDs): Recent Advances, Green Applications, and Cutting-Edge Science

## Making Science Connections for Student Learning Across the Curriculum

### Thursday, October 29

#### 12:30–1:30 PM

Developing an Integrated Program Around *The Story of Science*

The Joy of Elementary Engineering

#### 1:20–5:00 PM

Field Trip: Behind the Scenes at the Science Museum of Minnesota (By Ticket: T-4)

#### 1:30–4:30 PM

Short Course: A Completely Integrated Crime Scene: Forensics Science—You Can't Get Away with Anything! (By Ticket: SC-3)

#### 3:30–4:30 PM

High-flying Fun: Linking Aerospace and Literature at the Elementary Level

### Friday, October 30

#### 8:00–9:00 AM

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

#### 9:30–10:30 AM

Enhancing Science Instruction and Literacy with Quality Nonfiction Trade Books, Related Resources, and Investigations

#### 11:00 AM–12 Noon

Featured Presentation: The Science-Literacy Connection: Myth or Reality? (Speaker: Michael Klentschy)

#### 12:30–1:30 PM

Make Note of Science

#### 12:40–4:20 PM

Field Trip: Finding Frankenstein at The Bakken Museum (By Ticket: F-4)

#### 1:00–4:00 PM

Short Course: Integrating Nonfiction Reading and Writing While Teaching About Energy (By Ticket: SC-5)

#### 2:00–3:00 PM

Using Science Notebooks in the Elementary Classroom

Wilderness Writing for Wild Youth

#### 3:30–4:30 PM

Incorporating Science and Multicultural Literature

### Saturday, October 31

#### 8:00–9:00 AM

Using Inquiry to Integrate Disciplines in the Outdoor Classroom

#### 9:30–10:30 AM

Using the History of Science in Science Instruction

## Sharpen and Shape Science Instruction and Assessment

### Thursday, October 29

#### 8:00–9:00 AM

Inquiry Instruction in High School Chemistry and Its Effect on Students' Proportional Reasoning Ability

#### 8:00 AM–12 Noon

Short Course: Science Assessment Through a Mixed Curriculum (By Ticket: SC-1)

#### 12:30–1:30 PM

Quick and Effective Visual Formative Assessments

Density Driven! The Relationship of Density to the Oceans and the Atmosphere

#### 2:00–3:00 PM

Featured Presentation: Newton, Einstein, and Friedman: Who's Next? (Speaker: William Sommers)

#### 3:30–4:30 PM

Featured Presentation: What Are They Thinking? Using Formative Assessment to Improve Opportunities to Learn (Speaker: Page Keeley)

### Friday, October 30

#### 8:00–9:00 AM

Scenario-based Science Assessments in the Classroom

#### 9:15–11:30 AM

Field Trip: Minneapolis Public Schools Science Materials Center: Supporting Science in a Big District (By Ticket: F-3)

#### 11:00 AM–12 Noon

Influences on Science Literacy in African American Female Students

#### 2:00–3:00 PM

Questions Are the Key to Inquiry

#### 3:30–4:30 PM

Help Students Meet Science Standards

### Saturday, October 31

#### 8:00–8:30 AM

The Reflective Assessment Technique: Fifteen Minutes to Improved Instruction

#### 8:00–9:00 AM

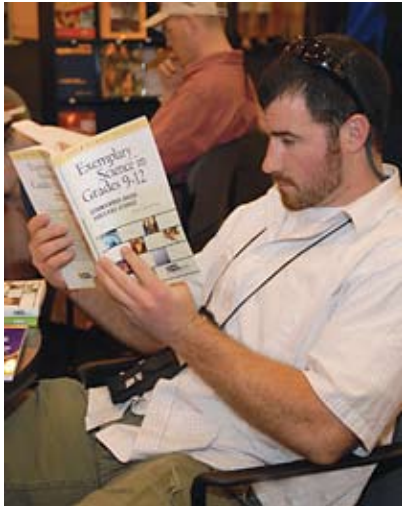
Aligning Standards to Assessments and Improving Achievement

#### 9:30–10:30 AM

Teaching Inquiry-based Earth Science Using Student-generated Field Investigations

#### 11:00 AM–12 Noon

Rediscovering the Gas Laws: Using Computer Simulation to Teach Inquiry-based Chemistry, Data Collection, Analysis, and Display



*NSTA's Exemplary Science Program (ESP) was initiated to highlight programs that have been proven to produce superior student learning. Five monographs have been produced thus far—PreK–4, 5–8, 9–12, Informal Education, and Best Practices in Professional Development—each detailing exemplary programs selected by a national advisory board of NSES and NSTA leaders. These exemplary programs are shared with attendees at NSTA conferences.*

## **NSTA Exemplary Science Program (ESP)**

### **Realizing the Visions of the National Science Education Standards**

*Friday, October 30 • M100I, Convention Center*

ESP symposia were organized by Robert E. Yager, 1982–1983 NSTA President and Editor of the NSTA ESP Program. These sessions will include brief descriptions of programs that exemplify how the four NSES goals have been met. Discussion will center on how NSES *More Emphasis* suggestions have guided instruction. Participants in these symposia will include the following authors from specific monographs in the series.

#### **9:30–11:30 AM Symposium I** (page 84)

*Coordinator: Susan B. Koba, Science Education Consultant, Omaha, Neb.*

Exemplary Science Programs: Inquiry—The Key to Exemplary Science  
Exemplary Science Programs: Best Practices in Professional Development  
Exemplary Science Programs: Informal Education Settings

#### **3:30–4:30 PM Symposium II** (page 104)

*Coordinator: Cindy Moss, Charlotte Mecklenburg School System, Charlotte, N.C.*

Exemplary Science Programs in Grades 5–8  
Exemplary Science Programs in Grades 9–12

*It Takes ESP to Find Exemplary Science Programs!*



## USEL Conference: Call to Action for Urban Middle Level Science Administrators



### Ticket C-1

Wednesday, October 28 • 7:30 AM–5:00 PM

#### By Preregistration Only

Urban science education leaders are invited to a one-day workshop that will include visits to two of the following four middle schools. These Minneapolis/St. Paul schools exemplify “best practice” in middle level classrooms and laboratories.

- Battle Creek Middle School organizes students into single-gender classrooms. The school has female or male academies that allow teachers to use strategies for teaching boys and girls differently and continues to use the latest research when developing lesson plans and classroom activities.
- Murray Junior High School is a math and science magnet that serves students from the entire city of St. Paul. The advanced courses of its magnet science program integrate life, earth, and physical science hands-on laboratory experiences into a two-year seventh- and eighth-grade program.
- Washington Technology Magnet Middle School is the home of the BioSMART program, a college preparatory program focusing on the medical and bioengineering fields, including biomedical and health sciences, bio business and marketing, and bioengineering and technology. Supported by a \$6 million federal grant, BioSMART offers a well-rounded curriculum that uses technology to ignite learning.
- Hazel Park Middle School Academy is implementing an innovative Professional Learning Community and grading system based on the work of Richard DuFour. The school-wide grading program uses formative assessment with written comments that address students’ learning and minimize traditional grades.

Presentations will include:

- Welcome comments by St. Paul Public Schools officials;
- Keynote presentation—*Urban Science Education in Middle Schools*, presented by Dr. Bobby Jeanpierre;
- Panel presentation by middle school principals; and
- Special presentations by John Olson, science director for Minnesota Department of Education, and Joel Donna, STEM director for Minnesota Department of Education.

We’ll also examine the NSTA Program SPIR (Science Program Improvement Review).



### Biology Day at NSTA

Friday, October 30, 8:00 AM–4:30 PM

L100B, Convention Center

Sponsored by the National Association of Biology Teachers

NABT is proud to present Biology Day, a full day of programs designed exclusively for life science/biology teachers. Featuring dynamic speakers, hands-on workshops, and informative presentations, Biology Day offers content information and pedagogy for every biology teacher at every level.

Highlighted sessions include Using Free Online Games to Teach Science Process and Science Content, Infect Your Biology Classroom with Math, and Quick Tips and Resources to Bring Biotechnology into Your Classroom.

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

8:00–9:00 AM	<b>Using Free Online Games to Teach Science Process and Science Content</b> (p. 70)
9:30–10:30 AM	<b>Infect Your Biology Classroom with Math</b> (p. 80)
11:00 AM–12 Noon	<b>Enhance Your AP Biology Presentations Using Resources from the Howard Hughes Medical Institute</b> (p. 90)
12:30–1:30 PM	<b>Free Resources to Complement the HHMI Holiday Lecture on the Brain</b> (p. 95)
2:00–3:00 PM	<b>Quick Tips and Resources to Bring Biotechnology into Your Classroom</b> (p. 100)
3:30–4:30 PM	<b>Online Forensics and the Biological Effects of Alcohol</b> (p. 105)



### Chemistry Day at NSTA

#### Chemical Bonding and Its Consequences

Friday, October 30, 8:00 AM–4:30 PM

L100C, Convention Center

Sponsored by the American Chemical Society

Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter.

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

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

8:00–9:00 AM	<b>What's Matter Made Of?</b> (p. 72)
9:30–10:30 AM	<b>What Holds Molecules Together?</b> (p. 82)
11:00 AM–12 Noon	<b>Why Is Water Different?</b> (p. 91)
12:30–1:30 PM	<b>Bond Connections in More Complex Molecules</b> (p. 97)
2:00–3:00 PM	<b>Chemistry of Aqueous Solutions of Gases</b> (p. 101)
3:30–4:30 PM	<b>Coupled Reactions, Energetics, and Chemical Bonds</b> (p. 106)



### Physical Science Day

#### Matter, Energy, and Interactions: A Day of Physical Science for Elementary and Middle School Teachers

Friday, October 30, 8:00 AM–4:30 PM

L100D, Convention Center

*Sponsored by the Education Divisions of the American Chemical Society (ACS) and American Physical Society (APS)*

Based on the National Science Education Standards for Inquiry and Physical Science, this all-day program features six sessions focusing on inquiry-based activities to teach basic topics in chemistry and physics. On Friday, October 30, the Education Divisions of the American Chemical Society (ACS) and the American Physical Society (APS) will facilitate sessions in which elementary and middle school teachers will participate in activities to improve their own content knowledge, discuss and share ideas about how to conduct the activities with students, and receive free resources for physical science teaching. These sessions are open to all conference attendees.

8:00–9:00 AM	<b>Evaporation, Condensation, and the Structure of the Water Molecule</b> (p. 72)
9:30–10:30 AM	<b>Laser Light—What Makes It So Special?</b> (p. 82)
11:00 AM–12 Noon	<b>There’s More to Dissolving Than Meets the Eye!</b> (p. 91)
12:30–1:30 PM	<b>Chemical Change—The Breaking and Making of Bonds</b> (p. 97)
2:00–3:00 PM	<b>Index of Refraction—Follow a New Path with the Refraction of Light</b> (p. 101)
3:30–4:30 PM	<b>Diffraction—Using Light to Measure</b> (p. 106)



### Physics Day at NSTA

Friday, October 30, 8:00 AM–4:30 PM

L100A, Convention Center

*Sponsored by the Minnesota Section of the American Association of Physics Teachers (AAPT)*

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

8:00–9:00 AM	<b>Norton Nabs a Nu</b> (p. 70)
9:30–10:30 AM	<b>Models and Modeling in the High School Physics Classroom</b> (p. 80)
11:00 AM–12 Noon	<b>Physics Force</b> (p. 90)
12:30–1:30 PM	<b>Solar Cell Physics</b> (p. 95)
2:00–3:00 PM	<b>Physics Make and Take</b> (p. 101)
3:30–4:30 PM	<b>Physics Make and Take (Part II)</b> (p. 106)



### NSTA Press Sessions

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

#### Thursday, October 29

- 8:00–9:00 AM Designing Effective Science Instruction: What Works in Science Classrooms (p. 41)
- 2:00–3:00 PM An Inquiry-based Lab Using Allelopathy (p. 56)
- So You Want New Science Facilities (Science Facilities 101) (p. 58)
- 3:30–4:30 PM The Architects Have Started Without Me...What Do I Do Now? (Science Facilities 102) (p. 64)

#### Friday, October 30

- 8:00–9:00 AM Stop Faking It! Finally Understand AIR, WATER, and WEATHER So You Can Teach It (p. 72)
- 9:30–10:30 AM Stop Faking It! Finally Understand CHEMISTRY So You Can Teach It (p. 82)
- 11:00 AM–12 Noon Stop Faking It! Finally Understand ELECTRICITY and MAGNETISM So You Can Teach It (p. 92)
- 12:30–1:30 PM *Hard-to-Teach Biology Topics: A Framework to Deepen Student Understanding* (p. 97)
- 2:00–3:00 PM *Uncovering Student Ideas in Physical Science: 25 Force and Motion Probes* (p. 88)
- Keeping Your Distance: A Lesson from Earth Science Success (p. 102)

### 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 NSTA Learning Center, learn about NSTA Communities, or become a member. We're looking for connections to educators with a passion for science education, and we welcome you to our network.

#### Thursday, October 29

- 8:00–9:00 AM Is This Your First NSTA Conference? (p. 41)
- Pete Conrad Spirit of Innovation Awards (p. 42)
- 12:30–1:30 PM More and Muir Tech Tips for Teaching About a Greener Tomorrow (p. 51)
- 2:00–3:00 PM SciLinks: Using the Online Assignment Tool (p. 56)
- 3:30–4:30 PM Toshiba/NSTA ExploraVision Awards Program (p. 62)

#### Friday, October 30

- 9:30–10:30 AM Toyota TAPESTRY Grants for Science Teachers = \$\$\$ for Your School (p. 80)
- 12:30–1:30 PM The NSTA Learning Center: Free Classroom Resources and Professional Development for Educators (p. 95)
- 3:30–4:00 PM NSTA Membership Jeopardy (p. 104)

## Conference Program • Meetings and Social Functions

### Thursday, October 29

Informal Science Networking Meeting

203 A/B, Convention Center ..... 2:00–4:00 PM

Social Gathering with The Physics Force

(Tickets required: M-1; \$10)

Sponsored by ADC and the ADC Foundation

Grand Salons E–G, Hilton ..... 5:00–6:45 PM

### Friday, October 30

NMLSTA Board Meeting

(NMLSTA Members Only)

Boardroom 3, Hilton ..... 7:00–9:00 AM

Preservice and New Teachers Breakfast

(Tickets required: M-2; \$12)

Sponsored by Kendall Hunt Publishing Co.

Marquette IX, Hilton ..... 9:00–10:30 AM

District X Meeting with NSTA Director

(All District X NSTA Members Invited)

203 A/B, Convention Center ..... 9:30–10:30 AM

PreK–8 Council for Elementary Science International (CESI)  
Luncheon

(Tickets required: M-3; \$50)

Marquette IX, Hilton ..... 12 Noon–2:00 PM

National Science Education Leadership Association (NSELA)

Open Meeting

203 A/B, Convention Center ..... 2:00–3:00 PM

NMLSTA Ice Cream Social

(Open to All Middle Level Teachers)

Marquette IX, Hilton ..... 3:30–5:30 PM

Student Chapter and Student Members Reception

(By Invitation Only)

Marquette III, Hilton ..... 5:00–6:30 PM

### Saturday, October 31

District IX Leadership Retreat

(By Invitation Only)

Marquette VI, Hilton ..... 2:30–7:30 PM

### Sunday, November 1

District IX Leadership Retreat

(By Invitation Only)

Marquette VI, Hilton ..... 8:00 AM–2:30 PM



Student completing post-concept map after writing cognitive, affective, and behavioral essays involving an ecological issue (SC-4).

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

✓ **Science Assessment Through a Mixed Curriculum (SC-1)**

**Arloa Woolford** ([wimeef@womeninmining.org](mailto:wimeef@womeninmining.org)), WIM Education Foundation, Winnemucca, Nev.

**Scotty Norman**, WIM Education Foundation, Battle Mountain, Nev.

**Denise Talvitie** ([dtalvitie@calportland.com](mailto:dtalvitie@calportland.com)), WIM Education Foundation Director, and CalPortland Co., Mojave, Calif.

Level: Grades 4–9

Date: Thursday, October 29, 8:00 AM–12 Noon

Location: Symphony II, Hilton

Registration Fee: \$45

Are you looking for new ideas to assess what your students are retaining in class? Here are some integrated hands-on activities that relate rocks and minerals to everyday life, enabling students to better understand the interaction of science in our world and how it affects all phases of life. Learn how to use creative writing, language arts, social studies, and math to test students' knowledge of earth science. All activities are aligned with the National Science Education Standards and offer ways to present earth science and help students better understand the interaction of science in our world.

All participants receive complete information on a CD to encourage further research. For more information, please visit [www.womeninmining.org](http://www.womeninmining.org).

Note: A variety of nuts may be used in some activities.

**Animal Skulls and Algebraic Thinking (SC-2)**

**Nils Halker** ([nhalker@smm.org](mailto:nhalker@smm.org)) and **Molly Leifeld** ([mleifeld@smm.org](mailto:mleifeld@smm.org)), Science Museum of Minnesota, St. Paul

Level: K–16

Date: Thursday, October 29, 9:00 AM–1:00 PM

Location: Off-site (Science Museum of Minnesota)

Registration Fee: \$21

In order for learners of any age to LEARN inquiry, they need to DO inquiry; and inquiry requires both content and a context to be meaningful. Engage in an investigation of skulls that provides an example of meaningful content- and context-rich STEM integration at an adult level.

Science investigations are often thought to be exclusively experimental. Observational studies and collection analyses are equally important means of collecting information about the natural world. Make detailed observations of a variety of skulls, identify relationships between form and function, and discuss how mathematical and scientific inquiry can be authentically integrated. This investigation provides a chance to experience an integrated science and math lesson, from collecting and analyzing data to making powerful predictions about the real world.

Note: Please meet your instructor at the Grant Street entrance of the Convention Center (outside Ballroom A) 15 minutes before departure time.

★ **A Completely Integrated Crime Scene: Forensics Science—You Can't Get Away with Anything! (SC-3)**

**Mary Hanson** ([mary.gail.hanson@spps.org](mailto:mary.gail.hanson@spps.org)), Arlington High School, St. Paul, Minn.

Level: Middle Level–High School

Date: Thursday, October 29, 1:30–4:30 PM

Location: Symphony II, Hilton

Registration Fee: \$23

A completely integrated crime scene! This course will give participants a captivating look at how forensic science reaches every discipline. Participants will engage in hands-on activities that are ready to take and use in the classroom, such as blood spatter analysis, height determination of suspects from surveillance photos and stride length, handwriting analysis, cryptanalysis, and developing and preserving

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latent fingerprints. Technology implementation will also be explored, including fiber analysis with a digital microscope, lie detection software, and forensic sketch artistry using the Faces Biometrix program used by law enforcement agencies across the U.S. and endorsed by America's Most Wanted.

The National Science Education Standards will be addressed by showing how the use of math and technology can improve scientific investigations and through activities showing the effect of forces on motion. Many investigations require the contribution of individuals from different disciplines. Since the very nature of forensic science is interdisciplinary, many branches of forensic science can be woven into other disciplines.

**Decisions and Dilemmas: Using Writing-to-Learn Activities to Increase Ecological Literacy (SC-4)**

**Meena M. Balgopal** (*meena.balgopal@colostate.edu*), Colorado State University, Fort Collins

**Alison Wallace** (*wallacea@mnstate.edu*), **Steve Lindaas** (*lindaas@mnstate.edu*), **Linda Winkler** (*winkler@mnstate.edu*), and **Ellen Brisch**, Minnesota State University, Moorhead

**Steve Dahlberg** (*stevendahlberg@yahoo.com*), White Earth Tribal Community College, Mahnomon, Minn.

Level: High School–College

Date: Friday, October 30, 9:00 AM–12 Noon

Location: Marquette VIII, Hilton

Registration Fee: \$25

Writing-to-learn (WTL) activities that engage student cognitive, affective, and behavioral domains can increase ecological literacy. Through writing, students not only learn science content but also practice applying higher-order

thinking skills as they begin to recognize personal and societal environmental dilemmas and the array of potential decisions.

We will share the results of a research study that is testing the effectiveness of this instructional strategy in undergraduate elementary education, biology, chemistry, and physics classes. Using a rubric developed by researchers, participants will read and score sample essays about hypoxia for their levels of scientific literacy.

★ **Integrating Nonfiction Reading and Writing While Teaching About Energy (SC-5)**

**Hallie Mills** (*hmills@need.org*), The NEED Project, Manassas, Va.

Level: Elementary

Date: Friday, October 30, 1:00–4:00 PM

Location: Marquette VIII, Hilton

Registration Fee: \$20

Integrate reading and writing into your primary and elementary science curriculum using science notebooks. In this short course, you'll learn what a science notebook is, what it looks like, and how to effectively use one during a science unit. Learn how science supports students' development of reading and expository writing skills. While actively engaged in energy-themed inquiry investigations, you will gain practical experience using science notebooks in a variety of ways. Energy-themed materials and activities will be based on renewable energy sources: solar, wind, and hydropower. For more information, please visit [www.need.org](http://www.need.org).



—Photo courtesy of Science Museum of Minnesota.



—Photo courtesy of Minnesota Zoo.

Tickets for field trips may be purchased (space permitting) at the Ticket Sales Counter in the NSTA Registration Area. Meet your field trip leader at the Grant Street entrance of the Convention Center (outside Ballroom A) 15 minutes before departure time. You may want to bring light snacks as there will be no food or beverages provided during the field trips.

★ **St. Anthony Falls Laboratory: Hydrology on a Big Scale** **\$20**

#T-1 Thursday, October 29 9:00 AM–12:15 PM

**CANCELED**

St. Anthony Falls Laboratory is built into the bedrock along the Mississippi River facing downtown Minneapolis and historic St. Anthony Falls. The laboratory uses the river's powerful flow to investigate questions related to rivers and the habitats around them. In addition to a large number of indoor flumes, basins, and tanks, the laboratory recently added the world's only outdoor stream lab—a heavily instrumented experimental river used to investigate how real rivers work. Geologists, ecologists, hydrologists, and engineers from around the world use the laboratory to design dams and dam removals, build experimental deltas and stratigraphic basins, and study topics ranging from the effect of climate warming on fish habitat to methods for restoring the Mississippi delta. Bring your camera to capture unique views of the river and the falls. Wear outdoor clothes and sturdy shoes. (Limit: 44)

*Note:* This facility is NOT handicapped accessible. People with disabilities may visit, but will not be able to tour the entire building, only the outdoor and main floor spaces. There

are some steep stairs. Participants should wear outdoor clothing and sturdy shoes.

🌐 **Great River Energy: Splendor in the Glass** **\$20**

#T-2 Thursday, October 29 1:00–4:00 PM

See the future of sustainable building design with an energy-focused tour of Great River Energy's new corporate headquarters—an impressive modern facility that uses 50% less energy and 90% less water than similar-sized buildings. This is your opportunity to experience a Leadership in Energy and Environmental Design (LEED) Platinum-certified facility. Discover how all the buildings where we live and work can be made more energy efficiency and sustainable. For more information, please visit <http://greatriverenergy.greentouchscreen.com>. (Limit: 45)

*Note:* Participants will need to sign in at the security desk with a photo ID. One-half hour has been added to the schedule to account for this time.

🌐 **The Raptor Center: Face-to-Beak with Nature's Aerial Predators** **\$25**

#T-3 Thursday, October 29 1:15–4:00 PM

The University of Minnesota Raptor Center is one of the world's premier raptor rehabilitation facilities, specializing in the medical care, rehabilitation, conservation, and study of eagles, hawks, owls, and falcons. Learn more about these magnificent predators of the sky and meet some raptor ambassadors face-to-beak. Participants learn the three key fea-

tures of all raptors and learn why they are different from other birds. Finally, we learn about The Raptor Center and its important role in protecting raptors and the world we share. (Limit: 44)

*Note:* If participants have any physical restrictions (i.e., wheelchairs), we need to know ahead of time. Please check the appropriate box on your registration form and describe assistance needed.

★ **Behind the Scenes at the Science Museum of Minnesota** **\$25**

#T-4 Thursday, October 29 1:20–5:00 PM

Experience an intimate behind-the-scenes tour of the Science Museum of Minnesota’s collections vault, with its extensive artifacts and specimens, and Science House, an innovative professional development resource for teachers. After the tour, free time will be available to view the museum’s three floors of innovative science exhibits overlooking the Mississippi River. Stroll among dinosaurs, feel the pulse of the bloodstream superhighway, create a tornado from a roiling cloud, or drive a tug up the Mississippi. Museum programs provide science education to an audience of more than one million people per year. Discover what the general public does not get to see. (Limit: 19)

🌐 **Minnesota Zoo Adventure** **\$47**

#F-1 Friday, October 30 8:30 AM–1:00 PM

Have an amazing experience at one of the nation’s premier zoological parks—the Minnesota Zoo. During your morning you will attend a bird show, ride the zoo’s monorail, and go behind the scenes at the new Russia’s Grizzly Coast exhibit and meet a bear zookeeper. We will also explore the zoo’s Tropics Trail, which offers a great overview of current conservation issues and provides participants with an appreciation for the rich diversity of life in the tropical regions of the world.

Experience Minnesota wildlife in an immersive, north woods setting on the Minnesota Trail and witness the spectacular beauty of the deep at the Discovery Bay exhibit. Over 1.1 million gallons of water provide a home for sharks, rays, and other marine life. Participants can actually touch sharks, sea stars, and sea anemones in an interactive estuary and tide pool. (Limit: 44)



**Minnesota’s Retreating Waterfalls: A Geology Tour of the Twin Cities** **\$20**

#F-2 Friday, October 30 9:00 AM–12:30 PM

The Twin Cities of Minneapolis and St. Paul share two unique rivers, the Mississippi and the Minnesota, which twist and turn through a seven-county metro area. While the cities may appear topographically challenged, they feature the only gorge on the Mississippi River. The geologic and human history of this fascinating landscape is dominated by a huge waterfall that bifurcated more than once, carving deep gorges.

Bring your camera as we make a variety of stops and follow the falls back through time. Wear outdoor clothing and sturdy shoes so you can explore this intriguing landscape. Those with physical handicaps will have limited access to sites on paved paths, and there are stairs involved. Bring rain gear, if needed (we plan to go rain or shine). (Limit: 44)



**Minneapolis Public Schools Science Materials Center: Supporting Science in a Big District** **\$23**

#F-3 Friday, October 30 9:15–11:30 AM

Do you come from a district with a kit-based science curriculum? Do your teachers struggle to keep the kits stocked and ready for use? Have you ever considered a centralized science refurbishment center? The Minneapolis Science Materials Center has been around since 1967, and it has learned a lot about providing teachers with the classroom-ready science units they need to engage students in a standards-based science curriculum. Come see how we manage science kits in Minneapolis schools. (Limit: 29)



**Finding Frankenstein at The Bakken Museum** **\$35**

#F-4 Friday, October 30 12:40–4:20 PM

Located in West Winds, a beautiful Tudor-style mansion on Lake Calhoun, The Bakken is an electrifying experience. On this special Finding Frankenstein tour at The Bakken, you will meet Mary Shelley, the teenage author of Frankenstein and the mother of science fiction, as she explores the connection between science and art in an interactive performance. Enjoy a guided tour of The Bakken’s collection of rare artifacts relating to the role of electricity in life and a special behind-the-scenes tour of The Bakken’s most extraordinary books and instruments, selected and displayed for you by The Bakken’s curator and librarian. (Limit: 45)



## Conference Program • Affiliate Sessions

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### Council for Elementary Science International (CESI)

*President: Kay Atchison Warfield*

#### Friday, October 30

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9:30–10:30 AM	CESI Make and Take	Grand Salons E&F, Hilton
12 Noon–2:00 PM	PreK–8 Council for Elementary Science International (CESI) Luncheon (Ticket M-3) Speaker: Timothy M. Cooney, University of Northern Iowa, Cedar Falls	Marquette IX, Hilton
3:30–4:30 PM	Get the Scoop	200A, Convention Center

### National Association for Research In Science Teaching (NARST)

*President: Rick Duschl*

#### Thursday, October 29

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8:00–8:30 AM	The Influence of Context on Science Teaching Self-Efficacy	M101A, Convention Center
12:30–1:30 PM	The Effect of Educative Curriculum Materials on Teacher Learning, Classroom Practice, and Student Achievement  STEM Institutes: Secondary Science Teachers' Engagement with Nanotechnology Education	M101A, Convention Center

### National Middle Level Science Teachers Association (NMLSTA)

*President: Rebecca Knipp*

#### Friday, October 30

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7:00–9:00 AM	NMLSTA Board Meeting (NMLSTA Members Only)	Boardroom 3, Hilton
9:30–10:30 AM	Learn Chemistry Concepts Using the Hands On Plastics 2 Kit	200G, Convention Center
3:30–5:30 PM	NMLSTA Ice Cream Social (Open to All Middle Level Teachers)	Marquette IX, Hilton

### National Science Education Leadership Association (NSELA)

*President: Brenda Wojnowski*

#### Friday, October 30

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2:00–3:00 PM	National Science Education Leadership Association (NSELA) Open Meeting	203 A/B, Convention Center
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**Society for College Science Teachers (SCST)**

President: Connie Russell

**Friday, October 30**

12:30–1:30 PM	Evolution Education Roundtable: What Students Should Know About Biological Evolution Prior to Entering College	M101A, Convention Center
2:00–3:00 PM	An Introduction to the College in the Schools Program at the University of Minnesota	M101A, Convention Center

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**Friday, October 30 7:00 AM–5:30 PM**

Start Time	End Time	Activity/Event Title
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Saturday, October 31 8:00 AM–7:30 PM**

Start Time	End Time	Activity/Event Title
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

**Sunday, November 1 8:00 AM–2:30 PM**

Start Time	End Time	Activity/Event Title
_____	_____	_____

## 8:00–8:30 AM Presentations

### SESSION 1

#### Using Dark Matter to Teach Physics Concepts

(Phys)

(High School)

201 A/B, Convention Center

**Nancy L. Bynum** ([nancy.bynum@elkriver.k12.mn.us](mailto:nancy.bynum@elkriver.k12.mn.us)), Elk River Area High School, Elk River, Minn.

Use dark matter to tie together several units in your physics course. Leave with a DVD, teacher's guide, and student handouts.

### SESSION 2

#### NARST Session: The Influence of Context on Science Teaching Self-Efficacy

(Gen)

(College)

M101A, Convention Center

**Richard P. Hechter** ([rphechter@gmail.com](mailto:rphechter@gmail.com)), University of Manitoba, Winnipeg, Canada

This study investigated the influence of context on preservice elementary teachers' science teaching self-efficacy via pre/post and retrospective testing.

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## 8:00–9:00 AM Presentations

### SESSION 1

#### **NSTA** NSTA Avenue Session: Is This Your First NSTA Conference?

(Gen)

(General)

Symphony III & IV, Hilton

**Ken Rosenbaum**, NSTA Chapter Relations Consultant, Harrods Creek, Ky.

Feeling overwhelmed by all there is to see and do at an NSTA Conference on Science Education? Join me for an interactive and participatory (fun!) walk through the conference program book. By the end of the session, we guarantee you'll know just how to get the most from your conference experience. Hot beverages courtesy of Carolina Biological Supply Company.

### SESSION 2

#### Award-winning Inquiry Lab Activities for High School Biology

(Bio)

(High School)

101 I/J, Convention Center

**Ron Thompson** ([thompsonron@mac.com](mailto:thompsonron@mac.com)), Puget Sound Educational Service District, Mercer Island, Wash.

Learn how to conduct three high-interest lab activities that give students experience in hypothesis formation, experimental design, data collection, and interpretation.

### SESSION 3

#### Alternative Assessments in the Chemistry Classroom

(Chem)

(High School)

200A, Convention Center

**Ken Beck** ([kbeck76@hotmail.com](mailto:kbeck76@hotmail.com)), Solon High School, Solon, Iowa

Looking for new assessment ideas for your chemistry class? Looking for lab-practical ideas? I'll share examples and ideas I've used in my classes.

### SESSION 4



#### NSTA Press Session: Designing Effective Science Instruction: What Works in Science Classrooms

(Gen)

(General)

200E, Convention Center

**Anne L. Tweed**, 2004–2005 NSTA President, and North Central Comprehensive Center, Denver, Colo.

As science teachers, we have our own ideas about effective teaching. Learn about an instructional framework that brings together recent research findings that support effective science instruction.

### SESSION 5

#### No Child Left Inside

(Bio)

(Elementary)

200F, Convention Center

**Jennifer M. Gross** ([jennifer.gross@dsu.edu](mailto:jennifer.gross@dsu.edu)) and **Alexandra J. Rook**, Dakota State University, Madison, S.Dak.

Want to get your students outside to study science? Learn about a university/elementary school partnership that studied insects.

### SESSION 6 (two presentations)

(General)

200I, Convention Center



#### The Ecological Footprint Dilemma: A Case Study

(Env)

**Bruno Borsari** ([bborsari@winona.edu](mailto:bborsari@winona.edu)), Winona State University, Winona, Minn.

Learn how I use case studies and clicker technology in the large-class auditorium.





**Backyard Packs Promote Outdoor Activity for Learning and Fitness** (Env)

**Birgitta R. Meade** (*bmeade@n-winn.k12.ia.us*), North Winneshiek Community School, Decorah, Iowa

**Marissa Nordschow** (*d4os@acegroup.cc*), Winneshiek County Conservation Board, Fort Atkinson, Iowa

Learn how collaboration within an Iowa county resulted in equipment purchase, curriculum design, guest presenters, and meaningful assignments to get kids outside.

**SESSION 7**



**Inquiry Instruction in High School Chemistry and Its Effect on Students' Proportional Reasoning Ability** (Chem)

(*Middle Level—College/Supervision*) 200J, Convention Center

**John C. Deming** (*jdeming@winona.edu*), Winona State University, Winona, Minn.

The Frameworks for Inquiry program has developed high school chemistry curriculum materials that significantly enhance students' thinking skills. I'll share research methods and results.

**SESSION 8**

**NSTA Avenue Session: Pete Conrad Spirit of Innovation Awards** (Earth)

(*High School*) 205A, Convention Center

**Joshua R. Neubert**, Conrad Foundation, Las Cruces, N.Mex.

Building on astronaut Charles "Pete" Conrad's legacy of innovation and entrepreneurship, this competition 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 9**

**Wind Turbine Challenge: How to Hold One in Your State or Region** (Phys)

(*Middle Level—High School/Informal*) M100J, Convention Center

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

I'll share lessons learned and practical guides for holding these hands-on, student-driven events.

**8:00–9:00 AM Workshops**

**Ecological Footprints** (Env)

(*Elementary—Middle Level*) 200G, Convention Center

**Barbara R. Sandall**, Western Illinois University, Macomb

**LaVerne Logan**, Western Illinois University—Quad Cities, Moline

Come examine your impact on the environment. We'll look at lifestyles and sustainability in a shrinking world.

**Be Particular: Air Quality Activities for the Secondary Classroom from the STORM Project** (Env)

(*Middle Level—High School*) 200H, Convention Center

**Timothy M. Cooney** (*timothy.cooney@uni.edu*), University of Northern Iowa, Cedar Falls

The STORM Project air quality curriculum incorporates both hands-on activities and real-time air quality data and maps from the project's website.

**The Periodic Table of the Stars** (Chem)

(*High School—College/Informal*) L100B, Convention Center

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

Place images of stellar objects, including supergiant stars, white dwarfs, supernovae, and planetary nebula, on a diagram to investigate how stellar evolution manufactures elements.

**Polydensity Tubes: Serious Fun with a Dense Subject** (Chem)

(*Middle Level—High School/Informal*) L100C, Convention Center

**Lynn W. Higgins** (*lynhiggins@gmail.com*), Polymer Ambassador, St. Louis, Mo.

Make and take a bottle with solids floating or sinking in two immiscible liquids. No oil is used, so the layers separate cleanly and quickly. These activities use grocery store materials. Handouts.

**Active Science in a Changing World (Earth)**  
*(Elementary–High School) L100D, Convention Center*  
**James Minerich** (*dvrduck@gmail.com*), Eagle View Nature Center, Breezy Point, Minn.

Learn about two NASA education projects that can help you teach about the world while making connections across the curriculum.

**Biotechnology and Environmental Risk: Project Learning Tree's New Secondary Program (Env)**  
*(General) L100E, Convention Center*

**Jackie Stallard** (*jstallard@forestfoundation.org*) and **Al Stenstrup** (*astenstrup@forestfoundation.org*), American Forest Foundation, Washington, D.C.

**Laura Duffey**, Minnesota Dept. of Natural Resources, St. Paul

Explore biotechnology from an environmental and societal perspective using new activities and case studies from Project Learning Tree.

**Increasing Critical Thinking: Help Your High School Students Write Their Own Scientific Experiments (Gen)**

*(High School) L100F, Convention Center*

**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 strategies to help your students develop high-quality scientific experiments.

**For Anyone with More Than One Student in Their Classroom! (Gen)**

*(Elementary–High School) L100G, Convention Center*

**Kirsten Smith** (*ksmith@lps.org*), Pound Middle School, Lincoln, Neb.

**Ron Bonnstetter** (*rjb@unl.edu*) and **Sara Yendra** (*syendra2@unl.edu*), University of Nebraska–Lincoln

Learn strategies to manage your changing classroom. Reach students while challenging them to do more than you can imagine.

## First-Time Attendee Session

### Is This Your First NSTA Conference?

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

Thursday, October 29

8:00–9:00 AM

Hilton Minneapolis

Symphony III & IV

*This session is generously supported by Carolina Biological Supply Company.*

**Energize and Energy-Wise Your Students! (Phys)**

(General)

L100H, Convention Center

**Steve Lindaas** ([lindaas@mnstate.edu](mailto:lindaas@mnstate.edu)) and **Linda Winkler** ([winklerl@mnstate.edu](mailto:winklerl@mnstate.edu)), Minnesota State University, Moorhead

Design and analyze a net-zero house. We will examine energy use from peak oil to global warming.

**Students Show What They Know (Gen)**

(General)

L100I, Convention Center

**Janet L. Struble** ([janet.struble@utoledo.edu](mailto:janet.struble@utoledo.edu)), The University of Toledo, Ohio

Presider: **Mikell Lynne Hedley** ([mikell.hedley@utoledo.edu](mailto:mikell.hedley@utoledo.edu)), The University of Toledo, Ohio

Formative assessment can have a powerful, positive effect on student learning. Graphic organizers, Thinking Works, and Foldables® are combined to illustrate students' thinking. Handouts.

**8:00–9:00 AM Exhibitor Workshop**

**InterActions in Physical Science: When Your Students Interact with Science They Discover, They Learn (Phys)**

(Grades 7–9)

M100 A–B, Convention Center

Sponsor: It's About Time

**Robert H. Poel**, Western Michigan University, Kalamazoo

Build your students' content knowledge with a structured program that provides motivating, relevant activities; expository readings; and computer simulations. At the same time you'll be building your students' skills in measurement, scientific thinking, and cooperative learning—problem-solving skills that will help them handle the rigors of science. Explore with a teacher who has experienced the success of this program with his students.

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**8:00–9:15 AM Exhibitor Workshops**

**Experimental Design (Gen)**

(Grades 1–6)

101B, Convention Center

Sponsor: Delta Education/School Specialty Science

**Johanna Strange**, Consultant, Richmond, Ky.

**Tom Graika**, Consultant, Lemont, Ill.

Having trouble getting students ready for science fairs? Learn how to take students from guided investigations to open inquiries. This strategy helps students develop investigative questions, learn the process of experimental design, and implement the scientific method. Delta products will be featured and teacher resources will be provided.

**A Closer Look at Biology, Chemistry, and Earth Science Virtual Labs (Gen)**

(Grades 6–12)

101E, Convention Center

Sponsor: Frey Scientific/School Specialty Science

**Vince Zaccardi**, **Carole Andreasson**, **Ken Rainis**, and **Lisa Bowman**, Frey Scientific/School Specialty Science, Naperville, Ill.

Learn how virtual labs constitute a “laboratory experience” while exploring unique, object manipulative, network-capable virtual labs for general and AP subjects. Perform actual lab investigations on-screen and view, record, analyze, and report results. Ideas for creating custom web content and individualized assessment also provided. Participants will also receive various software samplers.

**Inquiring with Interactive Science (Gen)**

(Grades 6–8)

101F, Convention Center

Sponsor: Pearson

**Chuck McMillan**, Huron, Mich.

More inquiry in more places! Whether you're a lab-oriented teacher or a textbook-focused teacher, I'll show you a variety of hands-on and minds-on inquiry options to keep all your students engaged.

**Force! Momentum! Energy Kids Discover More with the STC Program™ Motion and Design (Phys)**

(Grades 4–6)

101H, Convention Center

Sponsor: Carolina Biological Supply Co.

**Carolina Teaching Partner**

Learn how this hands-on unit helps students explore force, momentum, and energy...and how design affects motion, all while using K'NEX® pieces. This session starts with an overview of the STC Program developed by the National Science Resources Center. Participants will also learn how literacy connects with these science units.

**EDVOTEK Biotechnology: Biotechnology on a Budget (Bio)**

(Grades 6–College)

M100D, Convention Center

Sponsor: EDVOTEK

**Jack Chirikjian** ([info@edvotek.com](mailto:info@edvotek.com)), EDVOTEK, Bethesda, Md.

Bring DNA, genetics, and biotechnology to life in your class-



room with exciting, affordable, and ready-to-use activities that include genetics games, DNA extraction, spooling, and DNA electrophoresis using fluorescent dyes. Participants are automatically entered into a raffle for a FREE classroom electrophoresis setup (a \$500 value)!

### **Fast and Furious Force and Motion (Chem)**

(Grades 6–9) *M100E, Convention Center*

Sponsor: Lab-Aids, Inc.

**Mark Koker**, Lab-Aids, Inc., Ronkonkoma, N.Y.

This engaging middle level unit from SEPUP's Issues and Physical Science course lets students study core force and motion concepts using a scenario of a family who has just survived a serious car accident and is in the market for a safer car. Students learn about Newton's laws, balanced and unbalanced forces, speed and acceleration, friction, and collisions. They then apply this knowledge in practical terms to understand braking distance, safe driving, and SUV-type rollovers. Join me for a hands-on look at measuring speed, motion graphs, and circular motion.

### **8:00–9:30 AM Exhibitor Workshop**

#### **Chemistry and the Atom: Fun with Atom-building Games! (Chem)**

(Grades 5–12)

*101A, Convention Center*

Sponsor: CPO Science/School Specialty Science

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

Our understanding of matter is so abstract that students have a hard time making sense of these fascinating concepts. In this workshop, you will experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

### **8:00–11:00 AM Exhibitor Workshop**

#### **Using Science Notebooks with FOSS Middle School (Gen)**

(Grades 5–8) *101C, Convention Center*

Sponsor: Delta Education/School Specialty Science—FOSS

**Virginia Reid**, Consultant, Olympia, Wash.

**Chris Sheridan**, Consultant, Sammamish, Wash.

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

Learn about the benefits of science notebooks by engaging in proven strategies for helping students produce effective notebooks. Experience the notebook as a learning tool, a vehicle for communication, and an assessment and reflection medium. Sample materials provided.

### **8:00 AM–12 Noon Short Course**

#### ✓ **Science Assessment Through a Mixed Curriculum (SC-1)**

(Grades 4–9)

*Symphony II, Hilton*

**Tickets Required; \$45**

**Arloa Woolford** ([wimef@womeninmining.org](mailto:wimef@womeninmining.org)), WIM Education Foundation, Winnemucca, Nev.

**Scotty Norman**, WIM Education Foundation, Battle Mountain, Nev.

**Denise Talvitie** ([dtalvitie@calportland.com](mailto:dtalvitie@calportland.com)), WIM Education Foundation Director, and CalPortland Co., Mojave, Calif. For description, see page 32.

### **8:30–9:00 AM Presentation**

#### **SESSION 1**

#### **Evolution Now!**

**(Bio)**

(High School–College)

*M101B, Convention Center*

**Kristin Jenkins** ([kjenkins@nescent.org](mailto:kjenkins@nescent.org)), National Evolutionary Synthesis Center, Durham, N.C.

Looking for ways to make evolution relevant for your students? Come learn about a free resource—the National Evolutionary Synthesis Center (NESCent), an NSF-funded institute designed to promote synthesis in evolutionary biology.

**9:00–11:00 AM Exhibitor Workshop**

**Seeds of Science/Roots of Reading: Integrating Science and Literacy at the Elementary Level (Gen)**

(Grades 2–6) 101D, Convention Center

Sponsor: Delta Education/School Specialty Science—Seeds  
**Jen Tilson, Carrie Strohl, Jonathan Curley, Suzy Loper,** and **Traci Wierman**, Lawrence Hall of Science, University of California, Berkeley

Learn about a new program that enables you to increase the amount of time for science in a crowded curriculum by addressing science and literacy standards simultaneously. Hands-on activities, specially written science books, and compelling research will be shared. Walk away with samples from the Variation and Adaptation unit.

**9:00 AM–1:00 PM Short Course**

**Animal Skulls and Algebraic Thinking (SC-2)**

(Grades K–16) Off-site (Science Museum of Minnesota)

**Tickets Required; \$21**

**Nils Halker** ([nhalker@smm.org](mailto:nhalker@smm.org)) and **Molly Leifeld** ([mleifeld@smm.org](mailto:mleifeld@smm.org)), Science Museum of Minnesota, St. Paul  
For description, see page 32.

# Project Learning Tree

**Critical thinking for students,  
critical resource for educators.**

Environmental education activities and service-learning grants for PreK-12.

New materials on Forests of the World, Biotechnology, and Places We Live.

PLT curriculum is aligned to state and national science standards.



**Imagine a classroom  
where the homework  
is saving the planet!**



## Get PLT materials at NSTA

Stop by Exhibit Booth 422

Participate in PLT sessions in the Minneapolis Convention Center:

Thurs, Oct 29, 8-9am ~ Biotechnology and Environmental Risk (Room L100E)

Thurs, Oct 29, 12:30-1:30pm ~ Connect Reading and the Environment (Room L100E)

Thurs, Oct 29, 2-3pm ~ *GreenSchools!* (Room L100E)

Fri, Oct 30, 8-9am ~ Global Connections: Forests of the World (Room 200C)

Contact your state PLT Coordinator.

[www.plt.org](http://www.plt.org)



**9:15–10:30 AM General Session****Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder***(General)**Ballroom A, Convention Center*

**Richard Louv** ([richardlouv@childrenandnature.org](mailto:richardlouv@childrenandnature.org)), Author and Futurist, San Diego, Calif.

Presider and Introduction of Speaker: Pat Shane, NSTA President, and The University of North Carolina at Chapel Hill

Platform Guests: Richard Louv; Pat Shane; Page Keeley, NSTA Retiring President, and Maine Mathematics and Science Alliance, Augusta; Alan McCormack, NSTA President-Elect, and San Diego State University, San Diego, Calif.; Holly Knudson, President, Minnesota Science Teachers Association, and Marshall High School, Marshall, Minn.; Paul Keidel, NSTA Director, District IX, and Wachter Middle School, Bismarck, N.Dak.; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Clark Erickson, Chairperson, NSTA Minneapolis Area Conference, Eden Prairie, Minn.; Jean Tushie, Program Coordinator, NSTA Minneapolis Area Conference, NSTA Director, High School, and Eden Prairie High School, Eden Prairie, Minn.; Lynn Hartshorn, Local Arrangements Coordinator, NSTA Minneapolis Area Conference, and University of St. Thomas, St. Paul, Minn.

Richard Louv, author of *Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder*, and chairman of the Children & Nature Network, speaks about the transformation in the relationship between children and nature and how society is teaching young people to avoid direct experience in nature. That unintended message is delivered by schools, families, and even organizations devoted to the outdoors, and codified into the legal and regulatory structures of many of our local communities. He also describes the new body of scientific evidence demonstrating just how important direct contact with the outdoors is to healthy child development. To stimulate a “Leave No Child Inside” movement, he offers practical suggestions for action by parents, grandparents, government agencies, conservationists, urban planners, educators, and others concerned about the future of childhood and Earth itself.

**9:30–10:30 AM Exhibitor Workshop****Project-Based Inquiry Science (PBIS): A New Generation of Life, Earth, and Physical Science (Bio)***(Grades 6–8)**M100 A–B, Convention Center*

Sponsor: It’s About Time

**Mary Starr**, The University of Michigan, Ann Arbor  
PBIS teachers tell us they’ve “never seen students this excited about science.” We developed projects and driving questions that really matter to students. Watch what happens when students get a chance to flex their creative muscles on projects that they care about—the excitement is contagious... and the learning is sustained.

**10:00–11:15 AM Exhibitor Workshops****Inquiry and Literacy: Grades 5–8 (Gen)***(Grades 5–8)**101B, Convention Center*

Sponsor: Delta Education/School Specialty Science

**Tom Graika**, Consultant, Lemont, Ill.

**Johanna Strange**, Consultant, Richmond, Ky.

Participate in investigations involving magnetism and electricity to learn how to turn guided investigations into challenge and open inquiries. Participants will also learn how to extend science knowledge and skills through Delta literacy connections that improve language arts skills. Take home a resource packet and related Delta products.

**Introducing Inquiry Investigations™: Hands-On Inquiry Activities Focusing on Technology (Gen)***(Grades 7–10)**101E, Convention Center*

Sponsor: Frey Scientific/School Specialty Science

**Ken Rainis, Carole Andreasson, Lisa Bowman, and Vince Zaccardi**, Frey Scientific/School Specialty Science, Naperville, Ill.

Explore the new hands-on, active learning science series modules and kits geared for students in grades 7–10. See how technology and inquiry help students understand essential science content in 10 science areas: Forensics, Physical Science, Cellular World, Biotechnology, Genetics, Life’s Kingdoms, Environmental Issues and Solutions, Chemistry, Earth’s Resources, and Human Biology. Participants receive various software samplers.

**Inquiry in the Chemistry Classroom (Chem)**

(Grades 9–12) 101F, Convention Center

Sponsor: Pearson

**Ed Waterman**, Retired Educator, Fort Collins, Colo.

Join high school teacher and author Ed Waterman to explore simple, yet effective ways to teach chemistry through inquiry using small-scale labs and a virtual chemistry laboratory. Learn effective and time-efficient ways to allow students to design and carry out experiments to solve problems while learning chemistry content.

**“Finding Solutions” for Your Chemistry Labs with Carolina’s New Inquiries in Science™ Chemistry Units (Chem)**

(Grades 9–12) 101H, Convention Center

Sponsor: Carolina Biological Supply Co.

**Kelly Branchaud**, Carolina Biological Supply Co., Burlington, N.C.

Increase student understanding of difficult concepts such as solubility, freezing point, boiling point, molar mass, and pressure by using a guided inquiry approach. Carolina’s Inquiries in Science chemistry units provide hands-on activities and supplies that make teaching challenging topics effortless. Free teacher materials and door prizes.

**Hands-On Integrated Science Activities for Middle School (Chem)**

(Grades 5–8) M100 F–H, Convention Center

Sponsor: Flinn Scientific, Inc.

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

Hands-on science leads to minds-on learning! Flinn Scientific presents relevant and age-appropriate activities for middle school—integrating life, earth, and physical science topics. Participants will perform and observe experiments designed to capture the curiosity and engage the energy of adolescent students. Handouts provided for all activities.

**Understanding Mendelian and Non-Mendelian Inheritance (Bio)**

(Grades 6–9) M100E, Convention Center

Sponsor: Lab-Aids, Inc.

**Mark Koker**, Lab-Aids, Inc., Ronkonkoma, N.Y.

Middle-level students have many misconceptions associated with genetics-related concepts. What is a gene? How are genes expressed? What is the difference between dominant and recessive traits? How does incomplete or co-dominance differ from “simple” dominant/recessive patterns? Let’s examine activities in which students build “critters” to understand principles of Mendelian and non-Mendelian inheritance. Take home materials to use in class next week!

**10:00–11:30 AM Exhibitor Workshop**

**Genetics: Crazy Traits and Adaptation Survivor**

(Bio)

(Grades 5–12)

101A, Convention Center

Sponsor: CPO Science/School Specialty Science

**Scott Eddleman**, CPO Science/School Specialty Science, Nashua, N.H.

Students learn new vocabulary when they study genetics such as traits, alleles, and genotypes. How can you predict the traits of offspring when you know the genetic makeup of the parents? These ideas will come alive as you create crazy creatures with a unique kit and study the resulting population.

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

NSTA Exhibits Entrance, Hall B, Convention Center

President: Pat Shane, NSTA President, and The University of North Carolina at Chapel Hill

Special Guests: Pat Shane; Page Keeley, NSTA Retiring President, and Maine Mathematics and Science Alliance, Augusta; Alan McCormack, NSTA President-Elect, and San Diego State University, San Diego, Calif.; Holly Knudson, President, Minnesota Science Teachers Association, and Marshall High School; Francis Q. Eberle, NSTA Executive Director, Arlington, Va.; Clark Erickson, Chairperson, NSTA Minneapolis Area Conference, Eden Prairie, Minn.; Jean Tushie, Program Coordinator, NSTA Minneapolis Area Conference, NSTA Director, High School, and Eden Prairie High School, Eden Prairie, Minn.; Lynn Hartshorn, Local Arrangements Coordinator, NSTA Minneapolis Area Conference, and University of St. Thomas, St. Paul, Minn.; Rick Smith, Director, Exhibits and Advertising Sales, NSTA, Arlington, Va.

**11:00 AM–12 Noon Exhibitor Workshop**

**American Geological Institute—Whom Else Would You Ask About Earth Science? (Env)**

(Grades 6–12)

M100 A–B, Convention Center

Sponsor: It’s About Time

**Gary Curts**, Dublin Jerome High School, Dublin, Ohio

Participate in activities and real-world Investigating Earth Systems and EarthComm challenges that have been developed for middle and high school students by the education experts at the American Geological Institute. This workshop will include overviews of both programs, web links, materials, and professional development.



**11:10 AM–5:00 PM Exhibits**

*Hall B, Convention Center*

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

**11:30 AM–1:00 PM Exhibitor Workshop**

**Taking Science Outdoors with FOSS K–8 (Bio)**

*(Grades K–8) 101C, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS **Joanna Snyder** and **Erica Beck Spencer**, Lawrence Hall of Science, University of California, Berkeley

Learn about the ground-breaking work done by the Boston Schoolyard Initiative (BSI) and other projects. Learn how to use effective strategies to engage children in powerful science learning experiences in their own schoolyards and local outdoor environments. Participants will go outside, so dress accordingly. Sample materials provided.

**11:30 AM–1:30 PM Exhibitor Workshop**

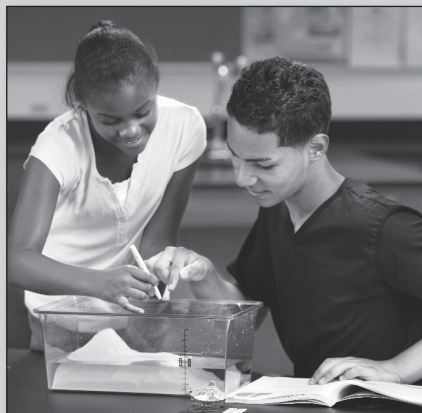
**Seeds of Science/Roots of Reading: Integrating Science and Literacy at the Elementary Level (Gen)**

*(Grades 2–6) 101D, Convention Center*

Sponsor: Delta Education/School Specialty Science–Seeds **Jen Tilson, Carrie Strohl, Jonathan Curley, Suzy Loper**, and **Traci Wierman**, Lawrence Hall of Science, University of California, Berkeley

Learn about a new program that enables you to increase the amount of time for science in a crowded curriculum by addressing science and literacy standards simultaneously. Hands-on activities, specially written science books, and compelling research will be shared. Walk away with samples from the Variation and Adaptation unit.

**School Specialty Science offers innovative solutions**



**FULL OPTION  
SCIENCE SYSTEM™**



Engage students and promote scientific inquiry, literacy and student achievement. Whether your needs are for hands-on curriculum, supplementary resources or lab equipment, turn to the leaders in proven K–12 science education programs.

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### 12 Noon–1:15 PM Exhibitor Workshop

#### Educational Science Lab Design and Implementation for the 21st Century Made Easy (Gen)

(Grades K–12) 101E, Convention Center

Sponsor: Frey Scientific/School Specialty Science

**Gordon Strohminger** and **John Flockenzier**, Frey Scientific/School Specialty Science, Mansfield, Ohio

Explore the process of designing and implementing educational science labs and see how technology and room design can push conventional boundaries to help students better understand science concepts. Open discussions will include the lab design process, furniture and equipment basics, safety and accessibility, integration of technology, and 21st-century trends. Participants receive lab planning CD and implementation guide.

### 12 Noon–1:30 PM Exhibitor Workshop

#### Collision Physics: A Smashing Good Time! (Phys)

(Grades 5–12) 101A, Convention Center

Sponsor: CPO Science/School Specialty Science

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

What happens when you launch a car on a track system and hit another car? You can change the force used to launch the moving car and the mass of both the moving car and target car. See how concepts can meet mathematics and accurate data collection in a SMASHING investigation.

### 12:30–1:30 PM Presentations

#### SESSION 1

##### Visualizing Chemistry with Digital Photography (Chem)

(Middle Level–College) 200A, Convention Center

**Paul S. Anderson** ([panderso@buffalo.k12.mn.us](mailto:panderso@buffalo.k12.mn.us)), Buffalo High School, Buffalo, Minn.

A picture is worth a thousand words, so let it do the talking! Learn how digital photography can be integrated into a chemistry class.

#### SESSION 2

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

(General) 200B, Convention Center

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

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

#### SESSION 3

##### Introduction to the Teacher Institute on Science and Sustainability (Env)

(Elementary) 200C, Convention Center

**Grahme B. Smith** ([gsmith@calacademy.org](mailto:gsmith@calacademy.org)) and **Jill M. Bible** ([jbible@calacademy.org](mailto:jbible@calacademy.org)), California Academy of Sciences, San Francisco

A new program at the California Academy of Sciences

inspired elementary school teachers to integrate “green” concepts into the curriculum. We'll share lesson plans.

#### SESSION 4 (two presentations)

(Preschool/Elementary) 200F, Convention Center

##### On Solid Ground: Integrating Science and Literacy Skills (Gen)

**Christine Anne Royce** ([caroyce@aol.com](mailto:caroyce@aol.com)), NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.

We'll examine strategies for developing science and/or literacy skills and how each benefits the other.

##### Linking Science and Language Arts: From an Apple to an Atom (Gen)

**Eun Kyung Ko**, National-Louis University, Chicago, Ill.

These tested inquiry activities for very young students teach the life cycle of a butterfly.

#### SESSION 5



##### Open the Door, Let's Explore: Seasonal Activities for Young Children (Env)

(Preschool/Elementary) 200I, Convention Center

**Polly K. Saatzer** ([saatzerp@isd197.org](mailto:saatzerp@isd197.org)), Garlough Environmental Magnet School, West St. Paul, Minn.

Get some practical ideas for nature hikes, using backpacks with homemade tools, setting up simple inquiry investigations outside and inside the classroom, and ongoing seasonal observation activities.

## SESSION 6

★ **Developing an Integrated Program Around *The Story of Science*** (Gen)

(Elementary–High School) 200J, Convention Center  
**Juliana Texley** (*jtexley@att.net*), Central Michigan University, Mount Pleasant

**Joy Hakim** (*joyhakim@aol.com*), Englewood, Colo.

*The Story of Science* provides an ideal opportunity for a multi-disciplinary program that interweaves science, language arts, social studies, and the humanities. NSTA has developed two free publications of activities and curriculum materials to facilitate such programs. Learn how to build such a program and get free sample materials from the authors.

## SESSION 7

✓ **Quick and Effective Visual Formative Assessments** (Gen)

(Middle Level–High School) 201 A/B, Convention Center  
**Gary T. Aylward** (*gary.aylward@richfield.k12.mn.us*), Richfield Middle School, Richfield, Minn.

Trouble getting assessments done? Visual Formative Assessments fuse the power of formative assessments with the speed of visual images to quickly record and analyze results.

## SESSION 8

NSTA **NSTA Avenue Session: More and Muir Tech Tips for Teaching About a Greener Tomorrow** (Env)

(Elementary–Middle Level) 205A, Convention Center  
**Presenter to be announced**

Help your students change the world every day by three o'clock using the digital tools they love—customized place-marks in Google Earth and digital posters with Glogster, virtual labs about alternative energy sources, and digital storytelling projects with a green screen. Learn a new idea for every day of the week. We'll also discuss the free resources available through the Siemens We Can Change the World Challenge, the first-of-its-kind national K–12 student sustainability competition.

## SESSION 9

**POLYMERS 1A: They're Everywhere! Kitchen, Classroom, Cars, and Clothing** (Chem)

(Informal Education) L100C, Convention Center  
**Lynn W. Higgins** (*lynhiggins@gmail.com*), Polymer Ambassador, St. Louis, Mo.

We'll use cars, food, toys, and clothing in a fast-paced tour of a "superstore" to illustrate examples of polymer science, history, and engineering. All are linked to web pages and activities.

## SESSION 10

**Energizing Physics** (Phys)

(High School) M100J, Convention Center

**Aaron R. Osowiecki** (*aosowiecki@gmail.com*), Boston Latin School, Boston, Mass.

Learn about an innovative introductory physics course built around the concept of energy.

## SESSION 11 (two presentations)

(General) M101A, Convention Center

**NARST Session: The Effect of Educative Curriculum Materials on Teacher Learning, Classroom Practice, and Student Achievement** (Bio)

**Janet Carlson** (*janetcarlson@bscs.org*), BSCS, Colorado Springs, Colo.

Does professional development make a difference? How about educative curriculum materials? Come find out how the separate and combined impacts influenced teacher and student scores on content knowledge.

**NARST Session: STEM Institutes: Secondary Science Teachers' Engagement with Nanotechnology Education** (Gen)

**Leslie Flynn** (*leslie@umn.edu*) and **R. Lee Penn** (*rleepenn@umn.edu*), University of Minnesota, Minneapolis

Join us for insights and research findings on teachers' exploration of matter at the nano level as they developed an integrated STEM curriculum on the core topic of nanotechnology. Explore how you can implement a similar program in your school district to improve core STEM competencies.

## SESSION 12

✓ **Density Driven! The Relationship of Density to the Oceans and the Atmosphere** (Earth)

(Elementary–High School) M101B, Convention Center

**Jane Christopher** (*christopherj@stillwater.k12.mn.us*), Stillwater Junior High School, Stillwater, Minn.

**Craig Croone** (*craig.croone@nfl.k12.mn.us*), Northfield Middle School, Northfield, Minn.

Density plays a significant role in ocean and atmospheric circulation. Explore density concepts with these hands-on investigations.

## 12:30–1:30 PM Workshops

### Climate Change: Classroom Tools to Explore the Past, Present, and Future (Earth)

(Middle Level/Informal Education) 200E, Convention Center

**Roberta M. Johnson** ([rmjohnsn@ucar.edu](mailto:rmjohnsn@ucar.edu)), **Sandra Henderson**, **Susan Foster**, **Lisa Gardiner**, **Becca Hatheway**, **Julia Genyuk**, and **Marina LaGrave**, 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.

### Become a Sherlock “Homes” Energy Detective (Env)

(Elementary–Middle Level/Informal) 200G, Convention Center

**Joan Schumaker Chadde** ([jchadde@mtu.edu](mailto:jchadde@mtu.edu)), Michigan Technological University, Houghton

Engage students and parents in active hands-on learning about home and school energy. I’ll share activities from our new program.

### ★ The Joy of Elementary Engineering (Gen)

(Elementary) 200H, Convention Center

**Rebecca A. Schatz** ([rebecca@theworks.org](mailto:rebecca@theworks.org)), The Works, Edina, Minn.

Hands-on engineering projects integrated into the elementary school day can motivate, clarify, and reinforce your science and mathematics curriculum.

### Inquiry-based Hand-On Activities and Demonstrations (Gen)

(Elementary–High School) L100B, Convention Center

**John W. Fedors** ([jfedors@wavecable.com](mailto:jfedors@wavecable.com)), Science Activities, Lincoln, Calif.

These hands-on activities and demonstrations focus on energy, magnetism, diffusion, heat transfer, hydrophilic/hydrophobic materials, and forensic potentials.

### JetStream: An Online School for Weather (Earth)

(Informal Education) L100D, Convention Center

**Dennis R. Cain** ([dennis.cain@noaa.gov](mailto:dennis.cain@noaa.gov)), National Weather Service, Fort Worth, Tex.

JetStream is a free online resource from the National Weather Service with lesson plans and demonstrations for teaching various aspects of weather.

### Connect Reading and the Environment (Env) (General) L100E, Convention Center

**Jackie Stallard** ([jstallard@forestfoundation.org](mailto:jstallard@forestfoundation.org)) and **Al Stenstrup** ([astenstrup@forestfoundation.org](mailto:astenstrup@forestfoundation.org)), American Forest Foundation, Washington, D.C.

**Laura Duffey** ([laura.duffey@dnr.state.mn.us](mailto:laura.duffey@dnr.state.mn.us)), Minnesota Dept. of Natural Resources, St. Paul

Integrate children’s fiction and nonfiction books into classroom lessons and improve student literacy skills with these Project Learning Tree activities.

### Igniting Curiosity Through Discrepant Events (Gen)

(General) L100G, Convention Center

**David F. Mastie** ([mastie@umich.edu](mailto:mastie@umich.edu)), Retired Educator, Chelsea, Mich.

**Parker O. Pennington IV** ([parkiv@umich.edu](mailto:parkiv@umich.edu)), Retired Educator, Ann Arbor, Mich.

We’ll share 12 amazing discrepant events that integrate life, physical, and earth science. All are simple and safe and have universal K–12 appeal.

### Slip Sliding with Glacier Goo (Phys)

(Elementary–High School) L100H, Convention Center

**Cheri L. Hamilton** ([chamilton@crexis.ku.edu](mailto:chamilton@crexis.ku.edu)), **Ryan M. Bowman**, and **Dana Atwood-Blaine** ([danaab@ku.edu](mailto:danaab@ku.edu)), The University of Kansas, Lawrence

Engage students in polar glaciology using an Elmer’s® glue polymer. Come construct glaciers and try some inquiry-based lessons.

### Cruising to Food Safety: Integrating Food Safety into Your Science Curriculum (Bio)

(Middle Level–High School) L100I, Convention Center

**Laurie A. Hayes** ([lhayes@cart.org](mailto:lhayes@cart.org)), Center for Advanced Research and Technology, Clovis, Calif.

**Susan E. Hartley** ([susan.hartley@nisd.us](mailto:susan.hartley@nisd.us)), Navarro High School, Geronimo, Tex.

Explore the FDA’s free hands-on curriculum that teaches students the importance of food safety and nutrition while integrating science and health standards.



**12:30–1:30 PM Exhibitor Workshop**

**Project-Based Inquiry Science (PBIS): A New Generation of Life, Earth, and Physical Science (Bio)**

(Grades 6–8) *M100 A–B, Convention Center*

Sponsor: It's About Time

**Mary Starr**, The University of Michigan, Ann Arbor  
PBIS teachers tell us they've "never seen students this excited about science." We developed projects and driving questions that really matter to students. Watch what happens when students get a chance to flex their creative muscles on projects that they care about—the excitement is contagious... and the learning is sustained.

**12:30–1:45 PM Exhibitor Workshops**

**What's Up with the Flu? Ecology and Evolution of Infectious Disease Come to Life (Bio)**

(Grades 9–12) *101F, Convention Center*

Sponsor: Pearson

**Joseph Levine**, Concord, Mass.

Get an update on bird and swine influenzas and learn to teach students how and why dangerous strains like these pose a constant threat.

**Digital Microscopy in the Classroom (Bio)**

(Grades 6–12) *101G, Convention Center*

Sponsor: Science Kit & Boreal Labs

**Tom Schaefer**, Waukesha West High School, Waukesha, Wis.

Explore activities to learn how to use digital microscopy in the classroom. Find out how to incorporate these activities to enhance your laboratory experiences in biology, chemistry, and the physical sciences.



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Web site: [www.uni.edu/placement/overseas](http://www.uni.edu/placement/overseas)

**Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (Bio)**

(Grades 6–12) *101H, Convention Center*

Sponsor: Carolina Biological Supply Co.

**Carolina Teaching Partner**

Experience a far superior and safer alternative to formaldehyde with Carolina's Perfect Solution specimens. Participants dissect a sheep brain, cow eye, pig heart, and pig kidney and observe major internal and external structures to gain a better understanding of these mammalian organs. An excellent comparative dissection with Carolina's best specimens!

**Promote Inquiry Using Demonstrations (Chem)**

(Grades 9–12) *M100 F–H, Convention Center*

Sponsor: Flinn Scientific, Inc.

**Irene Cesa**, Flinn Scientific, Inc., Batavia, Ill.

Looking for 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 me as I present classic demonstrations and describe a series of inquiry-based activities that were developed based on those demonstrations.

**Enhancing Your Cell Unit with Models and Manipulatives (Bio)**

(Grades 7–12) *M100C, Convention Center*

Sponsor: Speak Easies

**Paula Fogarty**, Speak Easies, Santa Rosa, Calif.

Want a way to increase rigor for your cell unit—even with your challenged learners? It's easier than you think with Speak Easies teaching aids. Try out our manipulatives as we share clever ideas and strategies for teaching the cell and related topics. Each participant receives a Desk Kit.

**Pluto Yet Again! (Earth)**

(Grades K–12) *M100E, Convention Center*

Sponsor: Starry Night Education

**Herb Koller** (*hkoller@simcur.com*), Starry Night Education, New York, N.Y.

This session will explore the unique aspects of Pluto leading to its reclassification. Learn how you can explain Pluto's unique orbit, structure, and size using contemporary simulation tools.

**1:00–2:30 PM Exhibitor Workshop**

**What's Going On in There? Inquiry Science for Administrators, Trainers, and Teachers (Gen)**

(Grades K–12) *101B, Convention Center*

Sponsor: Delta Education/School Specialty Science

**John Cafarella**, Consultant, Canadensis, Pa.

How can you support and evaluate an inquiry-based science lesson/program? What should you look for while observing a science lesson? During this session we'll define inquiry and look at the use of process skills, standards-based content and materials, notebooking, and assessment while engaging in interactive, inquiry-based activities.

**1:30–4:30 PM Short Course**

★ **A Completely Integrated Crime Scene: Forensics Science—You Can't Get Away with Anything! (SC-3)**

(Middle Level–High School) *Symphony II, Hilton*

**Tickets Required; \$23**

**Mary Hanson** (*mary.gail.hanson@spps.org*), Arlington High School, St. Paul, Minn.

For description, see page 32.

**2:00–2:30 PM Presentation**

**SESSION 1**

**NSTA Teacher and Principal Awards and Recognitions (Gen)**

(General) *M101B, Convention Center*

**Julie Thomas** (*julie.thomas@okstate.edu*), Oklahoma State University, Stillwater

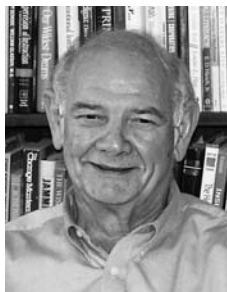
NSTA recognizes and rewards exemplary teachers and principals with cash, trips, science materials, and more. Come learn how to apply for NSTA awards!

## 2:00–3:00 PM Featured Presentation

✓ **Newton, Einstein, and Friedman: Who's Next?**

(General)

101 I&amp;J, Convention Center



**William Sommers** (*wsommers@austin.rr.com*), Leadership Coach and Author, Austin, Tex.

Presider: Brenda Heck, Strand Leader, NSTA Minneapolis Area Conference, and Eden Prairie High School, Eden Prairie, Minn.

There is an African proverb: “If you want to go quickly, go alone. If you want to go far, go together.” Is PLC the next alphabet program and buzzword or does it have sustainability? What are the implications for LEARNING when an effective professional learning community (PLC) exists? What are the scientific principles that can positively impact PLC work in schools? You will get some answers and leave with more questions. Come and enjoy.

*William A. Sommers, PhD, is currently a leadership coach and author. Since 1990, he has been an associate trainer for the Center for Cognitive Coaching based in Denver, Colorado. He is the former Director of Leadership & Organizational Development for Manor ISD in Texas and the former Executive Director for Secondary Curriculum and Professional Learning for Minneapolis Public Schools. He has been a principal for over 30 years in addition to being a university professor. He is currently a senior fellow for the Urban Leadership Academy at the University of Minnesota.*

*Dr. Sommers has co-authored six books and has two more in press. In addition to writing many articles regarding coaching, assessment, and reflective thinking, he also does training in poverty, leadership, organizational development, conflict management, brain research, and classroom management.*

## 2:00–3:00 PM Presentations

## SESSION 1

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

(General)

200B, Convention Center

**Sharon Bowers** (*sharon.bowers@nianet.org*), National Institute of Aerospace, Hampton, Va.

NASA eClips are short, educational video segments that can be integrated into standards-based curricula, highlighting real-world applications of science, technology, engineering, and mathematics (STEM). I'll share several free NASA educational resources.

## SESSION 2

**Become a Teacher at Sea with NOAA Scientists**

(Gen)

(General)

200C, Convention Center

**Kirk Beckendorf** (*kirk.beckendorf@noaa.gov*), Einstein Fellow, NOAA, Washington, D.C.

NOAA's Teacher at Sea Program provides all teachers with the opportunity to work with scientists on board a NOAA research ship. Come learn how to apply and participate.

## SESSION 3

**Professional Development Providers: What You Should Know and Be Able to Do (Gen)**

(General)

200D, Convention Center

**Christine Anne Royce**, NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.

**Kevin J. Niemi** (*kjniemi@wisc.edu*), University of Wisconsin-Madison

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

Expanding on your professional development? Members of NSTA's Professional Development Committee will offer planning, delivery, and evaluation ideas for discussion and reflection.

## SESSION 4

**From Science, Language Arts, and Social Studies to Service Learning (Gen)**

(Elementary–Middle Level)

200F, Convention Center

**Mara Coyle** (*mara.coyle@spps.org*), Battle Creek Elementary Environmental Magnet School, St. Paul, Minn.

**Molly Johnston**, Eco Education, St. Paul, Minn.

Teach science, social studies, and language arts by engaging students in local environmental issues through service learning and its key components.

SESSION 5

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

(Elementary–High School) 205A, Convention Center

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

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

The SciLinks Assignment Tool allows students to show what they have learned from the web resources SciLinks provides. Learn to create and distribute assignments.

SESSION 6

**The Elegance of Design: An Honors Art/Physical Science Course (Phys)**

(High School–College) M100J, Convention Center

**John E. Morris** (*jmorris@marianuniversity.edu*) and **Mark Merline**, Marian University, Fond du Lac, Wis.

The Elegance of Design is a cross-disciplinary honors lab course that explores design from artistic and engineering perspectives such as color, material properties, and Newtonian physics.

SESSION 7

**Waters to the Sea: Watershed Education for the 21st Century (Gen)**

(Elementary–Middle Level) M101A, Convention Center

**Tracy J. Fredin** (*tfredin@hamline.edu*), Hamline University, St. Paul, Minn.

Explore the award-winning Waters to the Sea multimedia program. This comprehensive watershed education resource integrates science with math and literacy as it examines natural and social systems.

2:00–3:00 PM Workshops

**Weather Education Activities for the Elementary Grades: Online and On-Target! (Earth)**

(Elementary) 200E, Convention Center

**Timothy M. Cooney** (*timothy.cooney@uni.edu*), University of Northern Iowa, Cedar Falls

These weather activities integrate real-time weather data into elementary science. Take the materials home to try with your students!

**Engaging Hands-On Inquiry Activities (Chem)**

(Elementary–Middle Level) 200G, Convention Center

**Sandra Van Natta**, Intersociety Polymer Education Council, Hamilton, Ohio

**Sue E. Hall** (*kentsue@charter.net*), Polymer Ambassador, Stevens Point, Wis.

Learn techniques and receive materials for turning individual activities into inquiry-based experiments using inexpensive supplies such as polymers. Math and literature integration is included.

**Live a Day in the Life of a Teacher Participating in the Teacher Institute on Science and Sustainability (Env)**

(Elementary) 200H, Convention Center

**Grahme B. Smith** (*gsmith@calacademy.org*) and **Jill M. Bible** (*jbible@calacademy.org*), California Academy of Sciences, San Francisco

See how other teachers are inspiring their students to go “green.” Integrate sustainability concepts into your classroom with these hands-on, classroom-ready activities.



**Ice, Ice, Baby (Phys)**

(Elementary–Middle Level) 200I, Convention Center

**Cheri L. Hamilton** (*chamilton@crexis.ku.edu*), **Ryan M. Bowman**, and **Dana Atwood-Blaine** (*danaab@ku.edu*), The University of Kansas, Lawrence

Demonstrate displacement, density, and pressure through polar science with these simple activities about climate change.



**NSTA Press Session: An Inquiry-based Lab Using Allelopathy (Bio)**

(High School–College) L100B, Convention Center

**Jennifer L. Soukhom** (*jsoukhom@zps.org*), Zeeland West High School, Zeeland, Mich.

Students extract chemicals from invasive and native plants and apply them to lettuce seeds to analyze for allelopathy.



**POLYMERS 1B: Squeeze Them into General Chemistry (Chem)**

(Informal Education) L100C, Convention Center  
**Lynn W. Higgins** (*lynhiggins@gmail.com*), Polymer Ambassador, St. Louis, Mo.

Explore the FUNdamentals of polymeric materials (plastics, rubber, paints, fibers, and natural materials from DNA to cellulose). We'll share simple strategies for labs, demonstrations, lectures, and environmental learning. Free samples and handouts.

**Activities from Across the Earth System (Earth)**

(Elementary–High School) L100D, Convention Center  
**Roberta M. Johnson** (*rmjohnsn@ucar.edu*), **Sandra Henderson**, **Susan Foster**, **Lisa Gardiner**, **Becca Hatheway**, **Julia Genyuk**, and **Marina LaGrave**, University Corporation for Atmospheric Research, Boulder, Colo.

**David F. Mastie**, Retired Educator, Chelsea, Mich.

**Jennifer Bergman**, Curiosity Consulting, Atlanta, Ga.  
 Educators and scientists share their repertoire of hands-on, inquiry-based activities spanning the five “spheres” of Earth system science. Handouts.

**GreenSchools! (Env)**

(Elementary–High School) L100E, Convention Center  
**Al Stenstrup** (*astenstrup@forestfoundation.org*), American Forest Foundation, Washington, D.C.

**Laura Duffey** (*laura.duffey@dnr.state.mn.us*), Minnesota Dept. of Natural Resources, St. Paul

GreenSchools! is a new program of the American Forest Foundation that connects and builds on the success of Project Learning Tree (PLT) schools, PLT classroom activities, and GreenWorks! service learning grants. Get your school involved!

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**Forensic Science Is the Across-the-Curriculum Course (Gen)**

(Middle Level–High School) L100F, Convention Center

**Jacklyn Bonneau** ([bonneau@wpi.edu](mailto:bonneau@wpi.edu)), Massachusetts Academy of Math & Science, Worcester

Our curriculum addresses all the skills used by the forensic scientist—setting the scenario; collecting, analyzing, and modeling the data to predict the results; and reporting. Come see how it is done. Better yet, do it!

**Cloud Chambers for the Classroom (Phys)**

(Middle Level–College) L100H, Convention Center

**Julie Callahan** ([julie@cosmic.utah.edu](mailto:julie@cosmic.utah.edu)), University of Utah, Salt Lake City

Join ASPIRE and learn how to make a tabletop cloud chamber that students can use to observe cosmic-ray ionization tracks. Learn about the Telescope Array project and the study of ultra-high energy cosmic rays. Visit <http://aspire.cosmic-ray.org> for more information.



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

(General) L100I, Convention Center

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

**Juliana Texley** ([jtexley@att.net](mailto:jtexley@att.net)), Central Michigan University, Mount Pleasant

**James T. Biehle** ([biehlej@swbell.net](mailto:biehlej@swbell.net)), Inside/Out Architecture, Inc., Kirkwood, Mo.

**Sandra West Moody** ([sw04@txstate.edu](mailto:sw04@txstate.edu)), Texas State University—San Marcos

Presider: LaMoine L. Motz

Guide your school toward improvements in functionality, safety, and sustainability. Join the co-authors of *NSTA Guide to Planning School Science Facilities* (Second Edition) and learn the basics of science facility planning, design, and budgeting.

**2:00–3:00 PM Exhibitor Workshop**

**Active Physics® Third Edition: Newly Revised with More Content, More Math, More Physics (Phys)**

(Grades 9–12) M100 A–B, 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 students' work when they take ownership of real-world scientific challenges that matter to them. Leave with this practical hands-on activity that you can do in your classroom. We will also focus on how differentiated instruction can make physics accessible to those with higher math and reading levels, as well as your struggling students.

**2:00–3:15 PM Exhibitor Workshop**

**Inquiry Investigations™ Biotechnology Curriculum Modules and Kits (Gen)**

(Grades 7–10) 101E, Convention Center

Sponsor: Frey Scientific/School Specialty Science

**Ken Rainis, Carole Andreasson, Lisa Bowman, and Vince Zaccardi**, Frey Scientific/School Specialty Science, Naperville, Ill.

With our new Inquiry Investigations biotechnology series, students learn foundational analysis skills that help them understand basic science concepts. See how program software allows the preparation of web-based content, along with individualized assessment. Participants will compare both virtual and actual gel electrophoretic separations, conduct a DNA chip investigation, and receive a program resource CD and correlations.

**2:00–3:30 PM Exhibitor Workshop**

**Fun with Electricity and Circuits (Phys)**

(Grades 5–12) 101A, Convention Center

Sponsor: CPO Science/School Specialty Science

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

In this hands-on, inquiry-based workshop, participants use electric circuit kits and digital meters to explore the basic concepts of electricity. A thorough understanding of types of circuits, charge, voltage, current, and resistance is realized during the quest to discover how to build and analyze circuits that perform simple tasks.

**2:00–4:00 PM Meeting**

**Informal Science Networking Meeting**

*203 A/B, Convention Center*

**2:00–4:00 PM Exhibitor Workshop**

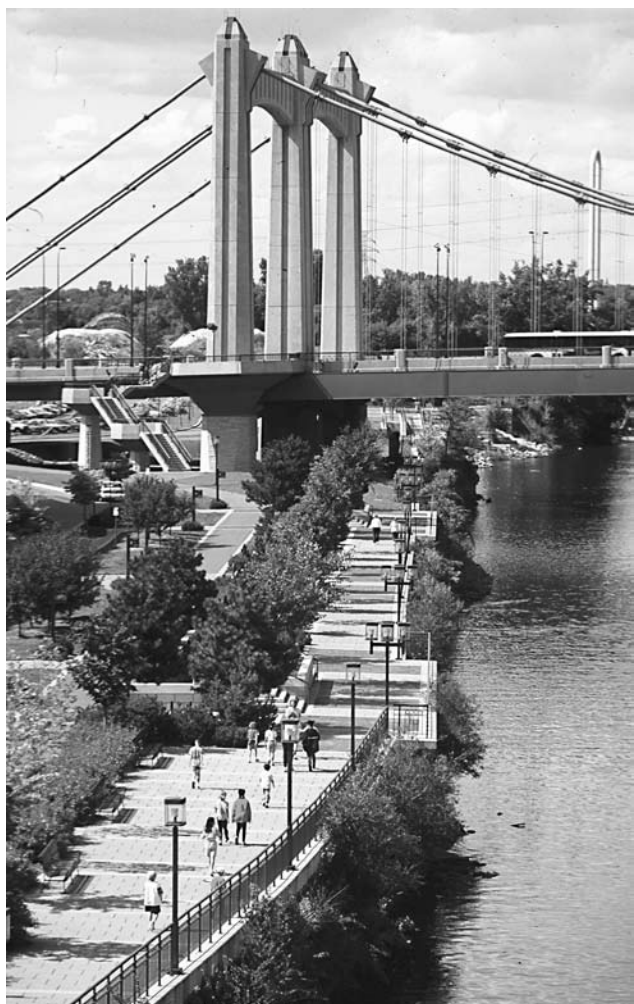
**FOSS Assessment: Valuing Academic Progress in Grades 3–6 (Gen)**

*(Grades 3–6) 101C, Convention Center*

Sponsor: Delta Education/School Specialty Science–FOSS

**Kathy J. Long, Larry Malone, and Brian T. Campbell**, 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. We will share benchmark assessments developed for FOSS modules, grades 3–6, and tools that teachers can use to analyze student work. Sample materials provided.



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**2:15–3:30 PM Exhibitor Workshops**

**Meet the Untamed Science Crew and Learn How to Make Your Own Science Videos! (Gen)**

*(Grades 6–12)*

*101F, Convention Center*

Sponsor: Pearson

**Danni Washington and Jonas Stenstrom**, Untamed Science, Oregon, Wis.

Join the Untamed Science crew as they discuss how the video revolution can be used to motivate today’s science students. The Ecogeeks will walk you through 10 tricks to make your own science films and show you ways to empower your students with filmmaking prowess. Finally, interested participants will be given the chance to join the Untamed Science initiative.

**Amplify Your Genetics Teaching Skills with Carolina’s New Inquiries in Science™ Biology Units (Bio)**

*(Grades 9–12)*

*101H, Convention Center*

Sponsor: Carolina Biological Supply Co.

**Kelly Branchaud**, Carolina Biological Supply Co., Burlington, N.C.

Want to crack the mystery of genetics for your students? Increase student achievement on difficult concepts such as nucleic acids, genetic inheritance, and biotechnology by using a guided inquiry approach. Carolina’s Inquiries in Science biology units provide hands-on activities to make teaching challenging topics effortless. Free teacher materials and door prizes!

**Use Dinah Zike’s Foldables® to Teach Science More Effectively (Gen)**

*(Grades K–12)*

*M100 F–H, Convention Center*

Sponsor: Dinah-Might Adventures, LP

**Dinah Zike** ([jeanne@dinah.com](mailto:jeanne@dinah.com)), Dinah-Might Adventures, LP, San Antonio, Tex.

Transform basic classroom materials into memorable and useful 3-D interactive graphic organizers. Learn from Dinah Zike, the creator of Foldables, as you make and take learning and assessment tools that are evidence based, kinesthetic, and integrative.

**STEMcart: Providing STEM Teachers with the Tools They Need (Gen)**

(Grades 6–10) *M100C, Convention Center*

Sponsor: Lab-Volt Systems, Inc.

**Barbara Selin** (*bselin@labvolt.com*), Lab-Volt Systems, Inc., Farmingdale, N.J.

See how easily the STEMcart equips you to integrate electronic data collection and graphing, wireless student reporting, and automatic student response systems to build true STEM units from the 268 cross-correlated activities provided. Without the tools, there will be no STEM!

**Using Math and Science as the New Literacy to Reach At-Risk Students (Earth)**

(Grades 6–8) *M100D, Convention Center*

Sponsor: National Geographic, The JASON Project

**Robin McDougal** (*robin.mcdougal@fcps.edu*), The JASON Project, Fairfax County Public Schools, Reston, Va.

Advances in technology have created an environment where children need to develop strong problem-solving, communication, and critical-thinking skills early in their educational careers. Educators and education advocates have developed a program to emphasize these important areas, not only to satisfy student learning and achievement but to break new ground with “at-risk” students.

**Building Inquiry with “A Human Approach” (Bio)**

(Grades 9–12) *M100E, Convention Center*

Sponsor: Kendall Hunt Publishing Co.

**Meridith Bruozas**, BSCS, Colorado Springs, Colo.

*BSCS Biology: A Human Approach* is designed to help students understand biology concepts through the use of inquiry-based activities and constructivist learning strategies. Students learn how asking questions, conducting experiments, gathering data, forming explanations, relating explanations to other applications, and communicating their explanations are valuable skills that help them evaluate science-related issues that are part of everyday life.

**2:30–4:00 PM Exhibitor Workshop**

**FOSS and DSM Kit Refurbishment/Materials Management (Gen)**

(Grades K–8) *101D, Convention Center*

Sponsor: Delta Education/School Specialty Science

**Kyle Gibson**, Delta Education/School Specialty Science, Nashua, N.H.

Science kit materials management is a significant challenge for many districts. Our Delta Science Resource Service (DSRS) is a cost-effective way to manage your science kit program. A teacher’s valuable time is better spent teaching science than chasing science materials, so join me to learn how DSRS can benefit your science program.

**3:00–4:30 PM Exhibitor Workshop**

**Science Gnus: The Stories of Science in the Stories of Scientists and Process Skills (Gen)**

(Grades K–6) *101B, Convention Center*

Sponsor: Delta Education/School Specialty Science

**John Cafarella**, Consultant, Canadensis, Pa.

Join me for fascinating stories of scientists, their discoveries, and process skills, plus the sometimes fine line between being famous (Alexander Graham Bell) or being forgotten by history (Antonio Meucci). We’ll replicate some famous experiments, too. Liberal doses of Science Gnus humor.



**3:30–4:30 PM Featured Presentation****✓ What Are They Thinking? Using Formative Assessment to Improve Opportunities to Learn***(General)**101 I&J, Convention Center*

**Page Keeley**, NSTA Retiring President, and Senior Program Director, Maine Mathematics and Science Alliance, Augusta

President: Jean Tushie, Program Coordinator, NSTA Minneapolis Area Conference, NSTA Director, High School, and Eden Prairie High School, Eden Prairie, Minn.

A substantive body of research indicates that formative assessment practices can significantly improve learning for all students. Yet the same research shows that the features of formative assessment that can close the achievement gap are missing from most classrooms. Furthermore, science educators face the significant challenge of dealing with the preconceptions students bring to the classroom that can pose barriers to learning. This session will address the need to change our assessment practices and increase our awareness of students' preconceptions in ways that can help build a bridge from where students are in their understanding to where we want them to be.

*Page Keeley is Senior Science Program Director at the Maine Mathematics and Science Alliance and 2008–2009 president of the National Science Teachers Association. She has authored several books on science formative assessment, including the popular Uncovering Student Ideas in Science series as well as Science Formative Assessments: 75 Practical Strategies for Linking Assessment, Instruction, and Learning.*

*As the PI of the NSF-funded Curriculum Topic Study project, Keeley developed a process for creating standards-based assessment probes that reveal commonly held ideas noted in the research literature. She consults with school districts, math-science partnership projects, and professional development programs throughout the U.S. in the areas of formative assessment, leadership, and research-based curriculum and instruction.*

**3:30–4:30 PM Presentations****SESSION 1****Bringing Alternative Energy Sources to the Classroom with Biodiesel (Chem)***(High School)**200A, Convention Center*

**Andrew J. Zureick** ([azureick@zoomtown.com](mailto:azureick@zoomtown.com)), William Henry Harrison High School, Harrison, Ohio

**Benson B. Flory** ([bflory@tvs.k12.oh.us](mailto:bflory@tvs.k12.oh.us)), Twin Valley South High School, West Alexandria, Ohio

Learn simple procedures for producing and characterizing biodiesel, with an emphasis on sharing and refining activities that are classroom ready.

**SESSION 2****NASA eClips for Elementary Students: Effective Ways to Engage Students in Science (Earth)***(General)**200B, Convention Center*

**Sharon Bowers** ([sharon.bowers@nianet.org](mailto:sharon.bowers@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 plans.

**SESSION 3****Teaching About the Rain Forests of the Oceans Using NOAA Resources (Gen)***(Elementary–High School)**200C, Convention Center*

**Kirk Beckendorf** ([kirk.beckendorf@noaa.gov](mailto:kirk.beckendorf@noaa.gov)), Einstein Fellow, NOAA, Washington, D.C.

Coral reefs are a barometer of our planet's health. Bring them to life with NOAA resources.

**SESSION 4****The Ideal Field Trip (Gen)***(Elementary–High School)**200D, Convention Center*

**Maija Sedzielarz** ([maija@smm.org](mailto:maija@smm.org)), Science Museum of Minnesota, St. Paul

**Steph Kappel** ([stephanie.kappel@ci.stpaul.mn.us](mailto:stephanie.kappel@ci.stpaul.mn.us)), Como Park Zoo and Conservatory, St. Paul, Minn.

**Ann Boekhoff**, Minnesota Children's Museum, St. Paul  
Constructing meaningful out-of-classroom experiences can be challenging. We'll share interdisciplinary activities and discuss key field trip components for building effective field trips.

SESSION 5

**Revising the NSTA Science Teacher Preparation Program Standards (Gen)**

(College/Supervision) 201 A/B, Convention Center

**David A. Wiley** (*david.wiley@lr.edu*), NSTA Director, Pre-service Teacher Preparation, and Lenoir-Rhyne University, Hickory, N.C.

**Erica M. Brownstein** (*ebrownst@capital.edu*), Capital University, Columbus, Ohio

**Kathy Norman** (*knorman@csusm.edu*), California State University, San Marcos

**Elizabeth Allan** (*eallan@uco.edu*), University of Central Oklahoma, Edmond

**Jon Pedersen** (*jep@unl.edu*), ASTE President, and University of Nebraska–Lincoln

**Francis Q. Eberle** (*feberle@nsta.org*), Executive Director, National Science Teachers Association, Arlington, Va.

We will examine the status and draft of the revisions of the NSTA Science Teacher Preparation Standards used in the accreditation process.

SESSION 6

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

(General) 205A, Convention Center

**Brian P. Short** (*exploravision@nsta.org*), Program Manager, Toshiba/NSTA ExploraVision, NSTA, Arlington, Va.

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

SESSION 7

**Exploring Contemporary Issues in Population Genetics with Formative Assessment (Bio)**

(General) L100B, Convention Center

**Aaron J. Sickel** (*ajsrhc@mizzou.edu*), University of Missouri, Columbia

Explore issues in population genetics and leave with formative assessment strategies to help you teach these topics.

SESSION 8

**Writing for Interactivity: Creating Online Content with ASPIRE (Gen)**

(General) M100J, Convention Center

**Julie Callahan** (*julie@cosmic.utah.edu*), University of Utah, Salt Lake City

Learn how to create nonlinear content for science education using standards and a modified instructional design model. Visit <http://aspire.cosmic-ray.org> for more information.

SESSION 9

**Building Partnerships to Improve Teacher Quality and Student Outcomes: The Cleveland Math and Science Partnership (Gen)**

(Supervision/Administration) M101B, Convention Center

**Bill Badders** (*baddersw@cmsdnet.net*), Cleveland (Ohio) Metropolitan School District

**Julie Gielow** (*julie.a.gielow@cmsdnet.net*), H. Barbara Booker K–8 Academy, Cleveland, Ohio

The Cleveland Metropolitan School District, with funding from the National Science Foundation, has developed and sustained a partnership with John Carroll University, Cleveland State University, Case Western Reserve University, and the Education Development Center focused on improving teacher quality through rigorous university coursework and a content-based mentoring program for middle and high school teachers. We'll share lessons learned on developing partnerships and the impact on teachers, university faculty, and students after seven years of the project.

**3:30–4:30 PM Workshops**

**Integrating Real-Time Weather Data into Middle School Meteorology (Earth)**

(Middle Level) 200E, Convention Center  
**Timothy M. Cooney** ([timothy.cooney@uni.edu](mailto:timothy.cooney@uni.edu)), University of Northern Iowa, Cedar Falls

Develop weather concepts in the middle school classroom using hands-on activities and real-time weather data from the STORM Project website.

★ **High-flying Fun: Linking Aerospace and Literature at the Elementary Level (Gen)**

(Preschool/Elementary) 200H, Convention Center  
**Judith A. Wehn** ([judith.wehn@wpafb.af.mil](mailto:judith.wehn@wpafb.af.mil)), National Museum of the U.S. Air Force, Wright-Patterson Air Force Base, Ohio

**Diana M. Hunn** ([diana.hunn@notes.udayton.edu](mailto:diana.hunn@notes.udayton.edu)), University of Dayton, Ohio

From the Wright brothers to the Berlin candy bomber, stories of aviation come alive through hands-on adventures linking aerospace science and children’s literature.

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

(Middle Level/Informal Education) 200I, Convention Center  
**Roberta M. Johnson** ([rmjohnsn@ucar.edu](mailto:rmjohnsn@ucar.edu)), **Sandra Henderson**, **Susan Foster**, **Lisa Gardiner**, **Becca Hatheway**, **Julia Genyuk**, and **Marina LaGrave**, University Corporation for Atmospheric Research, Boulder, Colo.

**David F. Mastie**, Retired Educator, Chelsea, Mich.  
**Jennifer Bergman**, Curiosity Consulting, Atlanta, Ga.  
 How is Earth changing as climate warms? Can we stop it? Can we adapt? Help students develop critical-thinking skills, science understanding, and global-warming solutions. Handouts provided!





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**Polymers: New Twists on Old Favorites (Chem)**

(Middle Level–High School/Informal) L100C, Convention Center  
**Debbie Goodwin** (*nywin@hotmail.com*), Chillicothe High School, Chillicothe, Mo.

**Andrew G. Nydam** (*andrewnydam@hotmail.com*), Olympia High School, Olympia, Wash.

Add more scientific processes to traditional “fun” polymer labs to make them inquiry based. Complete handouts.

**Magical Illusions Workshop for K–8 Teachers (Gen)**

(Preschool–Middle Level/Informal) L100D, Convention Center  
**Alan J. McCormack** (*amccorma@mail.sdsu.edu*), NSTA President-Elect, and San Diego State University, San Diego, Calif.

Storylines, discrepant events, and magic develop concepts in both physical and biological sciences, pique children’s interest and imagination, and build creative and logical-thinking skills.

**Investigating the Great Lakes (Env)**

(Informal Education) L100E, Convention Center

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

Engage your students in active hands-on learning about the Great Lakes, the source of 95% of U.S. freshwater.

**Integrating PhET’s Web-based Interactive Simulations in Inquiry-based Lessons (Gen)**

(Middle Level–College) L100F, Convention Center

**Patricia Loeblein** (*ploeblei@jeffco.k12.co.us*) and **Stephanie V. Chasteen** (*stephanie.chasteen@colorado.edu*), University of Colorado at Boulder

The PhET Interactive Simulations Project (<http://phet.colorado.edu>) has developed over 80 free, research-based simulations for teaching and learning introductory physics, chemistry, biology, and earth sciences.

**Sharpen and Shape Science Instruction with Scaffolded Inquiry (Gen)**

(General) L100G, Convention Center

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

Scaffolded inquiry (directed to guided to full) provides essential support to help students construct the knowledge and skills needed to build science literacy.

**Beyond Introductory Circuits: Electronics (Phys)**  
(High School) L100H, Convention Center

**Aaron Osowiecki** (*aosowiecki@gmail.com*), Boston Latin School, Boston, Mass.

Learn how to teach students about modern electronics (diodes, transistors, etc.) with computer probes. At the end of the unit, students build and analyze a simple electronic amplifier.



**NSTA Press Session: The Architects Have Started Without Me...What Do I Do Now? (Science Facilities 102) (Gen)**

(General) L100I, Convention Center

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

**Juliana Texley** (*jtexley@att.net*), Central Michigan University, Mount Pleasant

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

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

Presenter: LaMoine L. Motz

Is your district designing new science facilities but you are not involved? You need to get involved before it is too late! In this advanced course on science facility planning and design, the co-authors of *NSTA Guide to Planning School Science Facilities* (Second Edition) will provide detailed information and many examples of functional and flexible science facilities for inquiry/project-based science. Budgeting, working with an architect, space requirements, flexibility, safety, and spatial adjacencies will be discussed.

**3:30–4:30 PM Exhibitor Workshop**

**Active Chemistry: Your Students Will React to Chemistry Like You Have Never Seen Before**

(Chem)

(Grades 9–12) M100 A–B, 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. 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 can assist you with differentiated instruction in the classroom.



**4:00–5:15 PM Exhibitor Workshops****Inquiry Investigations™ Forensics Science Curriculum Module (Gen)***(Grades 7–10) 101E, Convention Center*

Sponsor: Frey Scientific/School Specialty Science

**Ken Rainis, Carole Andreasson, Lisa Bowman, and Vince Zaccardi**, Frey Scientific/School Specialty Science, Naperville, Ill.

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

**Wow! Realistic Laboratory Simulations for the Entire High School Science Curriculum You Have to See to Believe! (Gen)***(Grades 9–12) 101F, Convention Center*

Sponsor: Pearson

**Brian Woodfield**, Brigham Young University, Provo, Utah

Come see a one-of-a-kind demonstration of these amazingly realistic laboratory simulations for chemistry, physics, and physical science, and our newest simulations for biology. Dr. Woodfield will demo a variety of innovative labs and show how each helps students develop critical-thinking skills.

**Living by Chemistry: What Is the Shape of That Smell? (Chem)***(Grades 9–11) 101G, Convention Center*

Sponsor: Key Curriculum Press

**Jeffrey Dowling** ([jdowling@keypress.com](mailto:jdowling@keypress.com)), Key Curriculum Press, Emeryville, Calif.

Teach rigorous chemistry with guided inquiry. Teaching students about molecules through a smell context makes more advanced chemistry concepts easier to grasp. Explore activities that help students understand molecular structure and other core chemistry concepts and receive lesson materials from the Living by Chemistry curriculum.

**Hands-On Science with Classroom Critters (Bio)***(Grades K–12) 101H, Convention Center*

Sponsor: Carolina Biological Supply Co.

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Here's a sure-fire boost to your class—live organisms. Whether you use hands-on curricula (e.g., STC®, FOSS®) or develop your own lessons, animals broaden students'

inquiry-based explorations and increase their interest in science. Participate in fun, simple hands-on activities, pick up care and handling information, and receive free product samples and literature.

**Misconception Mania: Exciting and Engaging Ways to Address Common K–8 Misunderstandings (Gen)***(Grades K–8) M100 F–H, Convention Center*

Sponsor: Houghton Mifflin Harcourt

**Michael DiSpezio**, Science Writer and Educational Consultant, North Falmouth, Mass.

Join Houghton Mifflin Harcourt and Michael DiSpezio for an entertaining and eye-opening survey of common misconceptions in science. Not only will participants expand their awareness of science myths through game show-style interactions, they'll engage in a variety of easy-to-repeat and inexpensive activities that address misunderstandings about gravity, electricity, sound, and light.

**It's Easy to Go Digital! (Gen)***(Grades 4–College) M100C, Convention Center*

Sponsor: Swift Optical Instruments, Inc.

**David Doty and Cynthia Syverson-Mercer**, Swift Optical Instruments, Inc., San Antonio, Tex.

Make science come alive by turning your classroom into a digital classroom. We'll show you simple and affordable techniques using microscopes and digital imaging products that you can use every day. Learn how easy it is to use software and make it work with interactive whiteboards and other technology.

**Evidence for the Ice Ages: An Inquiry Approach (Earth)***(Grades 9–12) M100E, Convention Center*

Sponsor: Kendall Hunt Publishing Co.

**Meridith Bruozas**, BSCS, Colorado Springs, Colo.

*BSCS Science: An Inquiry Approach* is a three-year multidisciplinary program for high school that is based on inquiry-based activities and constructivist learning strategies. Students learn content by asking questions, conducting experiments, gathering data, and forming explanations. Participate in activities designed to help students explain the evidence for ice ages.

### 4:00–5:30 PM Exhibitor Workshop

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

(Grades 5–12)

101A, Convention Center

Sponsor: CPO Science/School Specialty Science

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

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



—Meet Minneapolis™ Photo

### 5:00–6:45 PM Social

#### Social Gathering with The Physics Force (M-1)

(Tickets Required; \$10)

Grand Salons E–G, Hilton

Sponsored by ADC and the ADC Foundation



Enjoy the company of fellow science teachers as you have a light snack and delight in the performance of The Physics Force (Hank Ryan, Jack Netland, Dan Dahlberg, Fred Orsted, Aaron Pinski, and Jay Dornfeld).

“The Force” began in 1984 by building demonstrations and refining programs designed to be both entertaining and educational. Over the next few years they developed

six unique programs around heat, optics, waves, fluids, mechanics, electricity, and magnetism. You are sure to be fascinated by their “bigger is better” style.

Over the last two decades The Force has been featured on *Newton’s Apple*, performed at the Minnesota State Fair and Disney World’s Epcot Center, and has traveled three times to Germany as guests of the *Knoff-Hoff-Show*. For more information on The Physics Force, please visit [www.physicsforce.com](http://www.physicsforce.com).

Meet friends for supper after the performance at one of the many restaurants nearby. The Hilton is within easy walking distance of the other conference hotels. However, there will be one bus shuttling continuously between the conference hotels for those who need this transportation. The last bus will depart the Hilton at 7:00 PM.

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

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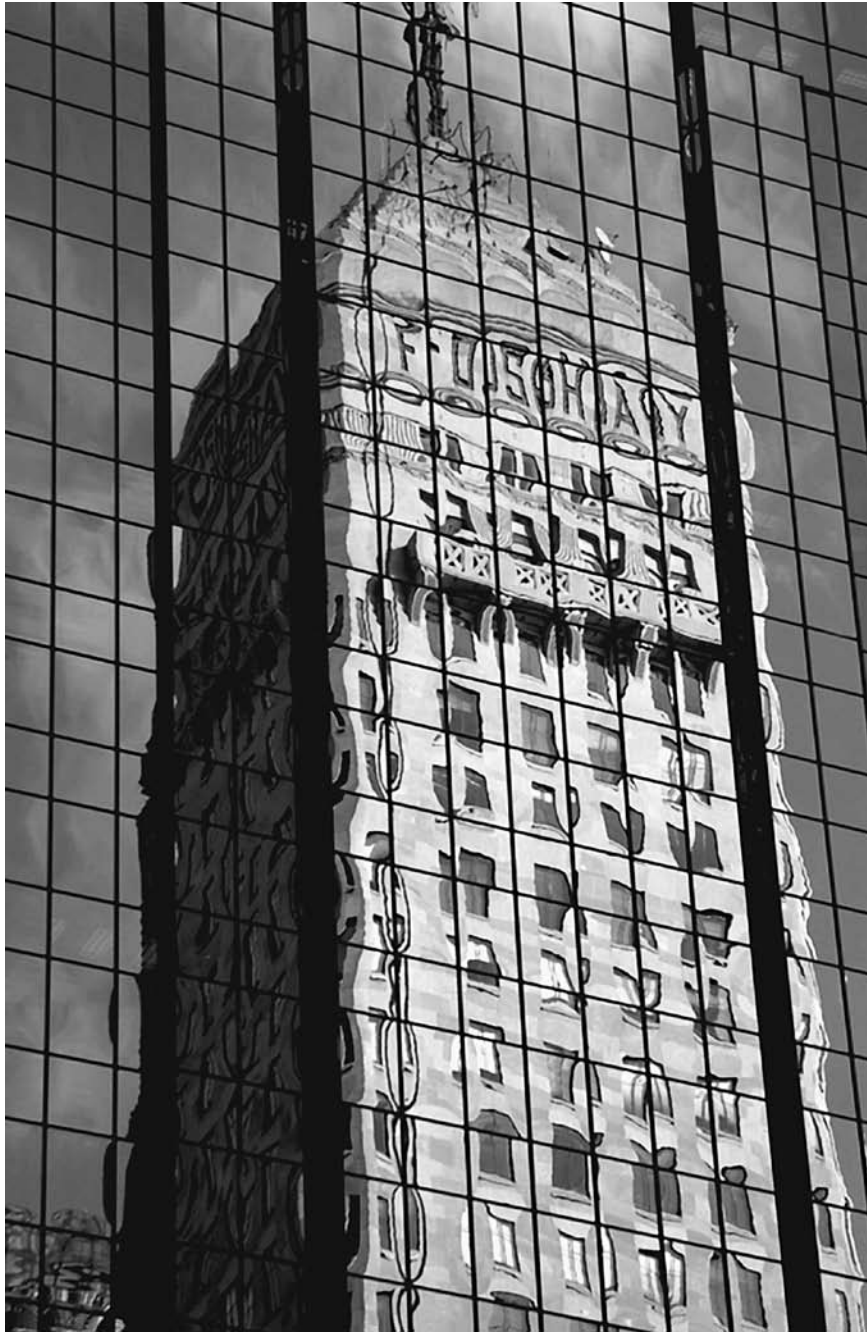


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**7:00–9:00 AM Meeting**

**NMLSTA Board Meeting**

*(NMLSTA Members Only)*

*Boardroom 3, Hilton*



**8:00–9:00 AM Presentations**

**SESSION 1**

**Integrating Technology into Outdoor Education**

**(Gen)**

*(Elementary–Middle Level)*

*200A, Convention Center*

**Lisa I. Koch** ([kochl@district279.org](mailto:kochl@district279.org)), **Mary Moran** ([mo-ranm@district279.org](mailto:mo-ranm@district279.org)), and **Laurie Toll**, Weaver Lake Elementary School, Maple Grove, Minn.

We will look at common technology tools like digital cameras and temperature probes and then move on to some of the newer Web 2.0 tools that can be used in conjunction with an outdoor science education curriculum. See how other teachers have transformed tried-and-true outdoor education activities into exciting collaborative experiences for students.

**SESSION 2**

**The Stories That Rocks Tell**

**(Earth)**

*(Middle Level–High School)*

*200B, Convention Center*

**Mary C. Colson** ([mcolson@moorehead.k12.mn.us](mailto:mcolson@moorehead.k12.mn.us)), Horizon Middle School, Moorhead, Minn.

Explore strategies for teaching how we know what happened in Earth's past. Take home lessons, a lab, geologic puzzles, and a rummy-like card game.

**SESSION 3**

**City of Materials: Connecting Science to the “Stuff” in Kids’ Lives**

**(Gen)**

*(Middle Level)*

*200F, Convention Center*

**Debbie Goodwin** ([nywin@hotmail.com](mailto:nywin@hotmail.com)), Chillicothe High School, Chillicothe, Mo.

**Andrew G. Nydam** ([andrewnydam@hotmail.com](mailto:andrewnydam@hotmail.com)), Olympia High School, Olympia, Wash.

Discover a free website for middle school students that connects science and engineering to their everyday world. We'll share correlating demonstrations and labs for teachers. Handouts.

**SESSION 4**



**Strengthening High School Environmental Science Courses: Wisconsin’s Approach**

**(Env)**

*(High School)*

*200I, Convention Center*

**Sunshine R. Buchholz** ([sbuchhol@uwsp.edu](mailto:sbuchhol@uwsp.edu)), University of Wisconsin, Stevens Point

Discover how Wisconsin teachers are increasing environmental literacy in their high schools. The Wisconsin Environmental Science Course Framework, digital resource library, and sample activities will be showcased.

**SESSION 5**



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

**(Gen)**

*(Elementary)*

*200J, Convention Center*

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

Explore the powerful synergy that develops when investigative processes, science knowledge, and science literacy skills are developed side-by-side in the K–6 classroom. We'll look at top-quality books, related resources, and investigative opportunities that follow naturally from these resources.

**SESSION 6**



**Scenario-based Science Assessments in the Classroom**

**(Gen)**

*(General)*

*201 A/B, Convention Center*

**Dawn Cameron** ([dawn.cameron@state.mn.us](mailto:dawn.cameron@state.mn.us)) and **Jim Wood** ([jim.wood@state.mn.us](mailto:jim.wood@state.mn.us)), Minnesota Dept. of Education, Roseville

President: John Olson, Minnesota Dept. of Education, Roseville

Scenario-based assessments are one way to monitor development of student knowledge, understanding, and abilities. They also provide opportunities for colleagues to work together within and across disciplines and grade levels.

**SESSION 7**

**Before and After Retirement: Practicalities and Possibilities (Gen)**

(General) 205A, Convention Center

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

The NSTA Retired Advisory Board invites you to this information-sharing session. Join your fellow active colleagues and share ideas about staying active in and out of the profession.

**SESSION 8**

**Interventions and Reassessments (Gen)**

(General) 205B, Convention Center

**Barbara Jones** ([barbara\\_jones@apsva.us](mailto:barbara_jones@apsva.us)), Arlington (Va.) Public Schools

Consider implementing a unique plan to offer interventions and reassessments on science objectives. Teach students to assess their strengths and identify targets to work on.

**SESSION 9**

**AAPT Session: Norton Nabs a Nu (Phys)**

(General) L100A, Convention Center

**Paul Nienaber** ([pnienabe@smumn.edu](mailto:pnienabe@smumn.edu)), Saint Mary's University of Minnesota, Winona

Explore some important moments in the history of neutrino physics using this light-hearted approach.

**SESSION 10**

**NABT Session: Using Free Online Games to Teach Science Process and Science Content (Bio)**

(Middle Level) L100B, Convention Center

**Leslie Miller** ([lmml@rice.edu](mailto:lmml@rice.edu)), Rice University, Houston, Tex.

**Lynn Lauterbach** ([lynnlauterbach@gmail.com](mailto:lynnlauterbach@gmail.com)), Loveland, Colo.

These free online games have proven effective in reinforcing the scientific method while they excite students about science.

# Age is just a number. Life is what you make of it.



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

## Before and After Retirement: Practicalities and Possibilities

Friday, October 30, 2009  
8:00–9:00 AM  
Minneapolis Convention Center  
Room 205A

For information on the Retired Members Advisory Board, contact Marily DeWall, chair, at [mdewall@cox.net](mailto:mdewall@cox.net).

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**SESSION 11****Become an Einstein Fellow! (Gen)**

(Elementary–High School) *M100I, Convention Center*  
**Kathryn Culbertson** (*culbertsonk@triangle-coalition.org*), Triangle Coalition for Science and Technology Education, Arlington, Va.

This career-altering opportunity is for YOU. Become an Einstein Fellow and spend a school year living in Washington, D.C., working on national education programs.

**SESSION 12** (two presentations)

(Middle Level–High School) *M100J, Convention Center*  
 Presider: **Maurice Godfrey** (*mgodfrey@unmc.edu*), University of Nebraska Medical Center, Omaha

**Impact of an Eighth-Grade Science Program on College and Career Choices (Gen)**

**Roxanna L. Jokela** (*rojokela@unmc.edu*), **Ann Kraft** (*akraft@unmc.edu*), and **Maurice Godfrey** (*mgodfrey@unmc.edu*), University of Nebraska Medical Center, Omaha

For 17 years the University of Nebraska Medical Center and its office for rural health education have sponsored an eighth-grade health/science meet. We'll look at its impact on students' college and career choices.

**Teacher Text (Gen)**

**Melissa A. Swenson** (*mawenson@delano.k12.mn.us*), Delano High School, Delano, Minn.

Texting may seem like a huge distraction for students, but could teachers use it to their advantage? Learn more about the potential benefits of texting!

**SESSION 13****Student-created Excel Models to Test Environmental Claims (Env)**

(High School–College) *M101A, Convention Center*  
**Richard Lahti** (*lahtiri@mnstate.edu*), Minnesota State University, Moorhead

Some “green” ideas garner praise but fail to deliver positive results. I'll share examples of student models and discuss implications for teaching nature of science.

**SESSION 14****How Can You Attract Individuals to Science Teaching? (Gen)**

(College) *M101B, Convention Center*  
**Janet L. Struble** (*janet.struble@utoledo.edu*), The University of Toledo, Ohio

Presider: **Mikell Lynne Hedley** (*mikell.hedley@utoledo.edu*), The University of Toledo, Ohio

UT3 (UToledo.UTeach.UTouch the Future) recruits individuals to become science teachers. We'll share recruitment strategies and five years of data. Handouts.

**8:00–9:00 AM Workshops****Global Connections: Forests of the World (Env)**

(General) *200C, Convention Center*  
**Jackie Stallard** (*jstallard@forestfoundation.org*) and **Al Stenstrup** (*astenstrup@forestfoundation.org*), American Forest Foundation, Washington, D.C.

**Laura Duffey** (*laura.duffey@dnr.state.mn.us*), Minnesota Dept. of Natural Resources, St. Paul

Explore the changing forests of the world with Project Learning Tree's new secondary module—Global Connections: Forest of the World. Take home the module and poster sets.

**Magnetism Activities, Earth's Magnetism, and Space Weather from Windows to the Universe (Earth)**

(Informal Education) *200D, Convention Center*  
**Roberta M. Johnson** (*rmjohnsn@ucar.edu*), **Sandra Henderson**, **Susan Foster**, **Lisa Gardiner**, **Becca Hatheway**, **Julia Genyuk**, and **Marina LaGrave**, University Corporation for Atmospheric Research, Boulder, Colo.

**David F. Mastie**, Retired Educator, Chelsea, Mich.

**Jennifer Bergman**, Curiosity Consulting, Atlanta, Ga.

We will share tested hands-on activities and resources about the basics of magnetism, Earth's magnetic field and poles, and space weather. Handouts.

**Energy Concepts Measure Up (Gen)**  
(Preschool/Elementary) 200E, Convention Center  
**Rebecca Lamb** ([info@need.org](mailto:info@need.org)), The NEED Project, Manassas, Va.

These engaging, hands-on activities introduce scientific measurement while exploring basic energy concepts such as motion, heat, light, sound, and growth.

**Sock It to Me! Chemistry Is Everywhere (Chem)**  
(Informal Education) 200H, Convention Center  
**Edmund J. Escudero** ([escudero\\_e@summitcds.org](mailto:escudero_e@summitcds.org)), Summit Country Day School, Cincinnati, Ohio  
A pair of Wigwam's Ultimax® socks opens the door to a lesson on hydrophilic and hydrophobic polymers.

**ACS Session One: What's Matter Made Of? (Chem)**  
(High School) L100C, Convention Center  
**Jerry A. Bell** ([j\\_bell@acs.org](mailto:j_bell@acs.org)), American Chemical Society, Washington, D.C.  
Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter.

**PSD Session: Evaporation, Condensation, and the Structure of the Water Molecule (Chem)**  
(Elementary–Middle Level) L100D, Convention Center  
**James H. Kessler** ([j\\_kessler@acs.org](mailto:j_kessler@acs.org)), American Chemical Society, Washington, D.C.  
Investigate the interaction of energy and water molecules to better understand evaporation and condensation on the molecular level. Take home a handout of all activities.



**Teaching AP Biology with Games and Models (Bio)**  
(High School) L100E, Convention Center  
**Kristen R. Dotti** ([kristen.dotti@catalystlearningcurricula.com](mailto:kristen.dotti@catalystlearningcurricula.com)), Christ School, Arden, N.C.

Water noodle operons, human protein chains, carrying capacity scurry games—could this be AP science? This hands-on learning has rigorous AP content.

**Lotions, Potions, and Scrubs: Polymer Science in Cosmetics (Chem)**  
(High School) L100F, Convention Center  
**Sherri C. Rukes**, Libertyville High School, Libertyville, Ill.

Learn how to make various cosmetic products and explore the polymer science behind them. Take home a CD and samples.

**Scale the Universe (Earth)**  
(Middle Level–High School) L100G, Convention Center  
**Rae McEntyre** ([rae.mcentyre@education.ky.gov](mailto:rae.mcentyre@education.ky.gov)), Kentucky Dept. of Education, Frankfort  
How big is big? How small is small? Let's "scale the universe" as we investigate size and scale. Free NASA materials!

**Modeling the Spectrum (Phys)**  
(Middle Level–High School) L100H, Convention Center  
**Christine Anne Royce** ([caroyce@aol.com](mailto:caroyce@aol.com)), NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.  
Explore a unit that examines the EM Spectrum, from pre- to post- assessment activities.



**NSTA Press Session: Stop Faking It! Finally Understand AIR, WATER, and WEATHER So You Can Teach It (Earth)**  
(Elementary–Middle Level) L100I, Convention Center  
**Bill Robertson** ([wrobert9@ix.netcom.com](mailto:wrobert9@ix.netcom.com)), NSTA Press Author, Woodland Park, Colo.

Tired of teaching a subject you don't fully understand yourself? Did you know that hot air doesn't rise by itself and that gases don't necessarily expand when you heat them? Join the author of the *Stop Faking It!* books for a hands-on workshop that explains why.



**8:00–9:00 AM Exhibitor Workshop**

**Tough Topics in Physics and Physical Science: Motion (Phys)**

(Grades 6–12) *M100 A–B, Convention Center*

Sponsor: PASCO Scientific

**Len Sharp**, LeMoyne College, Syracuse, N.Y.

This session explores PASCO’s state-of-the-art science teaching solutions for one of the toughest aspects of high school physics and middle school physical science investigations—motion. Participate in standards-based probeware lab activities from PASCO’s new physics curriculum and be one of the first to experience how the SPARK Science Learning System can enhance your teaching practice and improve student understanding of your core topics.

**8:00–9:15 AM Exhibitor Workshops**

**Put Some Spark into Science Investigations (Gen)**

(Grades 1–5) *101B, Convention Center*

Sponsor: Delta Education/School Specialty Science

**Tom Graika**, Consultant, Lemont, Ill.

**Johanna Strange**, Consultant, Richmond, Ky.

Using the science topics of magnetism and electricity, learn how to turn guided investigations into challenge investigations and open inquiries. These strategies will help your students become independent thinkers and inquirers. Participants will receive a complimentary resource packet and related Delta products.

Grasshopper

**New Exhibitor**

Owl Pellet  
Fetal Pig  
Earthworm  
Lamprey  
Turtle  
Lizard  
Crab  
Cat  
Kidney  
Perch  
Pigeon  
Rabbit  
Snake  
Squid  
Starfish  
Shark  
Frog  
Eye  
Rat  
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**Get Charged Up with Educational Innovations!**

**(Phys)**

(Grades 3–9)

101D, Convention Center

Sponsor: Educational Innovations, Inc.

**EI Staff** ([info@teachersource.com](mailto:info@teachersource.com))

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

**Light Up Your Classroom with Nobel Prize–winning Science**

**(Bio)**

(Grades 6–College)

101E, Convention Center

Sponsor: Bio-Rad Laboratories

**Essy Levy** ([biotechnology\\_explorer@bio-rad.com](mailto:biotechnology_explorer@bio-rad.com)), Bio-Rad Laboratories, Hercules, Calif.

What happens when you cross a jellyfish with *E. coli*? You can create your own pGLO green glowing bacteria! By the end of this workshop you'll become an actual genetic engineer—modifying genes and transforming bacteria with the Green Fluorescent Protein (GFP) (AP Biology Lab 6). Take home a free UV pen light and lab prep DVD.

**Reasons Why Teaching Earth Science Will Save Your Life!**

**(Earth)**

(Grades 6–8)

101F, Convention Center

Sponsor: Pearson

**Michael Wysession**, Washington University in St. Louis, Mo.

Earth science is rapidly becoming the most critical science for humanity. Many of the major challenges we face are based in earth science: resource availability, energy sources, dwindling water supplies, global climate change, and increased risks from natural hazards due to human activities. In this presentation, Professor Wysession will show how the history of humanity has been drastically shaped by geological forces and events and how our survival, as individuals and nations, hinges upon our understanding of these forces.

**Digital Microscopy in the Classroom**

**(Bio)**

(Grades 6–12)

101G, Convention Center

Sponsor: Science Kit & Boreal Labs

**Tom Schaefer**, Waukesha West High School, Waukesha, Wis.

Explore activities to learn how to use digital microscopy in the classroom. Find out how to incorporate these activities to enhance your laboratory experiences in biology, chemistry, and the physical sciences.

**AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs**

**(Bio)**

(Grades 9–12)

101H, Convention Center

Sponsor: Carolina Biological Supply Co.

**Carolina Teaching Partner**

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

**Flinn Scientific's Teaching Chemistry™ eLearning Video Series**

**(Chem)**

(Grades 9–12)

M100 F–H, Convention Center

Sponsor: Flinn Scientific, Inc.

**Irene Cesa**, Flinn Scientific, Inc., Batavia, Ill.

Flinn Scientific has developed an exciting new professional development video program for high school chemistry teachers. Imagine the opportunity to watch 20 award-winning master teachers share their favorite and most effective demonstrations, experiments, and chemistry lab activities. You can! Please join us as we present interactive demonstrations, show video clips, and discuss the features and benefits of our new and very affordable *Teaching Chemistry* video series.

**Detecting Radiation in Our Radioactive World**

**(Gen)**

(Grades 5–12)

M100D, Convention Center

Sponsor: American Nuclear Society

**Toni Bishop**, American Nuclear Society, La Grange Park, Ill.

Discover how to use Geiger counters to detect radioactivity and teach the principles of nuclear science. Expand your knowledge of the ways nuclear technology is applied in the everyday life of our society.

**Teaching Chemistry Without Hearing “When Am I Ever Going to Need to Know This?”**

**(Chem)**

(Grades 9–12)

M100E, Convention Center

Sponsor: Kendall Hunt Publishing Co.

**Kelly Deters** ([kellymdeters@gmail.com](mailto:kellymdeters@gmail.com)), Shawnee Heights High School, Tecumseh, Kans.

Learn how a rigorous, thematic chemistry curriculum increases student motivation and attitude, inquiry skills, and content knowledge. Based on chemistry education research and efficient instructional design principles, this chemistry program was developed by a classroom teacher to interest her students while maintaining high academic standards.

# Visit the NSTA Avenue, #511 in the Exhibit Hall.

Pick up your “NSTA Roadmap”  
to guide you through member benefits, products, services,  
programs and partners. We’re offering a great gift!

## Share with Others

- **NSTA Membership.** Access high-quality educational materials and professional development opportunities. Pick up a sample journal, your district ribbon, and a free lapel pin. If you’re a student, ask about Student Chapters. If you’d like to volunteer, submit your name for nomination to become a candidate on a committee, review board, or the NSTA Board of Directors and Council.

## Enhance Your Skills

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

## Expand Your Mind

- **NSTA Press®** publishes 25 new titles each year 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.

## 8:00–9:30 AM Exhibitor Workshops

### Genetics: Crazy Traits and Adaptation Survivor (Bio)

(Grades 5–12) 101A, Convention Center

Sponsor: CPO Science/School Specialty Science

**Scott Eddleman**, CPO Science/School Specialty Science, Nashua, N.H.

Students learn new vocabulary when they study genetics, such as traits, alleles, and genotypes. How can you predict the traits of offspring when you know the genetic makeup of the parents? These ideas will come alive as you create crazy creatures with a unique kit and study the resulting population.

### K–8 Science with Vernier (Gen)

(Grades K–8) M100C, Convention Center

Sponsor: Vernier Software & Technology

**David Braunschweig** ([info@vernier.com](mailto:info@vernier.com)), Vernier Software & Technology, Beaverton, Ore.

Learn how easy it is for your students to collect temperature data, heart rates, magnetic field data, and more during this demonstration workshop. Try experiments from our popular *Elementary Science Demonstration with Vernier* and *Middle School Science with Vernier* lab books using LabQuest or our low-cost line of Go! products on a computer.

## 8:00–10:00 AM Exhibitor Workshop

### Introducing Science Notebooks with FOSS K–6 (Gen)

(Grades K–6) 101C, Convention Center

Sponsor: Delta Education/School Specialty Science–FOSS

**Ellen Mintz**, Consultant, Charleston, S.C.

**Brian T. Campbell**, **Kimi Hosoume**, and **Natalie Yakushiji**, Lawrence Hall of Science, University of California, Berkeley

**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.

## 9:00–10:30 AM Breakfast

### Preservice and New Teachers Breakfast (M-2)

(Tickets Required; \$12)

Marquette IX, Hilton

Sponsored by Kendall Hunt Publishing Co.

New to the profession? Join us for this lively and interactive function where you'll learn about all the NSTA resources at your fingertips for your science classroom, your career, and your own content knowledge. Enjoy a complete breakfast (generously sponsored by Kendall Hunt Publishing Company) while networking with other teachers new to the profession.

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

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

## 9:00 AM–12 Noon Short Course

### Decisions and Dilemmas: Using Writing-to-Learn Activities to Increase Ecological Literacy (SC-4)

(High School–College)

Marquette VIII, Hilton

Tickets Required; \$25

**Meena M. Balgopal** ([meena.balgopal@colostate.edu](mailto:meena.balgopal@colostate.edu)), Colorado State University, Fort Collins

**Alison Wallace** ([wallacea@mnstate.edu](mailto:wallacea@mnstate.edu)), **Steve Lindaas** ([lindaas@mnstate.edu](mailto:lindaas@mnstate.edu)), **Linda Winkler** ([winkler@mnstate.edu](mailto:winkler@mnstate.edu)), and **Ellen Brisch**, Minnesota State University, Moorhead

**Steve Dahlberg** ([stevendahlberg@yahoo.com](mailto:stevendahlberg@yahoo.com)), White Earth Tribal Community College, Mahnomon, Minn.

For description, see page 33.

## 9:00 AM–5:00 AM Exhibits

Halls B&C, Convention Center

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



**9:30–10:00 AM Presentation**

**SESSION 1**

**Green Chemistry at Edgewood College (Chem)**

(High School–College) M101A, Convention Center

**James G. Goll** ([jgoll@edgewood.edu](mailto:jgoll@edgewood.edu)), Edgewood College, Madison, Wis.

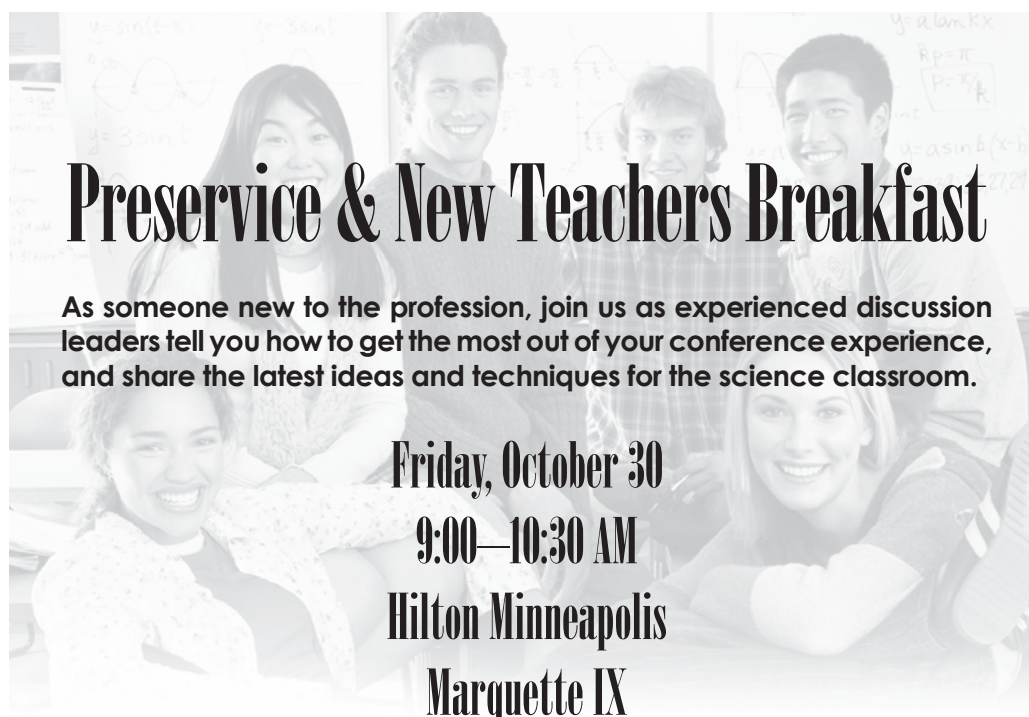
Learn how “green chemistry” principles are incorporated in the curriculum at Edgewood College.

**9:30–10:30 AM Meeting**

**District X Meeting with NSTA Director**

203 A/B, Convention Center

Leaders from Indiana, Michigan, and Ohio will meet to discuss the 2009 NSTA Summer Congress and other state issues. All District X NSTA members are invited.



# Preservice & New Teachers Breakfast

As someone new to the profession, join us as experienced discussion leaders tell you how to get the most out of your conference experience, and share the latest ideas and techniques for the science classroom.

**Friday, October 30**  
**9:00–10:30 AM**  
**Hilton Minneapolis**  
**Marquette IX**

Tickets Required (M-2; \$12 on-site) and, if still available, must be purchased at the Registration Area by 12 Noon on **Thursday, October 29**.

*This event is generously sponsored by Kendall Hunt Publishing Company.*



9:30–10:30 AM **Featured Presentation**



**Building a Greener World: Indigenous Strategies for a Sustainable Future (Gen)**

(General)

101 I&J, Convention Center



**Winona LaDuke** ([info@speakout-now.org](mailto:info@speakout-now.org)), Executive Director, Honor the Earth, and Founding Director, White Earth Land Recovery Project, Minneapolis, Minn.

Presider: Bob Shaw, Strand Leader, NSTA Minneapolis Area Conference, and Minnesota Dept. of Education, Duluth

Native American leader Winona LaDuke (Mississippi Band Anishinaabeg) lives and works on the White Earth Reservation but also works on a national level to advocate, raise public support, and create funding for frontline native environmental groups. She draws on this experience to bring her timely message on sustainability and the Greening of America to audiences worldwide.

*Winona LaDuke (Anishinaabe) is an internationally respected Native American and environmental activist. She began speaking about these issues at an early age, addressing the United Nations at the age of 18, and she continues to devote herself to Native American and environmental concerns as well as political and women's issues.*

*The Harvard-educated activist is the founding director of the White Earth Land Recovery Project, the co-chair of the Indigenous Women's Network, and the executive director of Honor the Earth, where she provides vision and leadership for the organization's re-granting program and its strategic initiatives.*

*In addition to numerous articles, LaDuke is the author of Last Standing Woman (fiction), All Our Relations (nonfiction), In the Sugarbush (children's nonfiction), and The Winona LaDuke Reader. Her most recent book is Recovering the Sacred: The Power of Naming and Claiming (South End Press).*

9:30–10:30 AM **Presentations**

**SESSION 1**

**Teaching Earth Science with Google Earth (Earth)**  
(Middle Level–High School) 200B, Convention Center

**Kathleen M. Sherman-Morris** ([kms5@msstate.edu](mailto:kms5@msstate.edu)) and **John Morris**, Mississippi State University, Mississippi State, Miss.

This workshop will provide an overview of Google Earth and include suggestions for incorporating Google Earth and other geospatial technology into the classroom.

**SESSION 2**

**NSTA High School Committee Share Session (Gen)**  
(High School) 200F, Convention Center

**Jean Tushie** ([jtushie@comcast.net](mailto:jtushie@comcast.net)), Program Coordinator, NSTA Minneapolis Area Conference, NSTA Director, High School, and Eden Prairie High School, Eden Prairie, Minn.

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

**SESSION 3**

**NMLSTA Session: Learn Chemistry Concepts Using the Hands On Plastics 2 Kit (Chem)**

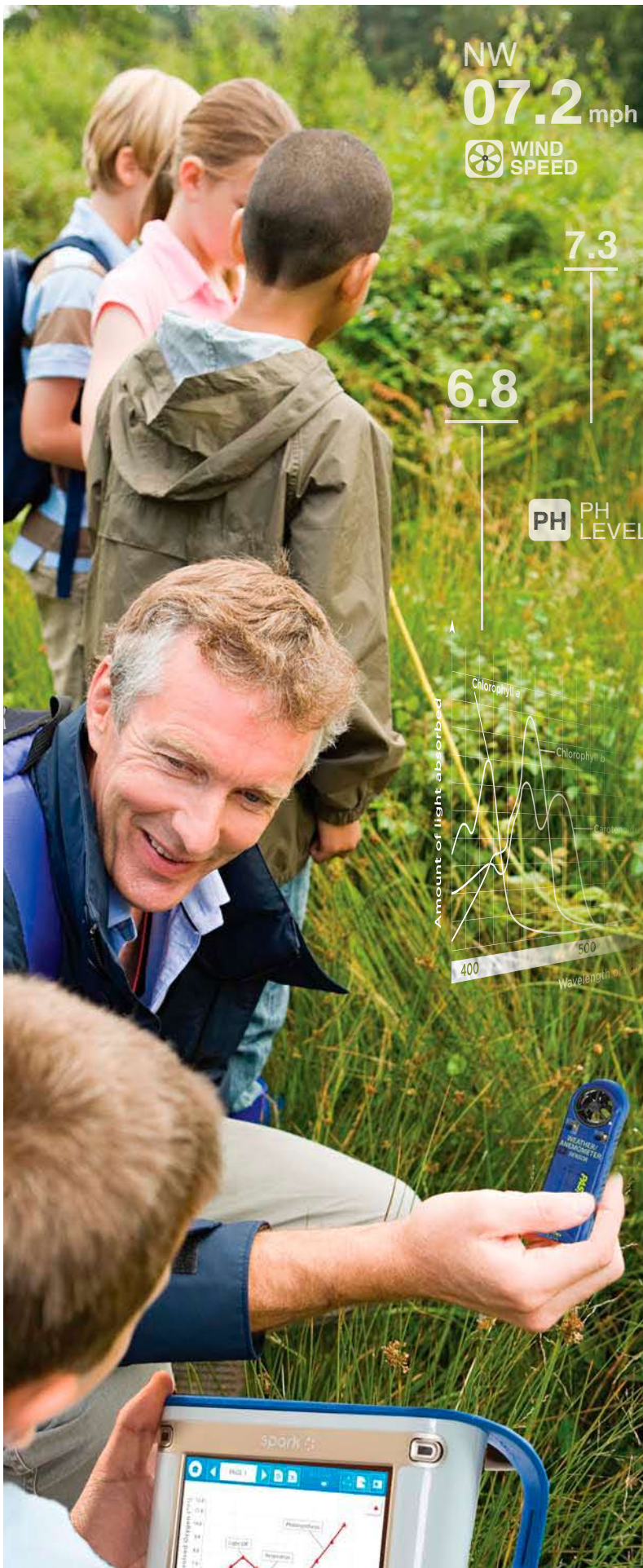
(General) 200G, Convention Center

**Rebecca Knipp** ([jbeek@fuse.net](mailto:jbeek@fuse.net)), NMLSTA President, and Sunman-Dearborn Intermediate School, West Harrison, Ind.

**Annette Barzal** ([abarzal@earthlink.net](mailto:abarzal@earthlink.net)), NMLSTA, Medina, Ohio

Teach the concepts of density, properties of matter, and polymer structure with these inquiry-based investigations, assessments, and enrichment activities from the free Hands On Plastics kit. Order it here or online.





## Igniting 21st Century Science Learning

The 21st century demands a different approach to science learning. With the **SPARKscience™** platform, you have a modern scalable and integrated science learning environment - supporting teachers and students in proven **standards-based** and inquiry-based science education.



SPARKscience offers **more than 60 SPARKlabs™** -- standards-based, guided inquiry labs in a unique electronic notebook format. These SPARKlabs completely integrate background content, data collection and analysis, even assessment--all within the same environment.



PASCO's SPARK science family includes both a stand-alone science learning environment - in the **SPARK science learning system** - as well as a computer-based solution with PASPORT **SPARKlink** and **SPARKvue** software.

**Join PASCO for One of Our Hands-On Workshops or Visit Us in Booth #607**

**PASCO®** For more information visit: [www.pasco.com/spark](http://www.pasco.com/spark)

SESSION 4 (two presentations)

(Elementary–High School/Informal) 200I, Convention Center



**Wise About Waste: A School and Museum Collaboration** (Env)

**Mary R. Weiland** (*mweiland@mcm.org*), Minnesota Children's Museum, St. Paul

**Tami Staloch-Schultz** (*tami.staloch-schultz@district196.org*), Glacier Hills Elementary School of Arts and Science, Eagan, Minn.

Wise About Waste, a two-week residency developed by Minnesota Children's Museum and Glacier Hills Elementary School, encourages students and families to reduce waste at home.



**An Inquiry-based Approach to the Study of Plant Disease Control** (Bio)

**Nantawan Nantawanit** (*nan512@hotmail.com*), Mahidol University, Bangkok, Thailand

Inquiry-based activities were developed to promote student learning about plant resistance as an environmentally friendly strategy for plant disease control.

SESSION 5



**Enhancing Science Instruction and Literacy with Quality Nonfiction Trade Books, Related Resources, and Investigations** (Gen)

(Elementary) 200J, Convention Center

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

Explore the advantages of using nonfiction trade books to teach and enhance K–6 science. I'll share top-quality books, related resources, and investigative opportunities that follow naturally from these print resources.

SESSION 6

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

(Elementary–High School) 205A, Convention Center

**Eric V. Crossley** (*ecrossley@nsta.org*), Assistant Director, Corporate Partnerships/Toyota TAPESTRY, NSTA, Arlington, Va.

Find out how to increase your chances of winning a Toyota TAPESTRY \$10,000 large grant or a \$2,500 mini-grant in 2010.

SESSION 7

**Using Community Service Projects to Enhance Learning in the Classroom** (Gen)

(General) 205B, Convention Center

**Lindsay M.C. Kasuga** (*lmckasuga@gmail.com*), Iowa State University, Ames

**Jesse Wilcox** (*wilcoxj@wdmcs.org*), Valley Southwoods Freshman High School, West Des Moines, Iowa

Develop students' connections to science and their civic and environmental responsibility with service projects.

SESSION 8

**AAPT Session: Models and Modeling in the High School Physics Classroom** (Phys)

(High School) L100A, Convention Center

**Michael Crofton** (*mcroft@district16.org*), Spring Lake Park High School, Spring Lake Park, Minn.

President: Eric Larson, Fridley High School, Fridley, Minn. Modeling instruction is a constructivist approach that organizes high school physics around a few fundamental models. We'll look at its implementation in the classroom.

SESSION 9

**NABT Session: Infect Your Biology Classroom with Math** (Bio)

(Middle Level–High School) L100B, Convention Center

**Jeff Lukens** (*jeffrey.lukens@k12.sd.us*), Roosevelt High School, Sioux Falls, S.Dak.

Integrating biology and mathematics is not just a good idea, it's the law! Well, it should be, anyway. Learn how easy and important it is to collect AND analyze data as part of good, solid, responsible science education.

SESSION 10

**Crime Solved: Integrating Forensic Science into Core Classes** (Gen)

(High School) M100J, Convention Center

**Jill Rossetti** (*jrossetti@cart.org*) and **Erin Andrade** (*erandrade@cart.org*), Center for Advanced Research and Technology, Clovis, Calif.

Engage students through forensic science mock crime scenes. Integrate chemistry, physics, English, and more so students see connections. Learn logistics for creating your own scenes.



**9:30–10:30 AM Workshops**

**Making Methane: It's a Gas** (Env)  
(Middle Level–High School) 200C, Convention Center

**Mark A. Minger** ([maminger@stcloudstate.edu](mailto:maminger@stcloudstate.edu)), St. Cloud State University, St. Cloud, Minn.

**Preservice Science Education Students**

**NSTA Student Chapter Members**

Learn how to construct a simple methane gas digester for the classroom and about other biofuels.

**Creating Inquiring Minds in Primary Classrooms** (Gen)

(General) 200D, Convention Center

**Amy Griglak** ([amy.griglak@district196.org](mailto:amy.griglak@district196.org)) and **Betty Jo Bishop** ([bettyjo.bishop@district196.org](mailto:bettyjo.bishop@district196.org)), Cedar Park STEM Elementary School, Apple Valley, Minn.

Learn how to incorporate inquiry-based lessons in the primary classroom. We'll explore the steps as we conduct a hands-on lesson on solids and liquids.

**Integrating Nonfiction Reading and Writing While Teaching About Energy** (Gen)

(Preschool/Elementary) 200E, Convention Center

**Rebecca Lamb** ([info@need.org](mailto:info@need.org)), The NEED Project, Manassas, Va.

Use science notebooks to integrate reading and writing into an energy unit.

**Fight Bac! Integrating Food Safety into Your Elementary Classroom** (Gen)

(Elementary) 200H, Convention Center

**Laurie A. Hayes** ([lhayes@cart.org](mailto:lhayes@cart.org)), Center for Advanced Research and Technology, Clovis, Calif.

**Susan E. Hartley** ([susan.hartley@nisd.us](mailto:susan.hartley@nisd.us)), Navarro High School, Geronimo, Tex.

Explore the FDA's free hands-on curriculum that integrates science and health standards while teaching students about the importance of hand washing and food safety.

Get your  
book signed!

at the Science Bookstore

## Author Signings

Thursday, October 29

11:00–Noon Richard Louv, (Featured Speaker)

Noon–1:00 LaMoine Motz

3:00–4:00 William Sommers (Featured Speaker) and Skip Olsen

Friday, October 30

11:00–Noon Michael Klentschy

Noon–1:00 Cathy Oates Bockenstedt

2:00–3:00 Bill Robertson



**NSTA**press  
National Science Teachers Association

**ACS Session Two: What Holds Molecules Together?** (Chem)

(High School) L100C, Convention Center  
**Jerry A. Bell** (*j\_bell@acs.org*), American Chemical Society, Washington, D.C.

Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter.

**PSD Session: Laser Light—What Makes It So Special?** (Phys)

(Elementary–Middle Level) L100D, Convention Center  
**Becky Thompson-Flagg** (*flagg@aps.org*), American Physical Society, College Park, Md.

See how the properties of a laser make it different from a regular flashlight and why lasers are so important in current research. Take home a handout of all activities.

**Examining the Bioethics of Animals in Research** (Bio)

(High School) L100E, Convention Center  
**Dave Vannier** (*vannierd@od.nih.gov*), National Institutes of Health, Bethesda, Md.

Examine the ethics of genetically modifying animals for human gain. I'll share inquiry-based lessons from the National Institutes of Health and the Education Development Center, Inc., designed to hone ethical-reasoning skills.

**Polymer Serendipity Discoveries Uncovered** (Chem)

(Middle Level–High School) L100F, Convention Center  
**Jon E. Valasek** (*valasekjon@yahoo.com*), St. Mark's School of Texas, Dallas

Learn how rubber, nylon, polyethylene, Teflon®, and other polymers were serendipitously discovered. Handouts include activities and a CD.

**Black Hole Basics** (Earth)

(Middle Level–High School) L100G, Convention Center  
**Rae McEntyre** (*rae.mcentyre@education.ky.gov*), Kentucky Dept. of Education, Frankfort

Pull your students into science with black holes! Learn how black holes originate, their gravitational forces, and misconceptions about them. Take home resources.

**Scale the Universe** (Gen)

(Middle Level–High School) L100H, Convention Center

**Christine Anne Royce** (*caroyce@aol.com*), NSTA Director, Professional Development, and Shippensburg University, Shippensburg, Pa.

How big is big? How small is small? Come “scale the universe” as we investigate the powers of 10.



**NSTA Press Session: Stop Faking It! Finally Understand CHEMISTRY So You Can Teach It** (Chem)

(Elementary–Middle Level) L100I, Convention Center

**Bill Robertson** (*wrobert9@ix.netcom.com*), NSTA Press Author, Woodland Park, Colo.

Quit having your students memorize the periodic table. Instead, learn how you and your students can understand atomic structure so that the table becomes an organizational tool instead of an end in itself. Join the author of the *Stop Faking It!* books for hands-on activities and irreverence.

**CESI Session: CESI Make and Take** (Gen)

(Preschool–Middle Level) Grand Salons E&F, Hilton

**Kay Atchison Warfield**, CESI President, and Alabama State Dept. of Education, Montgomery

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

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

**John McFarland** (*johanneskepler@att.net*), Johannes Kepler Project, Charleston, S.C.

Experience hundreds of engaging science activities that will put sparkle in your classroom. Make the connections for student learning with an international flair.

**9:30–10:30 AM Exhibitor Workshop**

**Tough Topics in Biology: Cell Respiration** (Bio)

(Grades 6–12) M100 A–B, Convention Center

Sponsor: PASCO Scientific

**Jeff Bush**, Rancho Bernardo High School, San Diego, Calif.

This session explores PASCO's state-of-the-art science teaching solutions to one of the toughest aspects of biological investigations—cell respiration. Participate in standards-based probeware lab activities from PASCO's new biology curriculum and be one of the first to experience how the SPARK Science Learning System can enhance your teaching practice and improve student understanding of your core topics.



# **FREE** HANDS-ON WORKSHOPS

VERNIER DATA-COLLECTION TECHNOLOGY

**FRIDAY • October 30th • Workshop Room M100C**

**8:00 – 9:30 A.M.**

K-8 SCIENCE WITH VERNIER

**10:00 – 11:30 A.M.**

DEVELOPING 21ST-CENTURY MINDS WITH VERNIER

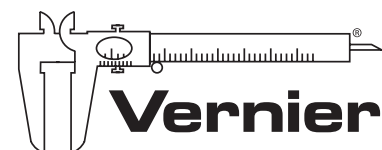
**12:00 – 1:30 P.M.**

DEVELOPING 21ST-CENTURY MINDS WITH VERNIER

**2:00 – 3:30 P.M.**

DEVELOPING 21ST-CENTURY MINDS WITH VERNIER

**NO PRE-REGISTRATION!  
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### 9:30–11:30 AM NSTA ESP Symposium I

#### **NSTA Exemplary Science Program (ESP)...Realizing the Visions of the National Standards: It Takes ESP to Find Exemplary Science Programs (Gen)**

(General) *M100I, Convention Center*

*Organized by Robert E. Yager, 1982–1983 NSTA President and Editor of the NSTA ESP Program*

*Coordinator: Susan B. Koba, Science Education Consultant, Omaha, Neb.*

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: Inquiry—The Key to Exemplary Science**

Tina Harris (*taharris79@yahoo.com*), Anderson Community School Corp., Anderson, Ind.

Patricia Paulson (*patricia-paulson@bethel.edu*), Bethel University, St. Paul, Minn.

#### **Exemplary Science Programs: Best Practices in Professional Development**

Joseph Stepan (*jstepans@uwyo.edu*), University of Wyoming, Laramie

Andrew J. Petto (*ajpetto@uwm.edu*), University of Wisconsin, Milwaukee

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

#### **Exemplary Science Programs: Informal Education Settings**

Elizabeth Mulkerrin (*elizabeth@omahazoo.com*), NSTA Director, Informal Science, and Omaha's Henry Doorly Zoo, Omaha, Neb.

### 10:00–11:00 AM Exhibitor Workshop

#### **How to Start a Biotech Program (Bio)**

(Grades 6–College) *101E, Convention Center*

Sponsor: Bio-Rad Laboratories

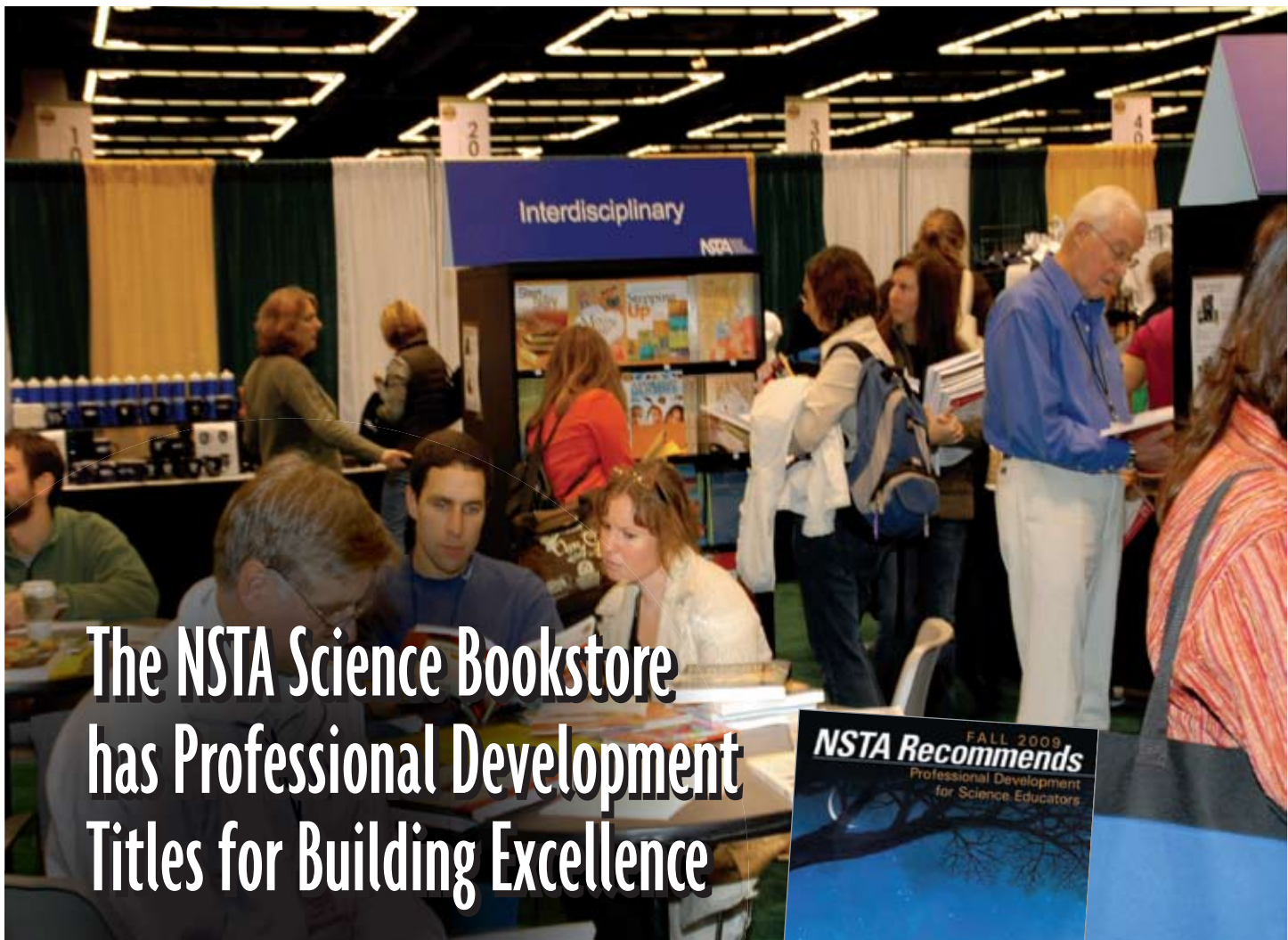
**Essy Levy** (*biotechnology\_explorer@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Biotech is where it's at! Hear the words of wisdom from the nation's leading biotech programs and find out how they got to where they are now. Learn how to set the foundation for engaging students using relevant real-world lab experiences and discover what building blocks will allow you to continue to address the world's rapidly changing scientific landscape.



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- Award-winning PD books filled with best practices, science content, teaching tips, and lesson plans
- Pick up *Answers to Science Questions from the Stop Faking It! Guy*, *Lecture Free Teaching*, or *The Big Idea of Nanoscale* to name a few new titles.
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Saturday	7:30 a.m. – Noon

**NSTA** National  
Science  
Teachers  
Association

## 10:00–11:15 AM Exhibitor Workshops

### **Integrating Science and Literacy: Grades 1–6 (Gen)**

(Grades 1–6) 101B, Convention Center

Sponsor: Delta Education/School Specialty Science

**Johanna Strange**, Consultant, Richmond, Ky.

**Tom Graika**, Consultant, Lemont, Ill.

We'll show you various strategies and Delta products that can help integrate reading and language arts into your science programs. Learn how your students can make the literacy connection as they experience the enjoyment of learning science with Delta Science Modules. Receive a workshop packet and related Delta materials.

### **Hands-On Teaching with the Anatomy in Clay® Learning System (Bio)**

(Grades 6–College) 101D, Convention Center

Sponsor: Hands & Minds Inc.

**Myles Crane** ([mylesc@anatomyinclay.com](mailto:mylesc@anatomyinclay.com)), Hands & Minds Inc., Loveland, Colo.

Enhance your instruction of anatomy by increasing student engagement to 100%. Experience how easy and fun it is to teach the Anatomy in Clay system. By actively building in clay, students retain more and really “know” body structure location, function, and how they work together. Less memorization, more learning that sticks.

### **Inquiry, Evidence, and Thinking: The Heart of Science Teaching (Gen)**

(Grades 5–8) 101F, Convention Center

Sponsor: Pearson

**Michael Padilla**, 2005–2006 NSTA President, and Clemson University, Clemson, S.C.

Inquiry continues to be a major thrust in science education as entities like the Partnership for 21st Century Skills call for improved student thinking across all disciplines. This session will develop an understanding of inquiry and evidence and outline teaching strategies that participants can use to develop these important ideas.



### **STC/MS™: Energy, Machines, and Motion (Phys)**

(Grades 6–8) 101G, Convention Center

Sponsor: Carolina Biological Supply Co.

#### **Carolina Teaching Partner**

Get yourself in gear with this hands-on module that explores energy, work, and force, and learn how these interact to influence motion and machine design. This session starts with an overview of the STC/MS curriculum developed by the National Science Resources Center followed by sample module investigations.

### **Strawberry DNA and Molecular Models (Bio)**

(Grades 8–12) 101H, Convention Center

Sponsor: Carolina Biological Supply Co.

#### **Carolina Teaching Partner**

Introduce students to the fascinating world of DNA through age-appropriate hands-on activities designed to make biology fun. The activities—from a kit series developed in cooperation with the DNA Learning Center, Cold Spring Harbor Laboratory—use DNA models and real DNA from strawberries to present genetic studies.

### **Teaching Science with Foldables (Gen)**

(Grades 3–12) M100 F–H, Convention Center

Sponsor: Macmillan/McGraw-Hill and Glencoe

**Dinah Zike**, Dinah-Might Adventures, LP, San Antonio, Tex.

Learn how to improve your students' reading and study skills with Foldables. These interactive, hands-on graphic organizers will revolutionize the way you teach and the way your students study. Participants will make their own examples and learn strategies for implementing this powerful learning tool.

**Science of Everyday Life with the 3M/Discovery Education Young Scientist Challenge (Gen)***(Grades 5–8)**M100D, Convention Center*

Sponsor: Discovery Education

**Brad Fountain**, Discovery Education, Silver Spring, Md. Explore the science of everyday life with the 3M/Discovery Education Young Scientist Challenge, learn simple tech tools to help students communicate about science and submit video entries, and get science fair tips and demo activities to showcase the innovation behind everyday items. Participants will have a chance to win a 3M Innovation Kit with sample products.

**Forensic Science for High School: An Inquiry-rich Curriculum (Chem)***(Grades 9–12)**M100E, Convention Center*

Sponsor: Kendall Hunt Publishing Co.

**Michele Richards**, Kendall Hunt Publishing Co., Dubuque, Iowa

Learn about this exciting curriculum designed specifically for high school students as you engage in several hands-on inquiry activities suited to the season—blood, bugs, and bones! Handouts provided.

# TEACHERS IN GEOSCIENCES

Mississippi State University offers a unique and exciting M.S. degree program through distance learning—the **Teachers in Geosciences (TIG)** program. Students who successfully complete this two-year, 12-course, 36-hour curriculum are awarded an **M.S. degree in Geosciences**. The core courses in meteorology, geology, hydrology, oceanography, planetary science and environmental geoscience are taught via the internet. Over 300 students from across the country and around the world are enrolled.



Arizona field course

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Mississippi State University is fully accredited by the Southern Association of Colleges and Schools (SACS). Prospective students should check with the Department of Education in their states for local certification policies.

Mississippi State University is an equal opportunity employer.



### 10:00–11:30 AM Exhibitor Workshops

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

(Grades 5–12)

101A, Convention Center

Sponsor: CPO Science/School Specialty Science

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

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

#### Developing 21st-Century Minds with Vernier (Gen)

(Grades 7–College)

M100C, Convention Center

Sponsor: Vernier Software & Technology

**David Braunschweig** ([info@vernier.com](mailto:info@vernier.com)), Vernier Software & Technology, Beaverton, Ore.

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

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- **Research-based and Proven to Build Content Knowledge**—Teachers who participated in PD through the Learning Center showed significant content knowledge gains and identified themselves as "very confident" in their ability to teach the science content learned.\*

To view, try, and buy individual resources visit: <http://learningcenter.nsta.org/>

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\*Formative Research conducted by external experts to ensure scientific accuracy and credibility. Research Results to be published in an upcoming article in the Journal of Science Education and Technology titled "Evaluation of Online, On-Demand Science Professional Development Materials Involving Two Different Implementation Models."





**11:00 AM–12 Noon Featured Presentation**★ **The Science-Literacy Connection: Myth or Reality? (Gen)***(General)**101 I&J, Convention Center*

**Michael Klentschy** (*mpkdr@aol.com*), Instructor, Div. of Teacher Education/Educational Leadership, San Diego State University–Imperial Valley Campus, Calexico, Calif.

Presider: John Olson, Strand Leader, NSTA Minneapolis Area Conference, and Minnesota Dept. of Education, Roseville

This session will focus on the science-literacy connection. It will highlight how the communication skills of reading, writing, listening, and speaking strongly support an environment for student learning that transfers deeper understanding. Special focus will be on the integration of science notebooks and class discussion as important tools for this process.

*Michael Klentschy is an instructor in the Division of Teacher Education/Educational Leadership at San Diego State University–Imperial Valley Campus. From February 1994 to June 2007 he was the Superintendent of Schools of the El Centro School District in California. He also served in teaching and administrative positions in the Los Angeles Unified School District from 1966 to 1985 and the Pasadena Unified School District from 1985 to 1994.*

*Dr. Klentschy was the principal investigator of the Imperial Valley CaMSP Science Project and is co-director of the California Science Subject Matter Project Regional Center in Imperial Valley and the principal investigator for the NSF-funded Valle Imperial Project in Science LSC. In these capacities, he has conducted and published numerous research studies on the longitudinal effects of inquiry-based science programs and their impact on student achievement, English learners, and closing the achievement gap.*

**11:00 AM–12 Noon Presentations****SESSION 1****Incorporating Social Networking and Gaming in the Classroom (Earth)***(Middle Level)**200A, Convention Center*

**Robin McDougal** (*robin.mcdougal@fcps.edu*), The JASON Project, Fairfax County Public Schools, Reston, Va.

Researchers from The JASON Project will demonstrate their success in enhancing student learning through online access to scientists, explorers, and other students around the world.

**SESSION 2****Live Wind Data in Your Classroom (Earth)***(Informal Education)**200B, Convention Center*

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

Students can explore important wind energy concepts and theories using a wide variety of dynamic web sources. I'll share curriculum materials.

**SESSION 3****NSTA High School Committee Presents: Leading Beyond the Classroom (Gen)***(High School)**200F, Convention Center*

**Jean Tushie** (*jtushie@comcast.net*), Program Coordinator, NSTA Minneapolis Area Conference, NSTA Director, High School, and Eden Prairie High School, Eden Prairie, Minn.

While science teachers enjoy their classroom experience, many look for opportunities to expand their leadership outside the classroom. In this session, we will share strategies for being an effective leader in your school. Additionally, we will share leadership opportunities with NSTA.

**SESSION 4**✓ **Influences on Science Literacy in African American Female Students (Gen)***(General)**201 A/B, Convention Center*

**Sharan R. Crim** (*sharanrc@hotmail.com*), Atlanta (Ga.) Public Schools

Presider: Kelly Stewart, Fulton County Schools, Atlanta, Ga.

Our study identified three themes that positively influenced science literacy in eighth-grade African American females: the influence of family members, especially mothers and grandmothers; personal connections made to science concepts and real life; and creative student-designed projects, labs, and experiments.

**SESSION 5**

**Community Science: Integrating Science with Community Resources (Gen)**

(General) 205B, Convention Center

**Jiyoon Yoon** (*jiyoon@d.umn.edu*), University of Minnesota, Duluth

Reach outside the classroom for inspiration and partnerships to enhance science learning. Students research their community resources, invite community professionals to the classroom, and visit community providers.

**SESSION 6**

**AAPT Session: Physics Force (Phys)**

(General) L100A, Convention Center

**Cynthia Cattell**, University of Minnesota, Twin Cities, Minneapolis

**Nancy Bresnahan**, Hopkins High School, Minnetonka, Minn.

**Jon Anderson**, University of Minnesota, Minneapolis

**Claire L. Hypolite**, Edison High School, Minneapolis, Minn.

**Louise Weldon**, Tartan Senior High School, North Oakdale, Minn.

This entertaining show features large-scale (the bigger the better!) demonstrations presented by The Physics Force, an outreach program of the University of Minnesota School of Physics and Astronomy.

**SESSION 7**

**NABT Session: Enhance Your AP Biology Presentations Using Resources from the Howard Hughes Medical Institute (Bio)**

(High School–College) L100B, Convention Center

**Anthony Bertino** (*abertino@nycap.rr.com*), University at Albany, State University of New York, Albany

**Patricia N. Bertino** (*nolanp@nycap.rr.com*), Scotia-Glenville High School, Scotia, N.Y.

We'll share animations, video clips, and virtual labs that explore meiosis, sex determination, X-inactivation, tool kit genes, chemical switches, obesity, stem cells, cancer, aging, cell communication, and HIV.

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**702.855.5414**

## SESSION 8

**Using Demonstrations to Introduce Physics Topics  
(Phys)**

(Middle Level–High School) M100J, Convention Center  
**Mark A. Minger** (*maminge@stcloudstate.edu*), St. Cloud State University, St. Cloud, Minn.

**Preservice Science Education Students  
NSTA Student Chapter Members**

Introduce students to inquiry with these physics demonstrations exploring light, sound, optics, electricity, density, and heat energy concepts.

## SESSION 9

**Teaching Preservice and New Elementary Teachers  
About Formative Assessment and Science Curriculum  
(Gen)**

(Elementary–Middle Level/College) M101B, Convention Center  
**Lisa S. Moore** (*lmoore@regent.edu*), Regent University, Virginia Beach, Va.

I'll share effective strategies for teaching preservice/new teachers how to incorporate formative assessment in science instruction and link state standards across grade levels.

**11:00 AM–12 Noon Workshops****How to Assess the Sustainability of Cellulosic Ethanol Production  
(Env)**

(General) 200C, Convention Center  
**Sara Krauskopf** (*skrauskopf@glbc.wisc.edu*) and **John M. Greenler** (*jgreenler@glbc.wisc.edu*), University of Wisconsin, Madison

The Midwest is poised as a major producer of cellulosic ethanol. Explore ways to integrate biofuels into existing science courses.

**You Got Their Attention with the Demonstration—  
What's the Next Step?  
(Gen)**

(Elementary–Middle Level) 200D, Convention Center  
**John J. Zenchak** (*jjzenchak@noctrl.edu*) and **Mary Jean Lynch** (*mlynch@noctrl.edu*), North Central College, Naperville, Ill.

After the demonstration, many teachers are unsure about how to continue engaging students. Our structured exploration activity provides the next step in keeping students engaged.

**Cooking Up Science in the Early Childhood Classroom  
(Gen)**

(Preschool/Elementary) 200E, Convention Center  
**Michelle Cardenas** (*cardenas528@yahoo.com*), Hillcrest Elementary School, Austin, Tex.

**Violetta F. Lien** (*vl10@txstate.edu*), Texas State University, San Marcos

Use science-based units (Five Senses and Life Cycles) to integrate math, reading, music, social studies, and art in early childhood ELL classes to teach science and academic language skills.

**Lotus Leaves and Flower Petals: Big Effects from  
Small Features  
(Bio)**

(Middle Level–High School) 200G, Convention Center  
**Sue Whitsett**, Fond du Lac High School, Fond du Lac, Wis.

Try two inquiry-based laboratory experiments that explore the lotus and petal effects, two kinds of properties of surfaces with nanoscale features.

**Exploring Solar Energy  
(Gen)**

(Elementary–High School) 200I, Convention Center  
**Rebecca Lamb** (*info@need.org*), The NEED Project, Manassas, Va.

Explore solar energy concepts and photovoltaics through engaging hands-on activities using solar beads, balloons, and ovens; NaturePrint® paper; thermometers; radiometers; and photovoltaic cells.

**ACS Session Three: Why Is Water Different? (Chem)**

(High School) L100C, Convention Center  
**Jerry A. Bell** (*j\_bell@acs.org*), American Chemical Society, Washington, D.C.

Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter.

**PSD Session: There's More to Dissolving Than Meets  
the Eye!  
(Chem)**

(Elementary–Middle Level) L100D, Convention Center  
**James H. Kessler** (*j\_kessler@acs.org*), American Chemical Society, Washington, D.C.

Explore the interaction between water and different substances to understand solubility and the energy changes of dissolving on the molecular level. Take home a handout of all activities.

**Food Safety/Microbial Activity (Bio)**  
(Elementary–High School) L100E, Convention Center

**John W. Fedors** ([jfedors@wavecable.com](mailto:jfedors@wavecable.com)), Science Activities, Lincoln, Calif.

Microbes! They are necessary to our survival (we can't live without them); they are competitors (among themselves and for our food); they are survivors (they have been around a very long time). Now they have a role in genetic engineering.

**Measuring the Monster in the Middle (Earth)**  
(High School) L100G, Convention Center

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

Use a beautiful astronomical poster of a black hole to teach standards-based math and science. Free NASA materials!

**Developing Scientific Explanations: Making Student Thinking Visible (Gen)**

(General) L100H, Convention Center

**Jenn W. Rose** ([jennifer.rose@mpls.k12.mn.us](mailto:jennifer.rose@mpls.k12.mn.us)) and **Jim L. Bickel** ([james.bickel@mpls.k12.mn.us](mailto:james.bickel@mpls.k12.mn.us)), Minneapolis (Minn.) Public Schools

Encourage your students to think deeply about science concepts and communicate their understandings. We'll explore how scientific explanations are essential to scientific inquiry.



**NSTA Press Session: Stop Faking It! Finally Understand ELECTRICITY and MAGNETISM So You Can Teach It (Phys)**

(Elementary–Middle Level) L100I, Convention Center

**Bill Robertson** ([wrobert9@ix.netcom.com](mailto:wrobert9@ix.netcom.com)), NSTA Press Author, Woodland Park, Colo.

Join the author of the *Stop Faking It!* books for a hands-on workshop covering key basic content in electricity and magnetism. Knowledge given away free to all participants. *Lame jokes quite probable.*

**Make and Take Polymer Activities for Everyone (Gen)**  
(General) Grand Salons E&F, Hilton

**Debbie Goodwin** ([nywin@hotmail.com](mailto:nywin@hotmail.com)), Chillicothe High School, Chillicothe, Mo.

**Andrew G. Nydam** ([andrewnydam@hotmail.com](mailto:andrewnydam@hotmail.com)), Olympia High School, Olympia, Wash.

**Lynn W. Higgins** ([lynhiggins@gmail.com](mailto:lynhiggins@gmail.com)), Polymer Ambassador, Riverside, Ill.

**Sue E. Hall**, Polymer Ambassador, Stevens Point, Wis.

**Sandra H. Van Natta**, Intersociety Polymer Education Council, Hamilton, Ohio

**Edmund J. Escudero** ([escudero\\_e@summitcds.org](mailto:escudero_e@summitcds.org)), Summit Country Day School, Cincinnati, Ohio

**Jon Valasek** ([valasekjon@yahoo.com](mailto:valasekjon@yahoo.com)), St. Mark's School of Texas, Dallas

**Barbara U. Walker** ([rbjwalk@netins.net](mailto:rbjwalk@netins.net)), Ottumwa Alternative High School, Ottumwa, Iowa

The best of the Polymer Ambassadors' hands-on activities in a round-robin workshop. Possible activities include super-absorbing polymers, slimes, shrinking plastics, and elastomers. Detailed handouts.

**11:00 AM–12 Noon Exhibitor Workshop**

**Tough Topics in Chemistry: States of Matter (Chem)**  
(Grades 6–12) M100 A–B, Convention Center

Sponsor: PASCO Scientific

**Jeff Bush**, Rancho Bernardo High School, San Diego, Calif.

This session explores PASCO's state-of-the-art science teaching solutions to one of the toughest topics in chemistry—states of matter. Participate in standards-based probeware lab activities from PASCO's new chemistry curriculum and be one of the first to experience how the SPARK Science Learning System can change your teaching practice and improve student understanding of your core topics.

**11:00 AM–1:00 PM Exhibitor Workshop**

**FOSS Chemical Interactions for Middle School Students (Chem)**

(Grades 5–8) 101C, Convention Center

Sponsor: Delta Education/School Specialty Science–FOSS

**Terry Shaw, Larry Malone, and Jessica Penchos**, Lawrence Hall of Science, University of California, Berkeley

Join FOSS developers for an introduction to the particulate nature of matter. We'll investigate substances to learn about properties of matter, changes in matter, and energy interaction and transfer. Student books and course CD-ROMs will be distributed.



**12 Noon–1:15 PM Exhibitor Workshops****Concepts and Challenges—What Is It All About?****(Gen)***(Grades 6–8)**101F, Convention Center*

Sponsor: Pearson

**Martin Schachter**, Oldsmar, Fla.**Stanley Wolfe**, Author, Great Neck, N.Y.

C&C stands not only for Concepts and Challenges in Science, the most senior middle school science program in the United States, but also for comprehensive and comprehensible. Join us for a make and take from C&C and find out why this program differs from all others.

**Living by Chemistry: Feeling Under Pressure****(Chem)***(Grades 9–11)**101G, Convention Center*

Sponsor: Key Curriculum Press

**Jeffrey Dowling** ([jdowling@keypress.com](mailto:jdowling@keypress.com)), Key Curriculum Press, Emeryville, Calif.

Teach rigorous chemistry with guided inquiry. The gas laws can be challenging for students, but hands-on experiences can help them make sense of gas behavior. Let's explore activities that help students understand gas behavior and gas laws through a weather context. Sample lessons from Living by Chemistry provided.

**Introduction to Wisconsin Fast Plants®****(Bio)***(Grades K–12)**101H, Convention Center*

Sponsor: Carolina Biological Supply Co.

**Kelly Branchaud**, Carolina Biological Supply Co., Burlington, N.C.

Students can actively take part in science with new hands-on activities using Wisconsin Fast Plants. These minuscule and quick-growing plants are ideal classroom tools for exploring environmental effects, variation, life cycle, and nutrient cycling. Hands-on activities include planting and pollinating seeds. Free materials.

**Teaching Science with Foldables****(Gen)***(Grades 3–12)**M100 F–H, Convention Center*

Sponsor: Macmillan/McGraw-Hill and Glencoe

**Dinah Zike**, Dinah-Might Adventures, LP, San Antonio, Tex.

Learn how to improve your students' reading and study skills with Foldables. These interactive, hands-on graphic organizers will revolutionize the way you teach and the way your students study. Participants will make their own examples and learn strategies for implementing this powerful learning tool.

**EDVOTEK Biotechnology: Teaching DNA Forensics****(Bio)***(Grades 6–College)**M100D, Convention Center*

Sponsor: EDVOTEK

**Jack Chirikjian** ([info@edvotek.com](mailto:info@edvotek.com)), EDVOTEK, Bethesda, Md.

Learn how to teach students this core concept of molecular biology with fun pre-lab exercises and a hands-on experiment to increase comprehension. This workshop will introduce applications of DNA analysis using restriction enzymes and PCR specifically designed for general and upper-level biology. Participants are automatically entered into a raffle for a FREE classroom electrophoresis setup (a \$500 value)!

**A Natural Approach to Chemistry****(Chem)***(Grades 9–12)**M100E, 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 his new high school book *A Natural Approach to Chemistry*. This course takes a fresh look at how chemistry is used today, in and out of the laboratory. Selected lab activities will feature an innovative new probeware system that is rugged, and simple to use, and makes accurate, quantitative measurements accessible to all students. Selected labs and other program materials will be provided for all participants.

**12 Noon–1:30 PM Exhibitor Workshops**

**Music, Sound, and Waves (Phys)**

(Grades 5–12) 101A, Convention Center

Sponsor: CPO Science/School Specialty Science

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

The tabletop Sound and Waves machine enables participants to explore standing wave patterns on a vibrating string. This experiment builds a foundation for activities in which a classroom synthesizer is used to explore the nature of sound and music. You may even play music yourself on PVC palm pipes!

**Developing 21st-Century Minds with Vernier (Gen)**

(Grades 7–College) M100C, Convention Center

Sponsor: Vernier Software & Technology

**David Braunschweig** ([info@vernier.com](mailto:info@vernier.com)), Vernier Software & Technology, Beaverton, Ore.

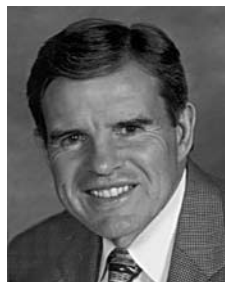
Discover how technology can transform your classroom into a 21st-century laboratory. Explore state-of-the-art probeware solutions that help teach core science topics in physics, chemistry, biology, earth science, and environmental science. Learn tips and tricks from master teachers and technology experts.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

**12 Noon–2:00 PM PreK–8 CESI Luncheon**

**Discrepant Events and Science from Junk: Discontinued Materials and the Inquiry Continuum (M-3)**

(Tickets Required; \$50)

Marquette IX, Hilton



**Timothy M. Cooney**, Professor of Earth Science and Science Education, Dept. of Earth Science, University of Northern Iowa, Cedar Falls

Enjoy a delicious luncheon and a motivating presentation by Tim Cooney, professor of earth science and science education at the University of Northern Iowa. Using easily obtained and

discarded materials, Tim will engage audience members in activities modeling directed, guided, and open inquiry. The materials are taken from curriculum projects Dr. Cooney has worked with in the United States and in Chile. Handouts will be available for each activity.

*Tim Cooney has taught all levels from fourth grade through graduate school. He has served on the Board of Directors of NSTA and CESI, as well as on numerous committees for both organizations. Dr. Cooney has been the recipient of a number of awards including the Award for Faculty Excellence given by the Board of Regents, which oversees Iowa's public universities.*

**Tickets, if still available, must be purchased at the Ticket Sales Counter in the NSTA Registration Area before 5:00 PM on Thursday.**

**12:30–1:30 PM Presentations****SESSION 1****An Update on the Science Anchors: A Vision for Clear, Coherent, and Manageable Standards (Gen)***(General)* 101 I/J, Convention Center**Page Keeley**, NSTA Retiring President, and Maine Mathematics and Science Alliance, Augusta**Cary I. Sneider** (*csneider@mos.org*), Portland State University, Portland, Ore.

The issue of national standards has gained considerable attention in recent months. Both President Obama and key thought leaders are signaling support for national standards and are urging states to adopt rigorous common standards in all major subjects. NSTA has been ahead of this curve with Science Anchors, an initiative to bring greater focus, clarity, and coherence to science education. Join us for an overview of the Science Anchors initiative and an update on our progress.

**SESSION 2****The Urban Water Cycle CD: An Interactive Resource for Teachers (Env)***(Middle Level)* 200A, Convention Center**Lee M. Schmitt** (*lschmitt@hamline.edu*), Hamline University, St. Paul, Minn.

This new resource from the American Water Works Association allows students to investigate drinking water, rivers, groundwater, storm water, and wastewater systems while teaching conservation and environmental awareness. Take home a free CD with a comprehensive teacher's guide.

**SESSION 3****Using Video Games in the Science Classroom (Bio)***(Middle Level)* 200F, Convention Center**Lauren A. Angelone** (*lauren.angelone@gmail.com*), The Ohio State University, Columbus

We will look at the benefits and drawbacks of using immersive simulation-type video games in the classroom, with an emphasis on the game Spore in a middle school setting.

**SESSION 4**★ **Make Note of Science (Bio)***(General)* 200J, Convention Center**Mark A. Peterson** (*mark.peterson@dc.k12.mn.us*), Dassel Cokato High School, Cokato, Minn.

Bring your voice and a creative mind to this fun session on science song parodies. From The Beatles to Sheryl Crow, popular music can be a means to connect with students.

**SESSION 5****NSTA Avenue Session: The NSTA Learning Center: Free Classroom Resources and Professional Development for Educators (Gen)***(Supervision/Administration)* 205A, Convention Center**Al Byers**, Assistant Executive Director, e-Learning and Government Partnerships, NSTA, Arlington, Va.

Lost when it comes to finding online resources for your classroom? The NSTA Learning Center can provide accurate, standards-aligned resources for your classroom. With over 2,400 resources, 25% of which are free, and quality professional development opportunities to assist educators with core subject content, NSTA has the answers!

**SESSION 6****AAPT Session: Solar Cell Physics (Phys)***(Middle Level–College)* L100A, Convention Center**Leon Hsu** (*lhsu@umn.edu*), University of Minnesota, Twin Cities, Minneapolis

Explore the physics and applications of solar cells, as well as ways to introduce this topic in the introductory physics classroom.

**SESSION 7****NABT Session: Free Resources to Complement the HHMI Holiday Lecture on the Brain (Bio)***(High School–College)* L100B, Convention Center**Anthony Bertino** (*abertino@nycap.rr.com*), University at Albany, State University of New York, Albany**Patricia N. Bertino** (*nolanp@nycap.rr.com*), Scotia-Glenville High School, Scotia, N.Y.

We'll share teacher-generated materials and free resources from the Howard Hughes Medical Institute (HHMI) Holiday Lectures on the brain, memory, and nerve cell communication.

**SESSION 8**

**Project TIN: Supporting Beginning Educators with Technology (Gen)**

(Middle Level—College/Supervision) M100I, Convention Center  
**Joel D. Donna** ([joel.donna@state.mn.us](mailto:joel.donna@state.mn.us)), Minnesota Dept. of Education, Roseville

**Gillian H. Roehrig** ([roehr013@umn.edu](mailto:roehr013@umn.edu)), University of Minnesota, Minneapolis

Explore the role that technology can play in providing induction support for beginning science educators. Project TIN uses technologies such as web conferencing, collaborative document editing, and learning object repositories to provide developmental support.

**SESSION 9**

**Size Matters: Dinosaurs to Nanotechnology—Galileo’s Revolution (Gen)**

(Middle Level—College) M100J, Convention Center  
**David Esker** ([david\\_esker@ymail.com](mailto:david_esker@ymail.com)), The Solution Is Science, Colorado Springs, Colo.

The square-cube law, a fundamental science principle about size first discovered by Galileo, is important to biology, physics, and most other science disciplines.

**SESSION 10**

**SCST Session: Evolution Education Roundtable: What Students Should Know About Biological Evolution Prior to Entering College (Bio)**

(High School—College/Informal) M101A, Convention Center  
**Murray S. Jensen**, **Randy Moore** ([rmoore@umn.edu](mailto:rmoore@umn.edu)), **Jay Hatch** ([hatch001@umn.edu](mailto:hatch001@umn.edu)), **Mark Decker** ([decker@umn.edu](mailto:decker@umn.edu)), and **Susan Wick** ([swick@umn.edu](mailto:swick@umn.edu)), University of Minnesota, Minneapolis

President: Bruce Fall, University of Minnesota, Minneapolis  
Professors who teach freshman biology at the University of Minnesota will lead a roundtable discussion on evolution education.

**SESSION 11**

**NASA’s GLOBE Program: U.S. Regional GLOBE Networking Session (Env)**

(General) M101B, Convention Center  
**Teresa J. Kennedy**, University Corporation for Atmospheric Research, Boulder, Colo.

**Nandini McClurg** ([mcclurg@globe.gov](mailto:mcclurg@globe.gov)), Colorado State University, Fort Collins

Join GLOBE teachers and partners in a networking session. GLOBE (Global Learning and Observations to Benefit the Environment) involves primary and secondary students from 110 countries in inquiry-based scientific research investigations.

**SESSION 12**

**Central Michigan Student Chapter Share-a-Thon (Gen)**

(General) Grand Salons E&F, Hilton  
**James T. McDonald** ([jim.mcdonald@cmich.edu](mailto:jim.mcdonald@cmich.edu)), Central Michigan University, Mount Pleasant

Preservice teachers from the NSTA Student Chapter of Central Michigan will present a variety of lesson plans incorporating math, reading, writing, and literature. Handouts.

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**12:30–1:30 PM Workshops**

**Kids Like Art but Hate Science—Let’s Do Something About That! (Gen)**

(Elementary—High School) 200D, Convention Center  
**Barbara U. Walker** ([rbjwalk@netins.net](mailto:rbjwalk@netins.net)), Ottumwa Alternative High School, Ottumwa, Iowa

Paint with liquid latex, create a polariscope, and shrink a polymer while investigating acid/base neutralization, diffraction, and properties of polymers. Handouts and free materials.

**Introducing Engineering to Parents and Children (Gen)**

(Elementary) 200E, Convention Center  
**Joan Schumaker Chadde** ([jchadde@mtu.edu](mailto:jchadde@mtu.edu)), Michigan Technological University, Houghton

Create the next generation of problem solvers. Developed with support from the National Science Foundation, Family Engineering is a new program that actively engages parents and children in hands-on engineering activities.



**Inquiry-based Assessment in the Elementary Science Classroom (Gen)***(Elementary–Middle Level)* 200G, Convention Center**Don Powers** (*dt-powers@wiu.edu*), Western Illinois University, Macomb

Explore methods for inquiry-based assessment in the elementary science classroom. I'll share examples and rubrics.

**ACS Session Four: Bond Connections in More Complex Molecules (Chem)***(High School)* L100C, Convention Center**Jerry A. Bell** (*j\_bell@acs.org*), American Chemical Society, Washington, D.C.

Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter.

**PSD Session: Chemical Change—The Breaking and Making of Bonds (Chem)***(Elementary–Middle Level)* L100D, Convention Center**James H. Kessler** (*j\_kessler@acs.org*), American Chemical Society, Washington, D.C.

Investigate common endothermic and exothermic reactions to better understand energy changes on the molecular level. Take home a handout of all activities.

**Exploring Bioethics: A New Model for High School Instruction (Bio)***(High School)* L100E, Convention Center**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 in developing their own well-justified positions on the ethical issues involved.

**Embedded Formative and Summative Assessment (Chem)***(Middle Level–High School)* L100F, Convention Center**Greg Dodd** (*gbdodd@gmail.com*), George Washington High School, Charleston, W.Va.

Join me for a hands-on experience using formative and summative assessment in the science classroom to evaluate and improve science instruction and comprehension.

**Astronomy: Solar Labs and Activities Workshop (Earth)***(Middle Level–High School)* L100G, Convention Center**John McFarland** (*johanneskepler@att.net*), Johannes Kepler Project, Charleston, S.C.

Johannes Kepler will help you build a spectroscope, show you how to make sunspot drawings to measure the Sun's rotational period, and offer several other solar-related activities.

**“Literacy” vs. “literacy”—What's the Difference?****(Gen)***(General)* L100H, Convention Center**Rae McEntyre** (*rae.mcentyre@education.ky.gov*), Kentucky Dept. of Education, Frankfort

Professional scientists say literacy is content. Educators say literacy is reading. We'll examine how these two meanings are connected and how instruction can be influenced.

**NSTA Press Session: Hard-to-Teach Biology Topics: A Framework to Deepen Student Understanding (Bio)***(High School–College/Supervision)* L100I, Convention Center**Susan B. Koba** (*skoba@cox.net*), Science Education Consultant, Omaha, Neb.**Anne L. Tweed**, 2004–2005 NSTA President, and North Central Comprehensive Center, Denver, Colo.Get a brief overview of the framework and tools found in our new book, *Hard-to-Teach Biology Concepts: A Framework to Deepen Student Understanding*.

**1:00–2:00 PM Exhibitor Workshop**

**Tough Topics in Environmental Science: Field Data Collection and Water Quality Sampling (Env)**

(Grades 6–12) M100 A–B, Convention Center

Sponsor: PASCO Scientific

**Len Sharp**, LeMoyne College, Syracuse, N.Y.

This session explores PASCO's state-of-the-art science solutions to one of the toughest aspects of environmental science investigations—field data collection. Participate in standards-based probeware lab activities from PASCO's new advanced environmental science curriculum and be one of the first to see how the SPARK Science Learning System can enhance your teaching practice and improve student understanding of your core topics.

**1:00–2:15 PM Exhibitor Workshop**

**Working as One with Hands and Minds (Gen)**

(Grades K–8) 101B, Convention Center

Sponsor: Delta Education/School Specialty Science

**Tom Graika**, Consultant, Lemont, Ill.

**Johanna Strange**, Consultant, Richmond, Ky.

Students learn best when both their minds and their hands are engaged in classroom activities. A problem-solving approach to teaching promotes this kind of student learning. Delta Science Modules and technological activities will illustrate a variety of problem-solving strategies that lead to real learning. Participants receive a resource packet.

# Starting an NSTA Student Chapter: Faculty & Student Perspectives

**Friday  
October 30  
2:00–3:00 PM  
Minneapolis Convention  
Center  
Room 205A**

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



**1:00–3:30 PM Exhibitor Workshop****Bio-Rad Forensic DNA Fingerprinting Kit (Bio)***(Grades 6–College)* 101E, Convention Center

Sponsor: Bio-Rad Laboratories

**Essy Levy** (*biotechnology\_explorer@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Use molecular scissors to create a DNA fingerprint. Restriction enzyme digestion and DNA gel electrophoresis are used to help determine which suspect committed the crime. Extend this kit with a plasmid mapping activity using the plasmid DNA restriction patterns from the experiment (AP Biology Lab 6).

**1:00–4:00 PM Short Course**★ **Integrating Nonfiction Reading and Writing While Teaching About Energy (SC-5)***(Elementary)* Marquette VIII, Hilton**Tickets Required; \$20****Hallie Mills** (*hmills@need.org*), The NEED Project, Manassas, Va.

For description, see page 33.

**2:00–2:30 PM Presentation****SESSION 1****Nontraditional Grading in a Traditional Environment (Gen)***(General)* M101B, Convention Center**Aaron Osowiecki** (*aosowiecki@gmail.com*), Boston Latin School, Boston, Mass.

Learn about untraditional grading that involves self-assessment and reflection. At Boston Latin School, the physics teachers have developed a system that emphasizes learning and incorporates the students in the assessment process.

**2:00–3:00 PM Meeting****National Science Education Leadership Association (NSELA) Open Meeting**

203 A/B, Convention Center

Join us (NSELA) to share your current insights and concerns. Discover this national NSTA affiliate group, which focuses on meeting the needs of science education leaders.

**2:00–3:00 PM Presentations****SESSION 1****NSTA Press Session: Uncovering Student Ideas in Physical Science: 25 Force and Motion Probes (Phys)***(Elementary–High School)* 101 I/J, Convention Center**Rand R. Harrington** (*rharrington@blakeschool.org*), The Blake School, Minneapolis, Minn.

Presider: Page Keeley, NSTA Retiring President, and Maine Mathematics and Science Alliance, Augusta

Get a preview of the new series *Uncovering Student Ideas in Physical Science*. This session will introduce some of the probes related to the concepts of force and motion.

**SESSION 2****The Minnesota Science Teachers Education Project (MnSTEP) (Gen)***(General)* 200A, Convention Center**Lee M. Schmitt** (*lschmitt@hamline.edu*) and **Shawn T. Hubert** (*shubert01@hamline.edu*), Hamline University, St. Paul, Minn.

Get an overview of the design, delivery, and impact of the nation's largest statewide professional development project for teachers of science. Over 25,000 K–12 students are impacted each year.

**SESSION 3****Let's Look at How Science REALLY Works! (Gen)***(General)* 200B, Convention Center**Judy Scotchmoor** (*jscotch@berkeley.edu*), University of California Museum of Paleontology, Berkeley

Make the true nature and process of science explicit. Explore Understanding Science, a new online resource that portrays science as a nonlinear dynamic process rather than a rigid linear methodology.

**SESSION 4****Dumbledore's Transfiguration Class: Science and Magic from Hogwart's Academy (Gen)***(Preschool–Middle Level)* 200F, Convention Center**Alan J. McCormack** (*amccorma@mail.sdsu.edu*), NSTA President-Elect, and San Diego State University, San Diego, Calif.

Magical and scientific events highlight the adventures of Harry Potter in the worldwide children's literature series. Moaning Myrtle, Fawkes the Phoenix, and Hedwig the Owl will be guests!

SESSION 5

★ **Using Science Notebooks in the Elementary Classroom (Gen)**

(General) 200J, Convention Center

**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 6

**Bring the Year of Science into Your Classroom with NOAA Resources (Gen)**

(General) 201 A/B, Convention Center

**Kirk Beckendorf** (*kirk.beckendorf@noaa.gov*), Einstein Fellow, NOAA, Washington, D.C.

In celebration of the 2009 Year of Science, NOAA has compiled a DVD of top resources. Receive a copy and an overview of its contents.

SESSION 7

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

(General) 205A, Convention Center

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

Interested in getting your preservice teachers more involved in the profession while still preparing them to enter the classroom? Be sure to join us for an interactive and participatory discussion by and about NSTA student chapter advisors on the advantages of starting an NSTA student chapter at your college or university.

SESSION 8

**NABT Session: Quick Tips and Resources to Bring Biotechnology into Your Classroom (Bio)**

(General) L100B, Convention Center

**Barbara Bielec** and **Ryan Olson**, BioPharmaceutical Technology Center Institute, Madison, Wis.

Presenter: Barbara Bielec

We have taught thousands of students about biotechnology. Learn to efficiently run agarose gels, model biotechnology concepts, reduce costs, and find resources.

SESSION 9

**Tapping the Engineering Skills of the Society of Women Engineers (Gen)**

(General) M100I, Convention Center

**Presenter to be announced**

Establish a partnership with the Society of Women Engineers (SWE) and tap into their engineering skills. The SWE provides workshops, labs, teacher support, and technical and online resources.

SESSION 10

**SCST Session: An Introduction to the College in the Schools Program at the University of Minnesota (Bio)**

(High School—College) M101A, Convention Center

**Murray S. Jensen** and **Susan Henderson** (*hende002@umn.edu*), University of Minnesota, Minneapolis

**Alyson Purdy** (*alyson-purdy@hopkins.k12.mn.us*), Hopkins High School, Minnetonka, Minn.

**Thomas Sharp** (*thomas.sharp@district196.org*), Apple Valley, Minn.

Professors, teachers, and administrators discuss the politics surrounding concurrent enrollment programs using a human anatomy and physiology course as an example.



**2:00–3:00 PM Workshops****A Scientific Path from Geometry to Geography****(Gen)***(Elementary–Middle Level)*

200D, Convention Center

**Bruce G. Smith** (*bsmith@clarion.edu*), Clarion University, Clarion, Pa.

Practice inquiry-based science instruction as you take students from entry-level location plotting through geometric applications to solve real-world forestry problems.

**sSchool Globes: The Art and Science of Climate Change****(Env)***(Middle Level)*

200G, Convention Center

**Josie M. Elbert** (*jelbert@naturemuseum.org*) and **Rebecca Ammann** (*rammann@naturemuseum.org*), Peggy Notebaert Nature Museum, Chicago, Ill.

Inspired by the public art project Cool Globes: Hot Ideas for a Cooler Planet, this curriculum puts climate change learning experiences into the hands of teachers and students.

✓ **Questions Are the Key to Inquiry** **(Gen)***(Elementary–Middle Level)*

200H, Convention Center

**Patricia R. Simpson**, St. Cloud State University, St. Cloud, Minn.

Presider: Joyce Crews, Anna-Jonesboro Community High School, Anna, Ill.

Develop different types of questions for inquiry using this scaffolding technique. The process can be applied to most ages and all disciplines.

★ **Wilderness Writing for Wild Youth** **(Env)***(Informal Education)*

200I, Convention Center

**Jan D. Wellik** (*info@ecoexpressions.org*), Eco Expressions, San Diego, Calif.

Create an environmental writing project that turns students into educated citizens—incorporate writing about environmental issues like urban development, water pollution, and endangered species into your classroom lesson plans. We'll provide handouts with writing activities for all grade levels.

**AAPT Session: Physics Make and Take** **(Phys)***(High School)*

L100A, Convention Center

**Steve Ethen** (*sethen@umn.edu*), Burnsville High School, Burnsville, Minn.**Andy Rundquist**, Hamline University, St. Paul, Minn.

Come make a stripped-down generator, a magnetic field detector, and a light meter.

**ACS Session Five: Chemistry of Aqueous Solutions of Gases** **(Chem)***(High School)*

L100C, Convention Center

**Jerry A. Bell** (*j\_bell@acs.org*), American Chemical Society, Washington, D.C.

Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter.

**PSD Session: Index of Refraction—Follow a New Path with the Refraction of Light** **(Phys)***(Elementary–Middle Level)*

L100D, Convention Center

**Becky Thompson-Flagg** (*flagg@aps.org*), American Physical Society, College Park, Md.

Learn how light behaves as it travels from one medium to another. See how things can “disappear” and use gelatin and lasers to discover how this happens. Take home a handout of all activities.

**Increasing Appreciation for Science in Six Native American Schools** **(Bio)***(Middle Level–High School)*

L100E, Convention Center

**Maurice Godfrey** (*mgodfrey@unmc.edu*), **Roxanna L. Jokela** (*rojokela@unmc.edu*), and **Kim Soper**, University of Nebraska Medical Center, Omaha

Presider: Maurice Godfrey

Our science education partnership program has developed a variety of hands-on science activities to meet the needs of students in remote rural communities. Our long-term goal is to increase the number of Native Americans who enter health and/or science professions.

**Bring the Science of Cars into the Classroom** **(Chem)***(Middle Level–High School/Supv.)*

L100F, Convention Center

**Andrew G. Nydam** (*andrewnydam@hotmail.com*), Olympia High School, Olympia, Wash.

Students love cars but dislike science? Here are some lessons that use cars to teach major science concepts. Yes, even if you are mechanically challenged!

**What Is Your Cosmic Connection to the Elements?** **(Earth)***(High School)*

L100G, Convention Center

**A. Marie Pool** (*marie.pool@clintonokschools.org*), Clinton High School, Clinton, Okla.

We'll trace the chemical elements all around us to their origins in cosmic events—the Big Bang, stars, stellar explosions, and cosmic rays.

**NASA Brings You Hands-On Newton's Laws of Motion** (Phys)

(Middle Level–High School) L100H, Convention Center  
**David P. Beier** ([dbeier@barstowschool.org](mailto:dbeier@barstowschool.org)), The Barstow School, Kansas City, Mo.

Experience two dozen hands-on/minds-on activities developed by NASA Astrophysics Ambassadors. Handouts and free NASA Newton's Laws poster sets.



**NSTA Press Session: Keeping Your Distance: A Lesson from Earth Science Success** (Earth)

(Middle Level) L100I, Convention Center  
**Cathy Oates-Bockenstedt** and **Susan Nielsen**, Central Middle School, Eden Prairie, Minn.

**Michael Oates**, University of Northern Iowa, Cedar Falls

Try your hand (and your feet) at an active and engaging lesson—demonstrating the size and scope of our solar system. Keeping Your Distance, a lesson from *Earth Science Success: 50 Lesson Plans for Grades 6–9*, will get your students up and moving while they learn current astronomy concepts. Take this lesson plan with you today and teach it next week.

**National Earth Science Teachers Association Earth Science Share-a-Thon** (Earth)

(Elementary–High School) Grand Salons E&F, Hilton  
**Roberta M. Johnson** ([rmjohnsn@ucar.edu](mailto:rmjohnsn@ucar.edu)), University Corporation for Atmospheric Research, Boulder, Colo.

**Tom Ervin** ([tomervin@mchsi.com](mailto:tomervin@mchsi.com)), Retired Educator, LeClaire, Iowa

**Paul Herder** ([pherder@verizon.net](mailto:pherder@verizon.net)), Marshfield High School, Marshfield, Wis.

**Yvette McCulley** ([yvette.mcculley@iowa.gov](mailto:yvette.mcculley@iowa.gov)), Iowa Dept. of Education, Des Moines

**Carole Reesink** ([creesink@bemidjistate.edu](mailto:creesink@bemidjistate.edu)), Bemidji State University, Bemidji, Minn.

Presider: Roberta M. Johnson

Join NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

**2:00–3:15 PM Exhibitor Workshops**

**Developing Quality Science Assessment Items**

(Gen)

(Grades 3–12) 101D, Convention Center

Sponsor: Data Recognition Corp.

**David Durette, Erica Hyland, Jessica Richardson,** and **Joseph Schweiss**, Data Recognition Corp., Maple Grove, Minn.

Have you ever wondered how science items on state assessments end up there? Would you like to write items for your own formative assessments? Join DRC, a Twin Cities–based company, on an interactive guided journey to develop valid, reliable assessment questions.

**Ensure Your Students' Success on the AP\* Chemistry Exam** (Chem)

(Grades 9–12) 101F, Convention Center

Sponsor: Pearson

**Ed Waterman**, Retired Educator, Fort Collins, Colo.

Join fellow AP Chemistry teacher and Pearson author Ed Waterman for tips and tools teachers can use to ensure student success on the AP Chemistry exam.

*\*AP is a registered trademark of the College Board, which was not involved in the production of this product.*

**Discover the Solar System and Beyond with GEMS® Space Science Sequences** (Earth)

(Grades 3–8) 101G, Convention Center

Sponsor: Carolina Biological Supply Co.

**Carolina Teaching Partner**

GEMS, along with Carolina Curriculum, is launching the innovative Space Science Sequences, which provide a coherent standards-based curriculum and address key space science concepts for grades 3–8.

**Take the Leap: Carolina's Perfect Solution® Frog Dissection** (Bio)

(Grades 6–12) 101H, Convention Center

Sponsor: Carolina Biological Supply Co.

**Carolina Teaching Partner**

Frogs are ideal specimens for introducing basic human anatomy and body systems. Experience Carolina's Perfect Solution frogs, the most lifelike and safest preserved frog specimens available. Participants practice basic classroom dissection techniques and explore the anatomy and physiology of the frog. Free dissection supplies and door prizes.

**Bring Biology to Life (Bio)***(Grades 9–12) M100 F–H, Convention Center*

Sponsor: Houghton Mifflin Harcourt

**Jeannie Dennard** ([jeannie\\_dennard@hmhpub.com](mailto:jeannie_dennard@hmhpub.com)), Houghton Mifflin Harcourt, Boston, Mass.

One of the most effective strategies for engaging and motivating students is to connect the subject to students' daily life. All too often, students think that success in a biology course comes from memorizing facts and terms, yet they have no personal connection to motivate their interest or imagination. Biology offers a unique opportunity to engage students because almost everything in today's world is affected by biological discoveries. But identifying "cool connections" and constructing meaningful bridges to the underlying biology takes time that many teachers don't have.

**EDVOTEK Biotechnology: New! Achieve Successful PCR in One Lab Session (Bio)***(Grades 8–College) M100D, Convention Center*

Sponsor: EDVOTEK

**Jack Chirikjian** ([info@edvotek.com](mailto:info@edvotek.com)), EDVOTEK, Bethesda, Md.

Come learn about our new technology that makes PCR fast, easy, and affordable. Our unique two-step PCR experiment can be completed in one lab session, and our user-friendly EdvoCycler makes PCR affordable for classrooms. Participants are automatically entered into a raffle for a FREE classroom electrophoresis setup (a \$500 value) OR a credit of the same value toward the purchase of an EdvoCycler!

***A Natural Approach to Chemistry (Chem)****(Grades 9–12) M100E, 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 his new high school book *A Natural Approach to Chemistry*. This course takes a fresh look at how chemistry is used today in and out of the laboratory. Selected lab activities will feature an innovative new probeware system that is rugged, and simple to use, and makes accurate, quantitative measurements accessible to all students. Selected labs and other program materials will be provided for all participants.

**2:00–3:30 PM Exhibitor Workshops****Chemistry and the Atom: Fun with Atom-building Games! (Chem)***(Grades 5–12) 101A, Convention Center*

Sponsor: CPO Science/School Specialty Science

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

Our understanding of matter is so abstract that students have a hard time making sense of these fascinating concepts. In this workshop, you will experience innovative games and activities that give students with different learning styles opportunities to explore and grasp atomic structure and the periodic table.

**Developing 21st-Century Minds with Vernier (Gen)***(Grades 7–College) M100C, Convention Center*

Sponsor: Vernier Software &amp; Technology

**David Braunschweig** ([info@vernier.com](mailto:info@vernier.com)), Vernier Software & Technology, Beaverton, Ore.

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

**2:00–4:30 PM Exhibitor Workshop****Making Sense of Science Notebooks with FOSS 3–6 (For Experienced Users) (Gen)***(Grades 3–6) 101C, Convention Center*

Sponsor: Delta Education/School Specialty Science—FOSS

**Jeri Calhoun**, Science Associate, Isle of Palms, S.C.**Ellen Mintz**, Consultant, Charleston, S.C.**Brian T. Campbell, Diana Valez, and Joanna Totino**, Lawrence Hall of Science, University of California, Berkeley

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. We'll demonstrate how to use notebooks to guide instruction through embedded assessments and next-step strategies. Sample materials provided.

### 2:30–4:00 PM Exhibitor Workshop

#### Using SPARK Science Learning System to Enhance Hands-On Science (Gen)

(Grades 6–12) M100 A–B, Convention Center

Sponsor: PASCO Scientific

**Korey Champe**, PASCO Scientific, Roseville, Calif.

**Len Sharp**, LeMoyne College, Syracuse, N.Y.

To prepare science learners today for the demands of tomorrow, PASCO introduces the SPARK Science Learning System. Join us for an introduction and see how its design can help every teacher transform their classroom into a 21st-century learning environment. Participate in a powerful, memorable learning experience as you complete one of the 60 pre-installed lab activities.

### 3:30–4:00 PM Presentations

#### SESSION 1



#### Assessment and Management of Natural Resources (Gen)

(Middle Level–High School) 200I, Convention Center

**Paul Ekness** ([pekness@wmanet.org](mailto:pekness@wmanet.org)), Wilbraham and Monson Academy, Wilbraham, Mass.

**Timothy Randhir**, University of Massachusetts, Amherst

We developed a program to teach students how to monitor and assess natural resources for school, city, and town properties with the goal of sustainable management.

#### SESSION 2

#### **NSTA** NSTA Avenue Session: NSTA Membership Jeopardy (Gen)

(General) 205A, Convention Center

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

Learn all that your NSTA membership can do for you in a fun and audience-participation game styled upon TV's *Jeopardy*. Study your program book and [www.nsta.org/membership](http://www.nsta.org/membership) in advance so you can be the first to hit the virtual buzzer and win!

### 3:30–4:30 PM NSTA ESP Symposium II

#### NSTA Exemplary Science Program (ESP)...Realizing the Visions of the National Standards: It Takes ESP to Find Exemplary Science Programs (Gen)

(General) M100I, Convention Center

Organized by Robert E. Yager, 1982–1983 NSTA President and Editor of the NSTA ESP Program

Coordinator: Coordinator: Cindy Moss, Charlotte-Mecklenburg Schools, Charlotte, N.C.

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 in Grades 5–8

Janet Struble ([janet.struble@utoledo.edu](mailto:janet.struble@utoledo.edu)), University of Toledo, Ohio

#### Exemplary Science Programs in Grades 9–12

Cindy Moss ([cindy.moss@cms.k12.nc.us](mailto:cindy.moss@cms.k12.nc.us)), Charlotte-Mecklenburg Schools, Charlotte, N.C.



—Meet Minneapolis™ Photo



**3:30–4:30 PM Presentations****SESSION 1**

**CESI Session: Get the Scoop** (Gen)  
(General) 200A, Convention Center

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

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

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

Do you wish to walk the red carpet? CESI has awards and scholarship opportunities for you! Share your professional experiences and learn from others around the world. Join us in an international conversation.

**SESSION 2**

**The Role of “S” in STEM: Opportunities and Challenges for Science Educators** (Gen)

(General) 200B, Convention Center

**Joel D. Donna** (*joel.donna@state.mn.us*), Minnesota Dept. of Education, Roseville

Explore the role that science education can play in STEM integrated practices. We’ll look at examples of integrated efforts in Minnesota.

**SESSION 3**

★ **Incorporating Science and Multicultural Literature** (Gen)

(General) 200J, Convention Center

**Lisa S. Moore** (*lmoore@regent.edu*), Regent University, Virginia Beach, Va.

Examine the importance of connecting science to multicultural literature and take home a list of recommended multicultural literature and activities.

**SESSION 4**

✓ **Help Students Meet Science Standards** (Gen)  
(Elementary–High School) 201 A/B, Convention Center

**Barbara Jones** (*barbara\_jones@apsva.us*), Arlington (Va.) Public Schools

Develop common assessments with your colleagues. Teach your students to analyze their quiz and test results. Apply interventions and reassessments to help students meet science standards.

**SESSION 5**

**NABT Session: Online Forensics and the Biological Effects of Alcohol** (Bio)

(Middle Level) L100B, Convention Center

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

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

In this free online program, students act as forensic scientists to examine alcohol’s effects on three body systems. We’ll share labs and support materials.

**SESSION 6**

**Science at Hogwarts: A Little Magic Show** (Chem)  
(Informal Education) M100J, Convention Center

**Jane Snell Copes** (*profsepoc@scienceoutsidethebox.com*), Science Outside the Box, Inver Grove Heights, Minn.

Professor Sepoc is at your service! This perfectly pleasing potions extravaganza includes color-changing solutions, bubbling cauldrons, and the mildly alarming exploding pillow.

**3:30–4:30 PM Workshops**

**Examining the Human Footprint: Population, Land Use, and the Global Environment** (Env)

(Middle Level–High School) 200C, Convention Center

**Carol Bliese** (*cbliese@populationconnect.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. Leave with extensive lesson plans on CD-ROM.

**Thirty-Minute Labs with Maximum Results** (Earth)

(High School) 200D, Convention Center

**Dee McLellan**, The JASON Project, National Geographic, Andover, Minn.

The JASON Project connects students with great explorers and great events. Come explore monster storms through hands-on labs and an online storm tracker video game!

**Energy Issues in a Changing World (Env)**

(Elementary–Middle Level) 200E, Convention Center

**Jill M. Bible** (*jbible@calacademy.org*) and **Grahme Smith** (*gsmith@calacademy.org*), California Academy of Sciences, San Francisco

Fossil fuels, climate change, carbon footprints, renewable energy—learn to integrate energy issues into your curriculum.

**Integrating Science and Math in the Middle/Junior High Classroom (Gen)**

(Middle Level) 200G, Convention Center

**Don Powers** (*dt-powers@wiu.edu*), Western Illinois University, Macomb

The Northwest Illinois Math and Science Partnership provides teachers with training in science and math instruction as well as increasing teachers' content knowledge. Learn how science and math instructors work together to integrate instruction in middle school settings.

**Analyzing Black Holes and Supernovae Through International X-ray Eyes (Earth)**

(High School–College) 200H, Convention Center

**A. Marie Pool** (*ampool@cableone.net*), Clinton High School, Clinton, Okla.

Your students can explore the universe through X-ray light using recent data from the NASA-Japanese *Suzaku* satellite.

**AAPT Session: Physics Make and Take (Part II) (Phys)**

(High School) L100A, Convention Center

**Steve Ethen** (*sethen@umn.edu*), Burnsville High School, Burnsville, Minn.

**Andy Rundquist**, Hamline University, St. Paul, Minn.

Come make a stripped-down generator, a magnetic field detector, and a light meter. *Note:* This session continues where Part 1 (p. 101) leaves off.

**ACS Session Six: Coupled Reactions, Energetics, and Chemical Bonds (Chem)**

(High School) L100C, Convention Center

**Jerry A. Bell** (*j\_bell@acs.org*), American Chemical Society, Washington, D.C.

Engage in activities, discussion, analyses, and assessment that help understanding of the chemical bond and how it is responsible for the properties of matter.

**PSD Session: Diffraction—Using Light to Measure (Phys)**

(Elementary–Middle Level) L100D, Convention Center

**Becky Thompson-Flagg** (*flagg@aps.org*), American Physical Society, College Park, Md.

Use a laser and diffraction to measure the width of a human hair. Learn how laser light behaves when it interacts with something tiny such as a razor edge or a hair. Take home a handout of all activities.

**Shear Madness! (Bio)**

(Middle Level–High School) L100E, Convention Center

**Jeff Lukens** (*jeffrey.lukens@k12.sd.us*), Roosevelt High School, Sioux Falls, S.Dak.

Explore the phenomenon of temperature regulation in this hands-on data-collection session.

**Inquiring in Chemistry with Everyday Materials (Chem)**

(Middle Level–High School) L100F, Convention Center

**Matt R. Moffitt** (*mmoffitt15@gmail.com*), Iowa State University, Ames

**Jesse Wilcox** (*wilcoxj@wdmcs.org*), Valley Southwoods Freshman High School, West Des Moines, Iowa

This inquiry activity involves the interaction of easy-to-obtain powders with common household substances. At the end of the laboratory experience, students determine an unknown mixture and classify the different interactions, leading to a discussion of chemical and physical changes.

**Recording the Rhythms of Stellar Heartbeats (Earth)**

(General) L100G, Convention Center

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

Estimate and graph the changing brightness of a variable star over time and use the resulting light curve to determine the properties of the star.

**Science Really Is an Art (Gen)**

(Elementary–High School) L100H, Convention Center

**Nathan Meyer** (*meyer@thebakken.org*), **Danni Dancer** (*dancer@thebakken.org*), and **Anika Taylor** (*taylor@thebakken.org*), The Bakken Museum, Minneapolis, Minn.

Explore arts integration and try some simple activities that can be easily adapted to your classroom. The Bakken Museum uses a variety of styles of arts integration, including original plays, observing pictures, and listening to music.

**National Earth Science Teachers Association Rock and Mineral Raffle (Earth)**

*(General)* Grand Salons E&F, Hilton  
**Parker O. Pennington IV** (*parkiv@umich.edu*), Retired Educator, Ann Arbor, Mich.

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

Presider: **Ron Fabick** (*rfabick@zoominternet.net*), East-Central Regional Director, NESTA, Medina, Ohio

Here's a chance to win display-quality specimens of rocks, minerals, fossils, and other earth science materials from around the U.S.

**3:30–5:30 PM SOCIAL**

**NMLSTA Ice Cream Social**

*Marquette IX, Hilton*

Come join your middle level colleagues and enjoy a delicious ice cream sundae while you learn about the National Middle Level Science Teachers Association and share ideas. Visit [www.NMLSTA.org](http://www.NMLSTA.org) for more information.

**4:00–5:00 PM Exhibitor Workshop**

**Bio-Rad Cloning and Sequencing Explorer Series (Bio)**

*(Grades 6–College)* 101E, Convention Center

Sponsor: Bio-Rad Laboratories

**Essy Levy** (*biotechnology\_explorer@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Get your students published in GenBank. In this unique modular lab series, students are guided through an innovative research work flow identical to those performed in genomics labs worldwide. Learn about this multiple-week lab course where students combine traditional and cutting-edge molecular biology techniques and bioinformatics to clone, sequence, and analyze a housekeeping gene from a plant of your choice, ensuring each class produces unique and novel data.

**“With FOSS, students are engaged in learning about science.”**

**“Since we’ve adopted FOSS, our teachers are excited and interested in teaching science. All students, especially our diverse learners, are engaged in learning about science.”**

— *Marlene Felix, Director Elementary History/Social Science and Science Los Angeles Unified School District*



FOSS engages students and results in a deep understanding of science concepts. FOSS is research-based and extensively field-tested in diverse schools across the country. FOSS works because students learn science best by doing science.

**To learn more, schedule a presentation, or participate in a pilot, call 800-258-1302 or visit [www.deltaeducation.com/FOSS](http://www.deltaeducation.com/FOSS).**



## 4:00–5:15 PM Exhibitor Workshops

### Teaching Climate Change with a Global Climate Model and Software (Earth)

(Grades 9–College) 101D, Convention Center

Sponsor: Seeds Software

**Clayton Holt** ([cholt@seeds2learn.com](mailto:cholt@seeds2learn.com)), Nicollet Junior High School, Burnsville, Minn.

Easily teach students the science of climate change using Seeds Software’s comprehensive software. The project includes an authentic global climate model that students can readily use. It comes complete with many lessons and offline hands-on labs so you can focus on teaching. Learn science like scientists do using technology.

### From Science to Engineering (Gen)

(Grades 6–8) 101F, Convention Center

Sponsor: Pearson

**Kathryn C. Thornton**, University of Virginia, Charlottesville

Typical science activities focus on demonstrating a science concept whereas engineering focuses on solving a problem. Brainstorm ideas on how to extend your science activities into engineering design.

### MS Degree in Geosciences via Distance Learning from Mississippi State University (Earth)

(Grades K–12) 101G, Convention Center

Sponsor: Mississippi State University

**Doug Gillham** ([dmg3@msstate.edu](mailto:dmg3@msstate.edu)) and **Kathleen M. Sherman-Morris** ([kms5@msstate.edu](mailto:kms5@msstate.edu)), Mississippi State University, Mississippi State, Miss.

Discover how you can earn an MS degree in geosciences via distance learning through the Teachers in Geosciences program. Our 12-course, 36-credit hour graduate program is designed to take two years and includes courses in meteorology, geology, planetary science, oceanography, hydrology, and environmental geosciences. Over 250 students from across the country and around the world are enrolled.

### Need “Energy” in Your Environmental Classes? Learn About Carolina’s NEW Inquiries in Science™ Environmental Series (Env)

(Grades 9–12) 101H, Convention Center

Sponsor: Carolina Biological Supply Co.

**Kelly Branchaud**, Carolina Biological Supply Co., Burlington, N.C.

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

### Capturing Attention in the Chemistry Classroom (Chem)

(Grades 9–12) M100 F–H, Convention Center

Sponsor: Houghton Mifflin Harcourt

**Jerry Sarquis**, Miami University, Oxford, Ohio

**Mickey Sarquis**, Miami University Middletown, Ohio  
*Modern Chemistry* authors Jerry and Mickey Sarquis show how to spark imagination and interest in chemistry with simple but powerful tricks and tips. The Sarquises are recognized leaders in chemistry education initiatives.

### Using Math and Science as the New Literacy to Reach At-Risk Students (Earth)

(Grades 6–8) M100D, Convention Center

Sponsor: National Geographic, The JASON Project

**Robin McDougal** ([robin.mcdougal@fcps.edu](mailto:robin.mcdougal@fcps.edu)), The JASON Project, Fairfax County Public Schools, Reston, Va.

Advances in technology have created an environment where children need to develop strong problem-solving, communication, and critical-thinking skills early in their educational career. Educators and education advocates have developed a program to emphasize these important areas, not only to satisfy student learning and achievement, but to break new ground with “at-risk” students.



**Galileo Skies****(Earth)***(Grades 5–College)**M100E, Convention Center*

Sponsor: Starry Night Education

**Herb Koller** ([hkoller@simcur.com](mailto:hkoller@simcur.com)), Starry Night Education, New York, N.Y.

It has been 400 years since Galileo! This workshop will use technology to show how you can simulate Galileo's observations. Lessons, exercises, simulations, and classroom activities allow students to see what he saw when and where he saw it.

**4:00–5:30 PM Exhibitor Workshop****Collision Physics: A Smashing Good Time! (Phys)***(Grades 5–12)**101A, Convention Center*

Sponsor: CPO Science/School Specialty Science

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

What happens when you launch a car on a track system and hit another car? You can change the force used to launch the moving car and the mass of both the moving car and target car. See how concepts can meet mathematics and accurate data collection in a SMASHING investigation.

**5:00–6:30 PM Reception****Student Chapter and Student Members Reception***(By Invitation Only)**Marquette III, Hilton*

This very special reception for NSTA student members has been created especially to recognize and honor your hard work and enthusiasm as you begin what is hopefully a long and fruitful career toiling in the vineyards of education. If your school has an NSTA Student Chapter, bring examples of the work of your chapter, best practices, and stories to share with students at institutions that don't yet have a chapter. If your school does not yet have an NSTA Student Chapter, hear your future colleagues' best practices and learn about starting and running a successful chapter at your school. Hors d'oeuvres and refreshments will be served as you network with your peers. You'll also get to hear from and share your insights with key NSTA leadership, including NSTA President Pat Shane.



—© Explore Minnesota Tourism Photo

### 8:00–8:30 AM Presentation

#### SESSION 1

✓ **The Reflective Assessment Technique: Fifteen Minutes to Improved Instruction (Phys)**

(Elementary–Middle Level) 201 A/B, Convention Center

**Kathy J. Long** ([klong@berkeley.edu](mailto:klong@berkeley.edu)), Lawrence Hall of Science, University of California, Berkeley

Learn a quick assessment technique that pinpoints what students need to learn next—without giving a quiz! See how it improved student performance and teacher practice in a national study.



### 8:00–9:00 AM Presentations

#### SESSION 1

**Astronomy: 50 Great Resources in 50 Minutes—All Free! (Earth)**

(Elementary–High School) 200A, Convention Center

**John McFarland** ([johanneskepler@att.net](mailto:johanneskepler@att.net)), Johannes Kepler Project, Charleston, S.C.

Johannes Kepler shows where to find over 50 great resources, including software, songs, applets, digital downloads, multimedia, summer workshops, and labs.

#### SESSION 2

**Making Climate Change Local Using Online Data (Earth)**

(Middle Level–High School) 200B, Convention Center

**Ryan M. Bowman**, **Cheri L. Hamilton** ([chamilton@cresis.ku.edu](mailto:chamilton@cresis.ku.edu)), and **Dana Atwood-Blaine** ([danaab@ku.edu](mailto:danaab@ku.edu)), The University of Kansas, Lawrence

Bring climate change to a local level with online data sets and models.

#### SESSION 3

**Using Middle School Project-based Life Science as an Anchor in Developing Interdisciplinary Units (Bio)**

(Middle Level)

200F, Convention Center

**Stephanie S. Erickson** ([stephanie.s.erickson@spps.org](mailto:stephanie.s.erickson@spps.org)), Washington Technology Magnet Middle School, St. Paul, Minn.

Learn about required professional development, unit-writing procedures, and lessons learned from teachers who have developed and implemented interdisciplinary units using a project-based curriculum.

#### SESSION 4

★ **Using Inquiry to Integrate Disciplines in the Outdoor Classroom (Bio)**

(General)

200H, Convention Center

**Laurie Arnason** ([larnason@egf.k12.mn.us](mailto:larnason@egf.k12.mn.us)), South Point Elementary School, East Grand Forks, Minn.

Presider: **Jerry E. Wenzel** ([jerrywenzel@brainerd.net](mailto:jerrywenzel@brainerd.net)), Retired Educator, Randall, Minn.

Enhance student learning with outdoor journaling. Using a prairie and/or a butterfly garden (or any outdoor ecosystem) as a focal point, you will learn how to integrate the many disciplines that get sidelined in your classroom. Prizes!

SESSION 5

✓ **Aligning Standards to Assessments and Improving Achievement** (Gen)

(Middle Level–High School) 200J, Convention Center

**Cari Jo Kiffmeyer** (*carijo.kiffmeyer@wayzata.k12.mn.us*), Wayzata Public Schools, Plymouth, Minn.

Learn how to increase student achievement by first identifying learning targets and aligning standards, then creating assessments, and finally planning your instruction.

SESSION 6

**A Balanced Relationship: Creating Effective Partnerships Between Museums and Schools** (Gen)

(General) 205A, Convention Center

**Beth Murphy** (*murphy@thebakken.org*), The Bakken Museum, Minneapolis, Minn.

**Joe Alfano** (*joe.alfano@mpls.k12.mn.us*), Minneapolis (Minn.) Public Schools

Explore how a museum and school district can work toward the same goal—with lessons learned and shared successes.

SESSION 7

**Launching into Science Inquiry** (Phys)

(Middle Level–High School) L100A, Convention Center

**Mike J. Steiner** (*mikesteiner@chetek.k12.wi.us*), School District of Chetek, Wis.

Help students develop science inquiry skills by having them design and conduct experiments with projectile motion using air-powered PVC launchers.

SESSION 8

**Preservice Teachers' Conceptions of Standards: Does Curriculum Topic Study Make a Difference?** (Gen)

(General) M101A, Convention Center

**James T. McDonald** (*jim.mcdonald@cmich.edu*), Central Michigan University, Mount Pleasant

Elementary/middle level preservice teachers were asked about the role of science standards in preparing instruction. After using Curriculum Topic Study (CTS), how did their perceptions change? We'll examine the use of CTS in science methods courses.

SESSION 9

**It's All in the Targets** (Gen)

(General) M101B, Convention Center

**Kendra K. Larmour** (*kendra.larmour@stoughton.k12.wi.us*) and **Amy Ruck** (*amy.ruck@stoughton.k12.wi.us*), River Bluff Middle School, Stoughton, Wis.

Learn how we developed measurable learning targets based on the standards and revolutionized curriculum, assessment, and student accountability.

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**8:00–9:00 AM Workshops**

**DNR MinnAqua Program: Curriculum Resources and Environmental Education** (Env)

(Informal Education) 200C, Convention Center

**Nadine Meyer** (*nadine.meyer@state.mn.us*) and **Roland Sigurdson** (*roland.sigurdson@dnr.state.mn.us*), Minnesota Dept. of Natural Resources, Duluth

Participate in hands-on activities focused on aquatic resources and outdoor recreation from the MinnAqua Program leader's guide *Fishing: Get in the Habitat!* All participants will receive a copy of the leader's guide on CD.

**Kites in the Classroom** (Gen)

(Elementary–Middle Level) 200D, Convention Center

**Judith A. Wehn** (*judith.wehn@wpafb.af.mil*), National Museum of the U.S. Air Force, Wright-Patterson Air Force Base, Ohio

**Diana M. Hunn** (*diana.hunn@notes.udayton.edu*), University of Dayton, Ohio

Explore the principles of flight using low-cost sled kites. We will build a simple sled kite while modeling mathematics and techniques for data analysis.



**Leave the Fear Behind: Implement Student-based Inquiry (Gen)***(Elementary)* 200E, Convention Center**Jill A. Jensen** ([jill.jensen@district196.org](mailto:jill.jensen@district196.org)), Glacier Hills School of Arts and Science, Eagan, Minn.**Cathy J. Kindem** ([cathy.kindem@district196.org](mailto:cathy.kindem@district196.org)), Cedar Park STEM Elementary School, Apple Valley, Minn.

Learn how to include student-generated questions in your elementary science lessons. Leave with a simple inquiry method you can use with your current resources.

**Inquiry Matters (Chem)***(Elementary–Middle Level)* 200G, Convention Center**Adam Boyd** ([a\\_boyd@acs.org](mailto:a_boyd@acs.org)), American Chemical Society, Washington, D.C.

Conduct two tests on four look-alike household liquids, then use their characteristic properties to identify unknowns. Free molecular model animations explain observations on the molecular level.

**Teaching Green (Env)***(Middle Level)* 200I, Convention Center**Josie M. Elbert** ([jelbert@naturemuseum.org](mailto:jelbert@naturemuseum.org)) and **Rebecca Ammann** ([rammann@naturemuseum.org](mailto:rammann@naturemuseum.org)), Peggy Notebaert Nature Museum, Chicago, Ill.

From energy and waste audits to native plants, watersheds, and composting, teaching green is a science. Experience hands-on lessons that you can use next week.

**Schoolyard Inquiry: Exploring the Organisms Outside Your Door (Bio)***(Elementary–High School)* L100B, Convention Center**Elisabeth P. Young-Isebrand** ([young142@umn.edu](mailto:young142@umn.edu)), **Karen S. Oberhauser** ([oberh001@umn.edu](mailto:oberh001@umn.edu)), and **Robert B. Blair**, University of Minnesota, St. Paul

The schoolyard is an ideal setting for inquiry learning. Learn ecology sampling techniques that will increase student understanding of science methods and local environmental issues.

**Technology Binds Mathematics and Science (Chem)***(Middle Level–High School)* L100C, Convention Center**Greg Dodd** ([gbdodd@gmail.com](mailto:gbdodd@gmail.com)), George Washington High School, Charleston, W.Va.

Integrate math 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. Handouts.

**8:00–9:15 AM Exhibitor Workshops****Bio-Rad Genes in a Bottle™ Kit (Bio)***(Grades 6–College)* 101E, Convention Center

Sponsor: Bio-Rad Laboratories

**Essy Levy** ([biotechnology\\_explorer@bio-rad.com](mailto: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!

**The Digital Path and Essential 21st-Century Skills (Gen)***(Grades 6–8)* 101F, Convention Center

Sponsor: Pearson

**Don Buckley**, The School at Columbia University, New York, N.Y.

Learn how Pearson's digital path that accompanies the "write-in student edition" can aid teaching and learning essential 21st-century skills. Key 21st-century skills will be discussed, including creativity and intellectual curiosity, communication and media literacy skills, interpersonal and collaborative skills, problem identification, formulation and solution, and social responsibility. Learn how these essential skills can be applied through teaching science using Pearson's digital path.

**Teaching About the Rock Cycle and Earth Times  
(Earth)**

(Grades 6–9)

M100E, Convention Center

Sponsor: Lab-Aids, Inc.

**Mark Koker**, Lab-Aids, Inc., Ronkonkoma, N.Y.

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

**9:00 AM–12 Noon Exhibits**

Hall B, Convention Center

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

**9:00–11:00 AM Special Event**

**Science Matters in Minneapolis**

(Elementary)

Exhibit Hall, Convention Center

Sponsored by 3M and the ExxonMobil Foundation

Learn how to bring science to life for your students and children at this event. The National Science Teachers Association and Twin Cities Public Television (TPT) are hosting a FREE community science event for all elementary teachers and parents. Engage in exciting hands-on activities, live animal presentations, and demonstrations on how to make perfume and how to produce electricity using model wind turbines. And learn about NSTA's newest initiative, *Science Matters*, 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. FREE *Science Matters* tote bags filled with cool giveaways will be distributed to the first 150 people who attend.

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**9:30–10:30 AM Presentations**

**SESSION 1**

**SATELLITES: Using Geospatial Technologies to Teach the Science of Alternative Energies and Climate Change  
(Earth)**

(General)

200B, Convention Center

**Mikell Lynne Hedley** ([mikell.hedley@utoledo.edu](mailto:mikell.hedley@utoledo.edu)), The University of Toledo, Ohio

Presider: Janet L. Struble ([janet.struble@utoledo.edu](mailto:janet.struble@utoledo.edu)), The University of Toledo, Ohio

SATELLITES—a partnership of scientists, teachers, and students—includes field data collection, standards-based activities, inquiry-based research, and a science conference for students. The program begins with a free five-day institute for teachers, after which participants become certified GLOBE teachers.

**SESSION 2**

**Invasive Plant Species (IPS) (Env)**

(Middle Level–High School)

200C, Convention Center

**Kevin O. Mason** ([masonk@uwstout.edu](mailto:masonk@uwstout.edu)), **Wendy M. Sandstrom**, and **Brittany E. Johnson** ([johnsonbrittan@uwstout.edu](mailto:johnsonbrittan@uwstout.edu)), University of Wisconsin–Stout, Menomonie

Presider: Kevin O. Mason

Come get an overview of the development and testing of science curriculum to identify, investigate, and control invasive plant species.

**SESSION 3**

**Engage Primary Scientists (Gen)**

(Elementary)

200F, Convention Center

**Peggy A. Demmert** ([peggy.demmert@district196.org](mailto:peggy.demmert@district196.org)), **Katie J. Schoenbauer** ([katie.schoenbauer@district196.org](mailto:katie.schoenbauer@district196.org)), and **Christy M. Nelson** ([christina.nelson@district196.org](mailto:christina.nelson@district196.org)), Cedar Park STEM Elementary School, Apple Valley, Minn.

See how we've used real-life scenarios to engage our students as we teach science investigations. These inquiry-based lessons help students make connections to science.

## SESSION 4

★ **Using the History of Science in Science Instruction** (Gen)

(General) 200J, Convention Center  
**Jerrid W. Kruse** ([jerridkruse@gmail.com](mailto:jerridkruse@gmail.com)), South Sioux City Middle School, South Sioux City, Neb.

The history of science humanizes and illustrates the nature of science while contributing to deep content learning. I'll share materials/strategies to use with any content.

## SESSION 5

**Using Digital Storytelling in the Science Classroom** (Gen)

(High School) 201 A/B, Convention Center  
**Cari Jo Kiffmeyer** ([carijo.kiffmeyer@wayzata.k12.mn.us](mailto:carijo.kiffmeyer@wayzata.k12.mn.us)), Wayzata Public Schools, Plymouth, Minn.

Tired of reading lab reports or assigning PowerPoint presentations to your students? Come learn how you can take these to a new level with digital storytelling using Windows Movie Maker, Photo Story, PowerPoint, and/or SMART Recorder. We'll also look at how to create a "virtual" you that will free you up from planning for a substitute.

## SESSION 6

**Building Science Assets: Guiding Students to Become "People of Science"** (Gen)

(General) 205A, Convention Center  
**Beth Murphy** ([murphy@thebakken.org](mailto:murphy@thebakken.org)) and **Nathan Meyer** ([meyer@thebakken.org](mailto:meyer@thebakken.org)), The Bakken Museum, Minneapolis, Minn.

Explore a program that prepares elementary students to enter a community that values and uses science skills and knowledge in work and civic engagement.

## SESSION 7

**It IS Rocket Science, and It's FUN!** (Phys)

(Middle Level–High School) L100A, Convention Center  
**David Sklenicka** ([dsklenicka@ssd.k12.mn.us](mailto:dsklenicka@ssd.k12.mn.us)) and **Kristin King**, Stewartville High School, Stewartville, Minn.

In this hands-on unit, students use the scientific method and engineering techniques to improve an evolving rocket prototype.

## SESSION 8

**Usable Lessons! Trends That STEP to Partnership Sustainability** (Gen)

(Middle Level–College) M101A, Convention Center  
**Andrea C. Burrows** ([andrea.burrows@uc.edu](mailto:andrea.burrows@uc.edu)), University of Cincinnati, Ohio

Come explore STEM lesson use and leave with STEM lesson plans and ideas for sustaining partnerships with schools.

## SESSION 9

**Can They Earn It? Yes, They Can!** (Gen)

(General) M101B, Convention Center  
**Kendra K. Larmour** ([kendra.larmour@stoughton.k12.wi.us](mailto:kendra.larmour@stoughton.k12.wi.us)) and **Amy Ruck** ([amy.ruck@stoughton.k12.wi.us](mailto:amy.ruck@stoughton.k12.wi.us)), River Bluff Middle School, Stoughton, Wis.

Learn how to effectively use grades as a learning tool in your classroom. Middle school teachers share practical experience.

## 9:30–10:30 AM Workshops

**Round and Round We Go—Exploring Orbits in the Solar System** (Earth)

(Middle Level) 200E, Convention Center  
**Deb Salberg** ([dsalberg@redlakefalls.k12.mn.us](mailto:dsalberg@redlakefalls.k12.mn.us)), J.A. Hughes Elementary School, Red Lake Falls, Minn.

Explore NASA's free Mercury MESSENGER education materials, which help students understand how orbits can be used to help categorize objects in the solar system.

**Science Is a Story** (Gen)

(Elementary–Middle Level) 200G, Convention Center  
**Vito M. Dipinto** ([vdipinto@nl.edu](mailto:vdipinto@nl.edu)), National-Louis University, Wheeling, Ill.

**Deanna Murphy**, Beach Park Middle School, Beach Park, Ill.

Imagine your science textbook as the story you tell around a metaphorical campfire. We will help you make this imagining real.

✓ **Teaching Inquiry-based Earth Science Using Student-generated Field Investigations** (Earth)

(Elementary–High School) 200H, Convention Center

**Lee M. Schmitt** (*lschmitt@hamline.edu*), Hamline University, St. Paul, Minn.

**Kate Rosok**, Minneapolis, Minn.

**Jeff Ballman**, Montgomery-Lonsdale High School, Montgomery, Minn.

**Laurie Severson** (*laurie.severson@duluth.k12.mn.us*), Woodland Middle School, Duluth, Minn.

**Paul Davis**, Morgan Park Middle School, Duluth, Minn.

**Mathew Winbigler** (*mwinbigl@cloquet.k12.mn.us*), Cloquet Middle School, Cloquet, Minn.

Join earth science teachers from the TIMES XII Project to experience how students can develop content-rich field investigations. Be prepared to go outdoors.

🌐 **Light-Emitting Diodes (LEDs): Recent Advances, Green Applications, and Cutting-Edge Science** (Chem)

(High School) 200I, Convention Center

**George C. Lisensky** (*lisensky@beloit.edu*), Beloit College, Beloit, Wis.

**Amy Fisher**, University of Wisconsin, Madison

Try some activities using LEDs, learn about online resources, and develop ideas for integrating this cutting-edge science into chemistry and physics curricula.

**Use Technology to Integrate Science and Math!** (Bio)

(High School) L100B, Convention Center

**Jeff Lukens** (*jeffrey.lukens@k12.sd.us*), Roosevelt High School, Sioux Falls, S.Dak.

Science and math should be natural curriculum partners. Technology can help bridge the gap between these two areas and bring relevance to each classroom.

**Corn Plastic—Wear It or Eat It!** (Chem)

(Middle Level–High School) L100C, Convention Center

**Barbara U. Walker** (*rbjwalk@netins.net*), Ottumwa Alternative High School, Ottumwa, Iowa

Make your own corn plastic, use a flow chart to identify plastics based on their density, and use the information to solve a criminal case.

**10:00–11:30 AM Exhibitor Workshop**

**Got Protein in Your Milk?** (Bio)

(Grades 7–College) 101E, Convention Center

Sponsor: Bio-Rad Laboratories

**Essy Levy** (*biotechnology\_explorer@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Explore the nutritional value of common beverages from milk to sports drinks using the Bradford assay. This versatile lab can be done qualitatively and/or quantitatively with a spectrophotometer. This is the perfect lab to integrate physics, chemistry, and biology.

**11:00 AM–12 Noon Presentations**

**SESSION 1**

**Using NOAA's Climate Change Resources in Your Classroom** (Earth)

(General) 200B, Convention Center

**Kirk Beckendorf** (*kirk.beckendorf@noaa.gov*), Einstein Fellow, NOAA, Washington, D.C.

Improve your students' knowledge of climate change using NOAA's curriculum activities and high-interest research materials on this critical topic.

**SESSION 2** (two presentations)

(Informal Education/General) 200C, Convention Center

**Connecting to Inquiry Science at Zoos and Aquariums** (Env)

**Sarah K. Erickson** (*serickson@glaquarium.org*), Great Lakes Aquarium, Duluth, Minn.

Zoos and aquariums provide opportunities for real data collection, inquiry-based science, and cross-curricular connections.

**A Collaborative Effort to Educate Teachers and Their Students** (Env)

**Ann L. Rethlefsen** (*arethlefsen@winona.edu*) and **Jeanne Franz** (*jfranz@winona.edu*), Winona State University, Winona, Minn.

Our collaborative project with the Minnesota Department of Natural Resources and the U.S. Fish and Wildlife Service educated tri-state area teachers, preservice teachers, and area K–12 students about the environment using water-related activities as a conduit on a floating classroom.



**SESSION 3****Engage Today's Learner: Incorporate Technology into Your Science Teaching (Gen)***(Elementary)* 200F, Convention Center**Cathy J. Kindem** (*cathy.kindem@district196.org*), Cedar Park STEM Elementary School, Apple Valley, Minn.

Use technology resources such as interactive whiteboards, online resources, video conferencing, GPS devices, and digital cameras to integrate daily science lessons with literacy. I'll share research, troubleshooting, and project examples.

**SESSION 4****Where Have All the Science Fair Projects Gone?****(Bio)***(Middle Level–High School)* L100B, Convention Center**Ken J. Mann** (*kenneth.mann@winona.k12.mn.us*), Winona Senior High School, Winona, Minn.

Help students do science by designing and conducting a science fair project following international science fair guidelines. Easily adapted to any high school or middle school program.

**SESSION 5****Demos for the Holidays! Excite Students with Chemical Demonstrations (Chem)***(High School)* L100C, Convention Center**Sherri C. Rukes**, Libertyville High School, Libertyville, Ill.

Spice up your classroom with these topical demonstrations, especially around the holidays and other important days in a high school student's life.

**SESSION 6****K–12 STEM Education: Preparing Students for the Innovation Economy (Gen)***(General)* M101A, Convention Center**Jack Samuelson** (*jsamuelson@wi.rr.com*) and **Jon Jensen** (*jon.jensen@marquette.edu*), Marquette University, Milwaukee, Wis.

STEM education provides students with a solid foundation in science, technology, engineering, and mathematics, and better prepares them for the challenges of competing in a global economy driven by innovation.

**SESSION 7****Teaming Up to Rock Their World! (Gen)***(General)* M101B, Convention Center**Kelly R. Morrow** (*kmorrowk@sd5.k12.mt.us*) and **Patricia Ashworth** (*ashworthp@sd5.k12.mt.us*), Flathead High School, Kalispell, Mont.

See how a special education teacher and a science teacher team-teach to make science meaningful and accessible to their diverse learners. Tips, tricks, and handouts.

**11:00 AM–12 Noon Workshops****Integrating “How Toys Are Made” into the Curriculum (Gen)***(General)* 200D, Convention Center**Sue E. Hall** (*kentsue@charter.net*), Polymer Ambassador, Stevens Point, Wis.**Sandra H. Van Natta**, Intersociety Polymer Education Council, Hamilton, Ohio

Explore a unique way to classify plastic objects—operating a polymer extrusion factory. Students work in teams to produce a product based on “customer” specifications. Take home the module and a classroom set of toys.

**Walking Through Millions of Years to Teach Integrated Science (Earth)***(Elementary–Middle Level)* 200E, Convention Center**Abha Singh** (*a-singh@wiu.edu*), Western Illinois University, Macomb

Local geology can be used as an inquiry approach to teaching integrated science. Learn some simple activities and how to develop a field trip.

**Imagining the Possible: Reading and Writing Science Fiction to Teach and Learn Science (Gen)**

(Middle Level) 200G, Convention Center

**Vito M. Dipinto** (*vdipinto@nl.edu*), National-Louis University, Wheeling, Ill.

**Deanna Murphy** (*dmurphy@bpd3.org*), Beach Park Middle School, Beach Park, Ill.

If you can imagine the possible, you might discover the actual. This presentation shows how to use science fiction to teach middle school students science.

✓ **Rediscovering the Gas Laws: Using Computer Simulation to Teach Inquiry-based Chemistry, Data Collection, Analysis, and Display (Chem)**

(High School) 200I, Convention Center

**Penny M. Springer** (*springerfour@juno.com*), Prior Lake High School, Savage, Minn.

Come learn how I use visual and interactive computer simulation experiments to inspire grades 9–12 students to “re-discover” the gas laws at the molecular scale.

**Fun Experiments Using Polymers (Gen)**

(Elementary–High School) L100A, Convention Center

**Barbara U. Walker** (*rbjwalk@netins.net*), Ottumwa Alternative High School, Ottumwa, Iowa

These safe experiments for elementary students encourage scientific inquiry and integrate science concepts with English and math.

**2:30–7:30 PM Meeting**

**District IX Leadership Retreat**

(By Invitation Only)

Marquette VI, Hilton

State Chapters will report on projects they are working on, report on their progress with Building a Presence, and share their current strategic plans. They will also discuss state science standards and assessments and report on how they are implementing the national/state science standards. Each organization will complete a District Action Plan and host a discussion of state needs.

*Note:* This meeting continues on Sunday, November 1, at 8:00 AM (same location).

Some exhibitors have classified their products by grade level and subject area. Subject areas are abbreviated here as follows:

Biology/Life Science	Bio
Chemistry/Physical Science	Chem
Earth/Space Science	Earth
Environmental Science	Env
Integrated/General Science	Gen
Physics/Physical Science	Phys

A foldout floor plan of the Exhibit Hall is available at Program Pickup.



**3D Molecular Designs and MSOE Center for BioMolecular Modeling** #820  
 Bio, Chem  
 4–12, College  
 1023 N. Broadway St.  
 Milwaukee, WI 53202  
 Phone: 414-774-6562  
 E-mail: [herman@msoe.edu](mailto:herman@msoe.edu)  
 Website: [www.3dmoleculardesigns.com](http://www.3dmoleculardesigns.com)

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**American Association of Physics Teachers** #1008  
 Phys  
 One Physics Ellipse  
 College Park, MD 20740  
 Phone: 301-209-3626  
 E-mail: [mlapps@aapt.org](mailto:mlapps@aapt.org)  
 Website: [www.aapt.org](http://www.aapt.org)

Visit the AAPT booth to see our line of physics toys and gifts, first-time books from our Physics Store catalog, new and favorite T-shirts, and exciting giveaways. Be sure to pick up copies of AAPT's informational brochures on some of the leading physics education programs such as PTRA and Physics Olympiad.

**American Chemical Society** #501  
 Chem, Gen  
 1155 16th St. NW  
 Washington, DC 20036  
 K–12, College  
 Phone: 202-872-6269  
 E-mail: [p\\_isikoff@acs.org](mailto:p_isikoff@acs.org)  
 Website: [www.acs.org](http://www.acs.org)

The American Chemical Society (ACS) is the world's largest scientific society. ACS will exhibit textbooks, reference materials, videos, and other materials to supplement the K–12 and college science curricula. We will also provide information on programs for students and teachers.

**American Lab Design** #1002  
 Bio, Chem,  
 404 S. Beach St., #304  
 Daytona Beach, FL 32114  
 Earth, Phys  
 Phone: 800-494-3237  
 6–12, College  
 E-mail: [mikelee6677@aol.com](mailto:mikelee6677@aol.com)

American Lab Design, a design manufacturer specializing in renovation of K–12 science labs, doesn't use distributors or rep groups, but rather deals with schools directly. In this way, it is able to pass considerable savings on to the schools. For free site visits, architectural drawings, and quotes, contact Mike Lee at 1-800-494-3237 or at [mikelee6677@aol.com](mailto:mikelee6677@aol.com).

**American Nuclear Society** #917  
 Gen  
 555 N. Kensington Ave.  
 La Grange Park, IL 60526  
 5–12  
 Phone: 708-352-6611  
 E-mail: [tbishop@ans.org](mailto:tbishop@ans.org)  
 Website: [www.ans.org](http://www.ans.org)

The American Nuclear Society (ANS) exhibit offers teachers free, classroom-ready resources for teaching about nuclear science and technology. Educators may preview teacher handbooks offered through ANS workshops, and K–4 teachers receive a copy of the *Atoms Family* coloring books.

**Apperson Education Products** #507  
 851 SW 34th St., Bldg. B  
 Renton, WA 98057  
 K–12, College  
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 E-mail: [dspaulding@appersonprint.com](mailto:dspaulding@appersonprint.com)  
 Website: [www.appersonedu.com/go/nsta-mw](http://www.appersonedu.com/go/nsta-mw)

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 Website: [www.biologyproducts.com](http://www.biologyproducts.com)

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 Hercules, CA 94547 7–12, College  
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 E-mail: [biotechnology\\_explore@bio-rad.com](mailto:biotechnology_explore@bio-rad.com)  
 Website: <http://explorer.bio-rad.com>

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**Birdhouse Spy Cam #413**  
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 West Linn, OR 97068 3–12, College  
 Phone: 503-655-1030  
 E-mail: [ryost2289@aol.com](mailto:ryost2289@aol.com)  
 Website: [www.birdhousespycam.com](http://www.birdhousespycam.com)

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 Website: [www.blutrak.com](http://www.blutrak.com)

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 E-mail: [kristen\\_dotti@catalystlearningcurricula.com](mailto:kristen_dotti@catalystlearningcurricula.com)  
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**Carbon Capture and Storage #310**  
 Six Research Dr. Env  
 Regina, Sask. S4S 7J7 5–12, College  
 Canada  
 Phone: 306-757-6029  
 E-mail: [rickfink@sasktel.net](mailto:rickfink@sasktel.net)

Carbon Capture and Storage (CCS) technology is attracting worldwide attention because it holds promise for significantly reducing greenhouse gases associated with climate change. North America leads the world in the development of this technology, and the CCS booth will engage educators in dialogue about this emerging technology.

**Conrad Spirit of Innovation Awards #523**  
 1008 Gen. Kennedy St. Bio, Chem, Earth,  
 Suite C Env, Gen, Phys  
 San Francisco, CA 94129 9–12  
 Phone: 415-962-3664  
 E-mail: [joshua.neubert@conradfoundation.org](mailto:joshua.neubert@conradfoundation.org)  
 Website: [www.conradawards.org](http://www.conradawards.org)

Learn about the Spirit of Innovation Awards competition that builds upon astronaut Charles “Pete” Conrad’s legacy of innovation and entrepreneurship. The program invites teams of high school students to create new products to solve real-world challenges in aerospace, renewable energy, space nutrition, and green schools. Award winners receive a \$5,000 grant and additional resources to develop and take their product to the marketplace.

**CPO Science #700**  
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 Website: [www.cposcience.com](http://www.cposcience.com)

CPO Science provides grades 6–12 teachers with complete teaching and learning systems, supplemental curricula, and high-quality lab equipment. These comprehensive materials make science exciting and accessible to students of all ability levels.

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Website: [www.deltaeducation.com](http://www.deltaeducation.com)

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Denver, CO 80205 4–12  
Phone: 303-370-8354  
E-mail: [beth.bavolek@dmns.org](mailto:beth.bavolek@dmns.org)  
Website: [www.dmns.org](http://www.dmns.org)

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**Dinah-Might Adventures, LP** #301  
PO Box 690328 Earth, Gen  
San Antonio, TX 78269 K–12, College  
Phone: 210-698-0123  
E-mail: [jeanne@dinah.com](mailto:jeanne@dinah.com)  
Website: [www.dinah.com](http://www.dinah.com)

Dinah-Might Adventures, LP, is an educational publishing and consulting company owned by Dinah Zike, author/speaker. Her books are known for their innovative ways to use “Foldables™” in teaching all subjects.

**Discovery Education** #824  
One Discovery Place Gen  
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Phone: 800-323-9084  
Website: [www.discoveryeducation.com](http://www.discoveryeducation.com)

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**Disney’s Planet Challenge** #520  
TWDC Environmental Affairs Env  
611 N. Brand Blvd., Seventh Floor 4–6  
Glendale, CA 91203  
Phone: 818-553-7245  
E-mail: [christiane.maertens@disney.com](mailto:christiane.maertens@disney.com)  
Website: [www.disney.com/planetchallenge](http://www.disney.com/planetchallenge)

Disney’s Planet Challenge is a project-based environment competition for grades 4–6 developed in collaboration with NSTA and K–12 Alliance. Classrooms are empowered to make a difference in their homes, schools, and communities. The grand prize-winning classroom will win a three-day trip to the Disneyland® Resort, a chance to meet a Disney Channel star, and the class and its winning project may be featured on the Disney Channel. Additional classrooms will win grants and other prizes.

**Dynalon Labware** #1016  
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 PO Box 2185 Env, Gen, Phys  
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 E-mail: [sales@explorellearning.com](mailto:sales@explorellearning.com)  
 Website: [www.explorellearning.com](http://www.explorellearning.com)

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 Washington, DC 20024  
 Phone: 202-314-4713  
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Washington, DC 20036 PreK–12  
Phone: 202-463-2754  
E-mail: [information@plt.org](mailto:information@plt.org)  
Website: [www.plt.org](http://www.plt.org)

Project Learning Tree is a national award-winning environmental education program designed for preK–12 formal and nonformal educators. The supplementary materials provide hands-on/minds-on multidisciplinary activities.

**Riverside Scientific #414**  
PO Box 6428 Earth  
Minneapolis, MN 55406 4–12, College  
Phone: 952-486-7250  
E-mail: [info@riversci.com](mailto:info@riversci.com)  
Website: [www.riversci.com](http://www.riversci.com)

Riverside Scientific presents hands-on inquiry-based software for learning concepts in meteorology and astronomy. Topics include why we have seasons, what causes the winds, why convective clouds form, how mid-latitude storms move and evolve, why we observe moon phases and eclipses, and how astronomical objects move across the sky.

**Sargent-Welch #1009**  
777 E. Park Drive Bio, Chem, Earth,  
Tonawanda, NY 14150 Env, Gen, Phys  
Phone: 800-727-4368 9–12, College  
E-mail: [customer\\_service@sargentwelch.com](mailto:customer_service@sargentwelch.com)  
Website: [www.sargentwelch.com](http://www.sargentwelch.com)

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**Scales-co Measurement #420**  
**Technology** Bio, Chem, Env, Gen  
1200 Indus St., Suite A 3–12, College  
Fairmont, MN 56031  
Phone: 866-587-9773  
E-mail: [sales@scales-co.com](mailto:sales@scales-co.com)  
Website: [www.scales-co.com](http://www.scales-co.com)

Scales-co Measurement Technology provides entry-level and precision balances for the science and education industry. Affordable pricing on triple beam scales, precision balances, and calibration weights with free shipping throughout the U.S. All balances include a five-year factory calibration and affordable repair/replacement programs to help your costs of ownership.

**School Technology Resources #600**  
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Suite 204 Env, Gen  
Scotts Valley, CA 95066 K–12, College  
Phone: 831-430-9061  
E-mail: [ealden@strscopes.com](mailto:ealden@strscopes.com)  
Website: [www.strscopes.com](http://www.strscopes.com)

School Technology Resources provides handheld video camera microscopes for TV and computer (best known as Scope On A Rope). Our exclusive education kits are designed specifically for use in and outside of the classroom. All include a variety of lenses, accessories, and curricula correlated to science standards.

**Science First/STARLAB #621**  
95 Botsford Place Bio, Chem, Earth,  
Buffalo, NY 14216 Env, Gen, Phys  
Phone: 800-875-3214 K–12, College  
E-mail: [starlab@starlab.com](mailto:starlab@starlab.com)  
Website: [www.sciencefirst.com](http://www.sciencefirst.com); [www.starlab.com](http://www.starlab.com)

Science First® is the proud new owner of Accent Science and Learning Technologies, Inc.®, which includes the Project Star®, Hands On Optics®, and STARLAB® product lines. Science First has been manufacturing quality physics equipment since the 1960s and now carries a wide variety of science teaching equipment.

**Science Kit & Boreal Labs #1011**  
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Tonawanda, NY 14150 Env, Gen, Phys  
Phone: 800-828-7777 1–12  
E-mail: [customer\\_service@sciencekit.com](mailto:customer_service@sciencekit.com)  
Website: [www.sciencekit.com](http://www.sciencekit.com)

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**Science Museum of Minnesota #716**  
120 Kellogg Blvd. Gen  
St. Paul, MN 55102 K–12  
Phone: 651-221-4552  
E-mail: [scrannell@smm.org](mailto:scrannell@smm.org)  
Website: [www.smm.org](http://www.smm.org)

Through field trips, outreach programs to schools, and professional development for teachers, the Science Museum of Minnesota makes science, math, and technology fun and relevant to students, ensuring greater interest back in the classroom. Learn about current and upcoming exhibits and about the many programs that support successful science education at school.

**Seela Science #614**  
1120 E Washington St. Bio, Earth,  
PO Box 253 Env, Gen  
Clarinda, IA 51632 K–8  
Phone: 712-542-2335  
E-mail: [rseela@seelascience.com](mailto:rseela@seelascience.com)  
Website: [www.seelascience.com](http://www.seelascience.com)

Seela Science specializes in customizing K–8 curricula to individual state standards. Stop by our booth and see the new (2009) correlations to Minnesota State Science Standards (K–8), along with correlations to many other surrounding states' standards. If we haven't already built your state correlation, WE CAN! Check us out!



<p><b>Siemens “We Can Change the World Challenge”</b> One Discovery Place Silver Spring, MD 20910 Phone: 240-662-2884 Website: <a href="http://www.wecanchange.com">www.wecanchange.com</a></p>	<p><b>#514</b> Env K–8</p>	<p><b>Starry Night Education</b> 5666 Lincoln Dr., Suite 260 Minneapolis, MN 55436 Phone: 877-290-8256 E-mail: <a href="mailto:mgoodman@simcur.com">mgoodman@simcur.com</a> Website: <a href="http://www.starrynighteducation.com">www.starrynighteducation.com</a></p>	<p><b>#821</b> Earth, Phys K–12, College</p>	<p><b>Ten80 Education</b> 26F Congress St., #338 Saratoga Springs, NY 12866 Phone: 877-628-4246 E-mail: <a href="mailto:info@ten80education.com">info@ten80education.com</a> Website: <a href="http://www.ten80education.com">www.ten80education.com</a></p>	<p><b>#319</b> Gen K–12</p>
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Stop by our booth and pick up information on the premier national student sustainability competition. Enhance your life science curriculum with a unique hands-on way to engage students in developing actionable local solutions for a “greener” world, and learn how you and your students could win exciting prizes. Great giveaways and handouts while they last!

Starry Night Education is the most powerful and effective astronomy curriculum available. Designed for elementary, middle, high school, and university levels, Starry Night comes complete with everything needed for the most effective space science education. Starry Night is correlated to U.S. and Canadian science standards.

The NASCAR Foundation and Ten80 Education present FastTrack Racing Challenges, a “little league” through which future scientists, engineers, and marketing and creative professionals prepare for their futures. Visit our team to actively experience integrated STEM challenges and standards-based classroom lessons and to learn about the national competition league.

<p><b>SME/GEM Minerals Coalition</b> 8307 Shaffer Pkwy. Littleton, CO 80127 Phone: 303-948-4227 E-mail: <a href="mailto:vandervoort@smenet.org">vandervoort@smenet.org</a> Website: <a href="http://www.smenet.org">www.smenet.org</a></p>	<p><b>#921</b></p>	<p><b>Swift Optical Instruments</b> 11113 Landmark 35 Dr. San Antonio, TX 78233 Phone: 877-967-9438 E-mail: <a href="mailto:cynthia@swiftoptical.com">cynthia@swiftoptical.com</a> Website: <a href="http://www.swiftoptical.com">www.swiftoptical.com</a></p>	<p><b>#400</b> Bio 7–12, College</p>	<p><b>Texas Instruments</b> PO Box 650311, MIS-3919 Dallas, TX 75265 Phone: 972-917-1616 E-mail: <a href="mailto:kdalton@ti.com">kdalton@ti.com</a> Website: <a href="http://www.education.ti.com">www.education.ti.com</a></p>	<p><b>#914</b> Bio, Chem, Env, Gen, Phys 7–12</p>
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The SME/GEM Mineral Coalition booth is sponsored by the SME Foundation. The booth is staffed with local volunteers who answer questions and provide teachers with rock and mineral samples, literature, and CDs.

Swift is the brand you know and trust to provide you with innovative and durable microscopes. Check out our new line of digital products and software featuring the new Swift M10 digital microscope and lab manual. Let Swift inspire you to use your “DIGINATION”!

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<p><b>Speak Easies</b> 5423 Yerba Buena Rd. Santa Rosa, CA 95409 Phone: 707-539-9236 E-mail: <a href="mailto:info@speakeasies.biz">info@speakeasies.biz</a> Website: <a href="http://www.speakeasies.biz">www.speakeasies.biz</a></p>	<p><b>#822</b> Bio 5–12, College</p>	<p><b>Sylvan Dell Publishing</b> 976 Houston Northcutt Blvd. Suite 3 Mount Pleasant, SC 29464 Phone: 877-958-2600 E-mail: <a href="mailto:customerservice@sylvandellpublishing.com">customerservice@sylvandellpublishing.com</a> Website: <a href="http://www.sylvandellpublishing.com">www.sylvandellpublishing.com</a></p>	<p><b>#407</b> Bio, Earth, Env K–5</p>	<p><b>Toshiba/NSTA ExploraVision Awards</b> 1840 Wilson Blvd. Arlington, VA 22201 Phone: 800-EXPLOR-9 E-mail: <a href="mailto:exploravision@nsta.org">exploravision@nsta.org</a> Website: <a href="http://www.exploravision.org">www.exploravision.org</a></p>	<p><b>#521</b> Gen K–12</p>
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At Speak Easies you’ll find magnetic and soft-sculpture teaching aids for biology and life science, engaging manipulatives to clarify concepts for all students, grades 5–12. Our products are especially powerful for English learners and other challenged students. Stop by for a free magnetic skeleton or cell!

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Now in its 18th year, ExploraVision encourages K–12 students of all interests, skills, and ability levels to create and explore a vision of future technology by combining their imaginations with the tools of science. Come by the booth to pick up gifts and materials, and to enter our drawing for a Toshiba prize!

# Exhibitors

**Toyota TAPESTRY Grants for Science Teachers** #516  
Gen  
1840 Wilson Blvd. K-12  
Arlington, VA 22201-3000  
Phone: 703-312-9258

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**Triangle Coalition for Science and Technology Education** #525  
Bio, Chem, Earth, Env, Gen, Phys  
1840 Wilson Blvd., #201 K-12  
Arlington, VA 22201  
Phone: 703-516-5960  
E-mail: [murrayd@triangle-coalition.org](mailto:murrayd@triangle-coalition.org)  
Website: [www.trianglecoalition.org](http://www.trianglecoalition.org)

Triangle Coalition manages the unique and exciting Albert Einstein Distinguished Educator Fellowship Program. This program brings outstanding K-12 STEM educators to Washington, D.C., for a school year. Fellows receive a monthly stipend and other allowances while contributing to national education programs on Capitol Hill or within a Federal agency.

**U.S. EPA SunWise Program** #617  
Env  
1200 Pennsylvania Ave. NW K-8  
Washington, DC 20460  
Phone: 202-343-9591  
E-mail: [hall-jordan.luke@epa.gov](mailto:hall-jordan.luke@epa.gov)  
Website: [www.epa.gov/sunwise](http://www.epa.gov/sunwise)

The U.S. EPA SunWise Program is an environmental and health education program that teaches how we can and why we should protect ourselves from UV overexposure. Our FREE tool kit provides cross-curricular, standards-based lesson plans and resources for K-8 students, plus a UV-sensitive Frisbee!

**Vernier Software & Technology** #909  
Bio, Chem, Earth, Env, Gen, Phys  
13979 SW Millikan Way 3-12, College  
Beaverton, OR 97005  
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E-mail: [info@vernier.com](mailto:info@vernier.com)  
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Bio, Chem, Earth, Env, Gen, Phys  
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Phone: 800-962-2660  
E-mail: [customer\\_service@wardsci.com](mailto:customer_service@wardsci.com)  
Website: [www.wardsci.com](http://www.wardsci.com)

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**Western Governors University** #403  
Bio, Chem, Earth, Phys  
4001 South 700 East, #700 6-12  
Salt Lake City, UT 84107  
Phone: 801-290-3636  
E-mail: [jpink@wgu.edu](mailto:jpink@wgu.edu)  
Website: [www.wgu.edu](http://www.wgu.edu)

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**Wild Mountain-Wild Chutes Science of Snow Tubing** #412  
Phys  
PO Box 235 7-12  
Taylor Falls, MN 55084  
Phone: 651-465-6315  
E-mail: [stephanie@wildmountain.com](mailto:stephanie@wildmountain.com)  
Website: [www.wildmountain.com](http://www.wildmountain.com)

The Science of Snow Tubing is a fun, interactive, and educational opportunity for students to feel physics firsthand and study what is happening. Tubing at Wild Chutes is an ideal laboratory for witnessing the laws of physics in operation. Discover work, power, force, kinematics, speed acceleration, and more!

**YMIR Inc./The Ultimate Puzzle** #306  
PO Box 451421  
Los Angeles, CA 90045  
Phone: 310-673-1733  
E-mail: [ymirinc@aol.com](mailto:ymirinc@aol.com)  
Website: [www.europeanpromotion.com](http://www.europeanpromotion.com)

The Ultimate Puzzle is an educational and fun manipulative tool that shows combinations, permutations, probabilities, and symbol recognition in a powerful demonstration that will engage all ages. Take the challenge! Visit our booth and solve our puzzle in five minutes or less and it's free.

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Saturday, October 31	8:00–9:15 AM	M100E, Conv. Center	Teaching About the Rock Cycle and Earth Times (p. 114)

## Lab-Volt Systems, Inc. (Booth No. 415)

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Thursday, October 29	2:15–3:30 PM	M100C, Conv. Center	STEMcart: Providing STEM Teachers with the Tools They Need (p. 60)
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## Macmillan/McGraw-Hill and Glencoe (Booth Nos. 300 and 304)

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Friday, October 30	10:00–11:15 AM	M100 F–H, Conv. Center	Teaching Science with Foldables (p. 86)
Friday, October 30	12 Noon–1:15 PM	M100 F–H, Conv. Center	Teaching Science with Foldables (p. 93)

## Mississippi State University (Booth No. 816)

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Friday, October 30	4:00–5:15 PM	101G, Conv. Center	MS Degree in Geosciences via Distance Learning from Mississippi State University (p. 108)
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## National Geographic, The JASON Project (Booth No. 605)

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Thursday, October 29	2:15–3:30 PM	M100D, Conv. Center	Using Math and Science as the New Literacy to Reach At-Risk Students (p. 60)
Friday, October 30	4:00–5:15 PM	M100D, Conv. Center	Using Math and Science as the New Literacy to Reach At-Risk Students (p. 108)

## PASCO Scientific (Booth No. 607)

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Friday, October 30	8:00–9:00 AM	M100 A–B, Conv. Center	Tough Topics in Physics and Physical Science: Motion (p. 73)
Friday, October 30	9:30–10:30 AM	M100 A–B, Conv. Center	Tough Topics in Biology: Cell Respiration (p. 82)
Friday, October 30	11:00 AM–12 Noon	M100 A–B, Conv. Center	Tough Topics in Chemistry: States of Matter (p. 92)
Friday, October 30	1:00–2:00 PM	M100 A–B, Conv. Center	Tough Topics in Environmental Science: Field Data Collection and Water Quality Sampling (p. 98)
Friday, October 30	2:30–4:00 PM	M100 A–B, Conv. Center	Using SPARK Science Learning System to Enhance Hands-On Science (p. 104)

## Pearson (Booth No. 500)

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Thursday, October 29	8:00–9:15 AM	101F, Conv. Center	Inquiring with Interactive Science (p. 44)
Thursday, October 29	10:00–11:15 AM	101F, Conv. Center	Inquiry in the Chemistry Classroom (p. 48)
Thursday, October 29	12:30–1:45 PM	101F, Conv. Center	What's Up with the Flu? Ecology and Evolution of Infectious Disease Come to Life (p. 53)
Thursday, October 29	2:15–3:30 PM	101F, Conv. Center	Meet the Untamed Science Crew and Learn How to Make Your Own Science Videos! (p. 59)
Thursday, October 29	4:00–5:15 PM	101F, Conv. Center	Wow! Realistic Laboratory Simulations for the Entire High School Science Curriculum You Have to See to Believe! (p. 65)

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## Pearson, cont.

Friday, October 30	8:00–9:15 AM	101F, Conv. Center	Reasons Why Teaching Earth Science Will Save Your Life! (p. 74)
Friday, October 30	10:00–11:15 AM	101F, Conv. Center	Inquiry, Evidence, and Thinking: The Heart of Science Teaching (p. 86)
Friday, October 30	12 Noon–1:15 PM	101F, Conv. Center	Concepts and Challenges—What Is It All About? (p. 93)
Friday, October 30	2:00–3:15 PM	101F, Conv. Center	Ensure Your Students' Success on the AP* Chemistry Exam (p. 102)
Friday, October 30	4:00–5:15 PM	101F, Conv. Center	From Science to Engineering (p. 108)
Saturday, October 31	8:00–9:15 AM	101F, Conv. Center	The Digital Path and Essential 21st-Century Skills (p. 113)

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## Science Kit & Boreal Labs (Booth No. 1011)

Thursday, October 29	12:30–1:45 PM	101G, Conv. Center	Digital Microscopy in the Classroom (p. 53)
Friday, October 30	8:00–9:15 AM	101G, Conv. Center	Digital Microscopy in the Classroom (p. 74)

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## Seeds Software (Booth No. 311)

Friday, October 30	4:00–5:15 PM	101D, Conv. Center	Teaching Climate Change with a Global Climate Model and Software (p. 108)
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## Speak Easies (Booth No. 822)

Thursday, October 29	12:30–1:45 PM	M100C, Conv. Center	Enhancing Your Cell Unit with Models and Manipulatives (p. 54)
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## Starry Night Education (Booth No. 821)

Thursday, October 29	12:30–1:45 PM	M100E, Conv. Center	Pluto Yet Again! (p. 54)
Friday, October 30	4:00–5:15 PM	M100E, Conv. Center	Galileo Skies (p. 109)

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## Swift Optical Instruments (Booth No. 400)

Thursday, October 29	4:00–5:15 PM	M100C, Conv. Center	It's Easy to Go Digital! (p. 65)
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## Vernier Software & Technology (Booth No. 909)

Friday, October 30	8:00–9:30 AM	M100C, Conv. Center	K–8 Science with Vernier (p. 76)
Friday, October 30	10:00–11:30 AM	M100C, Conv. Center	Developing 21st-Century Minds with Vernier (p. 88)
Friday, October 30	12 Noon–1:30 PM	M100C, Conv. Center	Developing 21st-Century Minds with Vernier (p. 94)
Friday, October 30	2:00–3:30 PM	M100C, Conv. Center	Developing 21st-Century Minds with Vernier (p. 103)

# Schedule at a Glance

G = General  
P = Preschool  
C = College

M = Middle School  
H = High School  
R = Research

S = Supervision/Administration  
I = Informal Education  
E = Elementary

T = Teacher Preparation

## Biology/Life Science

### Thursday

8:00–9:00 AM	H	101 I/J, Conv. Center	Award-winning Inquiry Lab Activities for High School Biology (p. 41)
8:00–9:00 AM	E	200F, Conv. Center	No Child Left Inside (p. 41)
8:00–9:15 AM	6–C	M100D, Conv. Center	EDVOTEK Biotechnology: Biotechnology on a Budget (p. 44)
8:30–9:00 AM	H–C	M101B, Conv. Center	Evolution Now! (p. 45)
9:30–10:30 AM	6–8	M100 A–B, Conv. Center	Project-Based Inquiry Science (PBIS): A New Generation of Life, Earth, and Physical Science (p. 47)
10:00–11:15 AM	6–9	M100E, Conv. Center	Understanding Mendelian and Non-Mendelian Inheritance (p. 48)
10:00–11:30 AM	5–12	101A, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 48)
11:30 AM–1:00 PM	K–8	101C, Conv. Center	Taking Science Outdoors with FOSS K–8 (p. 49)
12:30–1:00 PM	H	M101A, Conv. Center	NARST Session: The Effect of Educative Curriculum Materials on Teacher Learning, Classroom Practice, and Student Achievement (p. 51)
12:30–1:30 PM	M–H	L100I, Conv. Center	Cruising to Food Safety: Integrating Food Safety into Your Science Curriculum (p. 52)
12:30–1:30 PM	6–8	M100 A–B, Conv. Center	Project-Based Inquiry Science (PBIS): A New Generation of Life, Earth, and Physical Science (p. 53)
12:30–1:45 PM	9–12	101F, Conv. Center	What's Up with the Flu? Ecology and Evolution of Infectious Disease Come to Life (p. 53)
12:30–1:45 PM	6–12	101G, Conv. Center	Digital Microscopy in the Classroom (p. 53)
12:30–1:45 PM	6–12	101H, Conv. Center	Comparative Mammalian Organ Dissection with Carolina's Perfect Solution® Specimens (p. 54)
12:30–1:45 PM	7–12	M100C, Conv. Center	Enhancing Your Cell Unit with Models and Manipulatives (p. 54)
2:00–3:00 PM	H–C	L100B, Conv. Center	An Inquiry-based Lab Using Allelopathy (p. 56)
2:15–3:30 PM	9–12	101H, Conv. Center	Amplify Your Genetics Teaching Skills with Carolina's New Inquiries in Science™ Biology Units (p. 59)
2:15–3:30 PM	9–12	M100E, Conv. Center	Building Inquiry with "A Human Approach" (p. 60)
3:30–4:30 PM	G	L100B, Conv. Center	Exploring Contemporary Issues in Population Genetics with Formative Assessment (p. 62)
4:00–5:15 PM	K–12	101H, Conv. Center	Hands-On Science with Classroom Critters (p. 65)

### Friday

8:00–9:00 AM	M	L100B, Conv. Center	NABT Session: Using Free Online Games to Teach Science Process and Science Content (p. 70)
8:00–9:00 AM	H	L100E, Conv. Center	Teaching AP Biology with Games and Models (p. 72)
8:00–9:15 AM	6–C	101E, Conv. Center	Light Up Your Classroom with Nobel Prize–winning Science (p. 74)
8:00–9:15 AM	6–12	101G, Conv. Center	Digital Microscopy in the Classroom (p. 74)
8:00–9:15 AM	9–12	101H, Conv. Center	AUTOPSY: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 74)
8:00–9:30 AM	5–12	101A, Conv. Center	Genetics: Crazy Traits and Adaptation Survivor (p. 76)
9:30–10:30 AM	M–H	L100B, Conv. Center	NABT Session: Infect Your Biology Classroom with Math (p. 80)
9:30–10:30 AM	H	L100E, Conv. Center	Examining the Bioethics of Animals in Research (p. 82)
9:30–10:30 AM	6–12	M100 A–B, Conv. Center	Tough Topics in Biology: Cell Respiration (p. 82)
10:00–10:30 AM	H	200I, Conv. Center	An Inquiry-based Approach to the Study of Plant Disease Control (p. 80)
10:00–11:00 AM	6–C	101E, Conv. Center	How to Start a Biotech Program (p. 84)
10:00–11:15 AM	6–C	101D, Conv. Center	Hands-On Teaching with the Anatomy in Clay® Learning System (p. 86)
10:00–11:15 AM	8–12	101H, Conv. Center	Strawberry DNA and Molecular Models (p. 86)



## Schedule at a Glance Biology/Life Science

11:00 AM–12 Noon	M–H	200G, Conv. Center	Lotus Leaves and Flower Petals: Big Effects from Small Features (p. 91)
11:00 AM–12 Noon	H–C	L100B, Conv. Center	NABT Session: Enhance Your AP Biology Presentations Using Resources from the Howard Hughes Medical Institute (p. 90)
11:00 AM–12 Noon	E–H	L100E, Conv. Center	Food Safety/Microbial Activity (p. 92)
12 Noon–1:15 PM	K–12	101H, Conv. Center	Introduction to Wisconsin Fast Plants® (p. 93)
12 Noon–1:15 PM	6–C	M100D, Conv. Center	EDVOTEK Biotechnology: Teaching DNA Forensics (p. 93)
12:30–1:30 PM	M	200F, Conv. Center	Using Video Games in the Science Classroom (p. 95)
12:30–1:30 PM	G	200J, Conv. Center	Make Note of Science (p. 95)
12:30–1:30 PM	H–C	L100B, Conv. Center	NABT Session: Free Resources to Complement the HHMI Holiday Lecture on the Brain (p. 95)
12:30–1:30 PM	H	L100E, Conv. Center	Exploring Bioethics: A New Model for High School Instruction (p. 97)
12:30–1:30 PM	H–C/S	L100I, Conv. Center	NSTA Press Session: <i>Hard-to-Teach Biology Topics: A Framework to Deepen Student Understanding</i> (p. 97)
12:30–1:30 PM	H–C/I	M101A, Conv. Center	SCST Session: Evolution Education Roundtable: What Students Should Know About Biological Evolution Prior to Entering College (p. 96)
1:00–3:30 PM	6–C	101E, Conv. Center	Bio-Rad Forensic DNA Fingerprinting Kit (p. 99)
2:00–3:00 PM	G	L100B, Conv. Center	NABT Session: Quick Tips and Resources to Bring Biotechnology into Your Classroom (p. 100)
2:00–3:00 PM	M–H	L100E, Conv. Center	Increasing Appreciation for Science in Six Native American Schools (p. 101)
2:00–3:00 PM	H–C	M101A, Conv. Center	SCST Session: An Introduction to the College in the Schools Program at the University of Minnesota (p. 100)
2:00–3:15 PM	6–12	101H, Conv. Center	Take the Leap: Carolina's Perfect Solution® Frog Dissection (p. 102)
2:00–3:15 PM	8–C	M100D, Conv. Center	EDVOTEK Biotechnology: New! Achieve Successful PCR in One Lab Session (p. 103)
2:00–3:15 PM	9–12	M100 F–H, Conv. Center	Bring Biology to Life (p. 103)
3:30–4:30 PM	M	L100B, Conv. Center	NABT Session: Online Forensics and the Biological Effects of Alcohol (p. 105)
3:30–4:30 PM	M–H	L100E, Conv. Center	Shear Madness! (p. 106)
4:00–5:00 PM	6–C	101E, Conv. Center	Bio-Rad Cloning and Sequencing Explorer Series (p. 107)

### Saturday

8:00–9:00 AM	M	200F, Conv. Center	Using Middle School Project-based Life Science as an Anchor in Developing Interdisciplinary Units (p. 111)
8:00–9:00 AM	G	200H, Conv. Center	Using Inquiry to Integrate Disciplines in the Outdoor Classroom (p. 111)
8:00–9:00 AM	E–H	L100B, Conv. Center	Schoolyard Inquiry: Exploring the Organisms Outside Your Door (p. 113)
8:00–9:15 AM	6–C	101E, Conv. Center	Bio-Rad Genes in a Bottle™ Kit (p. 113)
9:30–10:30 AM	H	L100B, Conv. Center	Use Technology to Integrate Science and Math! (p. 116)
10:00–11:30 AM	7–C	101E, Conv. Center	Got Protein in Your Milk? (p. 116)
11:00 AM–12 Noon	M–H	L100B, Conv. Center	Where Have All the Science Fair Projects Gone? (p. 117)

### Chemistry/Physical Science

#### Thursday

8:00–9:00 AM	H	200A, Conv. Center	Alternative Assessments in the Chemistry Classroom (p. 41)
8:00–9:00 AM	M–C/S	200J, Conv. Center	Inquiry Instruction in High School Chemistry and Its Effect on Students' Proportional Reasoning Ability (p. 42)
8:00–9:00 AM	H–C/I	L100B, Conv. Center	The Periodic Table of the Stars (p. 42)
8:00–9:00 AM	M–H/I	L100C, Conv. Center	Polydensity Tube: Serious Fun with a Dense Subject (p. 42)
8:00–9:15 AM	6–9	M100E, Conv. Center	Fast and Furious Force and Motion (p. 45)
8:00–9:30 AM	5–12	101A, Conv. Center	Chemistry and the Atom: Fun with Atom-building Games! (p. 45)
10:00–11:15 AM	9–12	101F, Conv. Center	Inquiry in the Chemistry Classroom (p. 48)
10:00–11:15 AM	9–12	101H, Conv. Center	"Finding Solutions" for Your Chemistry Labs with Carolina's New Inquiries in Science™ Chemistry Units (p. 48)

## Schedule at a Glance Chemistry/Physical Science

10:00–11:15 AM	5–8	M100 F–H, Conv. Center	Hands-On Integrated Science Activities for Middle School (p. 48)
12:30–1:30 PM	M–C	200A, Conv. Center	Visualizing Chemistry with Digital Photography (p. 50)
12:30–1:30 PM	I	L100C, Conv. Center	POLYMERS 1A: They’re Everywhere! Kitchen, Classroom, Cars, and Clothing (p. 51)
12:30–1:45 PM	9–12	M100 F–H, Conv. Center	Promote Inquiry Using Demonstrations (p. 54)
2:00–3:00 PM	E–M	200G, Conv. Center	Engaging Hands-On Inquiry Activities (p. 56)
2:00–3:00 PM	I	L100C, Conv. Center	POLYMERS 1B: Squeeze Them into General Chemistry (p. 57)
3:30–4:30 PM	H	200A, Conv. Center	Bringing Alternative Energy Sources to the Classroom with Biodiesel (p. 61)
3:30–4:30 PM	M–H/I	L100C, Conv. Center	Polymers: New Twists on Old Favorites (p. 64)
3:30–4:30 PM	9–12	M100 A–B, Conv. Center	Active Chemistry: Your Students Will React to Chemistry Like You Have Never Seen Before (p. 64)
4:00–5:15 PM	9–11	101G, Conv. Center	Living by Chemistry: What Is the Shape of That Smell? (p. 65)

### Friday

8:00–9:00 AM	I	200H, Conv. Center	Sock It to Me! Chemistry Is Everywhere (p. 72)
8:00–9:00 AM	H	L100C, Conv. Center	ACS Session One: What’s Matter Made Of? (p. 72)
8:00–9:00 AM	E–M	L100D, Conv. Center	PSD Session: Evaporation, Condensation, and the Structure of the Water Molecule (p. 72)
8:00–9:00 AM	H	L100F, Conv. Center	Lotions, Potions, and Scrubs: Polymer Science in Cosmetics (p. 72)
8:00–9:15 AM	9–12	M100E, Conv. Center	Teaching Chemistry Without Hearing “When Am I Ever Going to Need to Know This?” (p. 74)
8:00–9:15 AM	9–12	M100 F–H, Conv. Center	Flinn Scientific’s <i>Teaching Chemistry</i> <sup>TM</sup> eLearning Video Series (p. 74)
9:30–10:00 AM	H–C	M101A, Conv. Center	Green Chemistry at Edgewood College (p. 77)
9:30–10:30 AM	G	200G, Conv. Center	NMLSTA Session: Learn Chemistry Concepts Using the Hands On Plastics 2 Kit (p. 78)
9:30–10:30 AM	H	L100C, Conv. Center	ACS Session Two: What Holds Molecules Together? (p. 82)
9:30–10:30 AM	M–H	L100F, Conv. Center	Polymer Serendipity Discoveries Uncovered (p. 82)
9:30–10:30 AM	E–M	L100I, Conv. Center	NSTA Press Session: Stop Faking It! Finally Understand CHEMISTRY So You Can Teach It (p. 82)
10:00–11:15 AM	9–12	M100E, Conv. Center	Forensic Science for High School: An Inquiry-rich Curriculum (p. 87)
11:00 AM–12 Noon	H	L100C, Conv. Center	ACS Session Three: Why Is Water Different? (p. 91)
11:00 AM–12 Noon	E–M	L100D, Conv. Center	PSD Session: There’s More to Dissolving Than Meets the Eye! (p. 91)
11:00 AM–12 Noon	6–12	M100 A–B, Conv. Center	Tough Topics in Chemistry: States of Matter (p. 92)
11:00 AM–1:00 PM	5–8	101C, Conv. Center	FOSS Chemical Interactions for Middle School Students (p. 92)
12 Noon–1:15 PM	9–11	101G, Conv. Center	Living by Chemistry: Feeling Under Pressure (p. 93)
12 Noon–1:15 PM	9–12	M100E, Conv. Center	<i>A Natural Approach to Chemistry</i> (p. 93)
12:30–1:30 PM	H	L100C, Conv. Center	ACS Session Four: Bond Connections in More Complex Molecules (p. 97)
12:30–1:30 PM	E–M	L100D, Conv. Center	PSD Session: Chemical Change—The Breaking and Making of Bonds (p. 97)
12:30–1:30 PM	M–H	L100F, Conv. Center	Embedded Formative and Summative Assessment (p. 97)
2:00–3:00 PM	H	L100C, Conv. Center	ACS Session Five: Chemistry of Aqueous Solutions of Gases (p. 101)
2:00–3:00 PM	M–H/S	L100F, Conv. Center	Bring the Science of Cars into the Classroom (p. 101)
2:00–3:15 PM	9–12	101F, Conv. Center	Ensure Your Students’ Success on the AP* Chemistry Exam (p. 102)
2:00–3:15 PM	9–12	M100E, Conv. Center	<i>A Natural Approach to Chemistry</i> (p. 103)
2:00–3:30 PM	5–12	101A, Conv. Center	Chemistry and the Atom: Fun with Atom-building Games! (p. 103)
3:30–4:30 PM	H	L100C, Conv. Center	ACS Session Six: Coupled Reactions, Energetics, and Chemical Bonds (p. 106)
3:30–4:30 PM	M–H	L100F, Conv. Center	Inquiring in Chemistry with Everyday Materials (p. 106)
3:30–4:30 PM	I	M100J, Conv. Center	Science at Hogwarts: A Little Magic Show (p. 105)
4:00–5:15 PM	9–12	M100 F–H, Conv. Center	Capturing Attention in the Chemistry Classroom (p. 108)

### Saturday

8:00–9:00 AM	E–M	200G, Conv. Center	Inquiry Matters (p. 113)
8:00–9:00 AM	M–H	L100C, Conv. Center	Technology Binds Mathematics and Science (p. 113)
9:30–10:30 AM	H	200I, Conv. Center	Light-Emitting Diodes (LEDs): Recent Advances, Green Applications, and Cutting-Edge Science (p. 116)

## Schedule at a Glance Chemistry/Physical Science

9:30–10:30 AM	M–H	L100C, Conv. Center	Corn Plastic—Wear It or Eat It! (p. 116)
11:00 AM–12 Noon	H	200I, Conv. Center	Rediscovering the Gas Laws: Using Computer Simulation to Teach Inquiry-based Chemistry, Data Collection, Analysis, and Display (p. 118)
11:00 AM–12 Noon	H	L100C, Conv. Center	Demos for the Holidays! Excite Students with Chemical Demonstrations (p. 117)

### Earth/Space Science

#### Thursday

8:00–9:00 AM	H	205A, Conv. Center	NSTA Avenue Session: Pete Conrad Spirit of Innovation Awards (p. 42)
8:00–9:00 AM	E–H	L100D, Conv. Center	Active Science in a Changing World (p. 43)
12:30–1:30 PM	G	200B, Conv. Center	NASA's High-Energy Vision—Chandra and the X-ray Universe (p. 50)
12:30–1:30 PM	M/I	200E, Conv. Center	Climate Change: Classroom Tools to Explore the Past, Present, and Future (p. 52)
12:30–1:30 PM	I	L100D, Conv. Center	JetStream: An Online School for Weather (p. 52)
12:30–1:30 PM	E–H	M101B, Conv. Center	Density Driven! The Relationship of Density to the Oceans and the Atmosphere (p. 51)
12:30–1:45 PM	K–12	M100E, Conv. Center	Pluto Yet Again! (p. 54)
2:00–3:00 PM	G	200B, Conv. Center	NASA eClips for Secondary Students: Using Video Segments to Engage Millennial Learners (p. 55)
2:00–3:00 PM	E	200E, Conv. Center	Weather Education Activities for the Elementary Grades: Online and On-Target! (p. 56)
2:00–3:00 PM	E–H	L100D, Conv. Center	Activities from Across the Earth System (p. 57)
2:15–3:30 PM	6–8	M100D, Conv. Center	Using Math and Science as the New Literacy to Reach At-Risk Students (p. 60)
3:30–4:30 PM	G	200B, Conv. Center	NASA eClips for Elementary Students: Effective Ways to Engage Students in Science (p. 61)
3:30–4:30 PM	M	200E, Conv. Center	Integrating Real-Time Weather Data into Middle School Meteorology (p. 63)
4:00–5:15 PM	9–12	M100E, Conv. Center	Evidence for the Ice Ages: An Inquiry Approach (p. 65)

#### Friday

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8:00–9:00 AM	I	200D, Conv. Center	Magnetism Activities, Earth's Magnetism, and Space Weather from Windows to the Universe (p. 71)
8:00–9:00 AM	M–H	L100G, Conv. Center	Scale the Universe (p. 72)
8:00–9:00 AM	E–M	L100I, Conv. Center	NSTA Press Session: Stop Faking It! Finally Understand AIR, WATER, and WEATHER So You Can Teach It (p. 72)
8:00–9:15 AM	6–8	101F, Conv. Center	Reasons Why Teaching Earth Science Will Save Your Life! (p. 74)
9:30–10:30 AM	M–H	200B, Conv. Center	Teaching Earth Science with Google Earth (p. 78)
9:30–10:30 AM	M–H	L100G, Conv. Center	Black Hole Basics (p. 82)
11:00 AM–12 Noon	M	200A, Conv. Center	Incorporating Social Networking and Gaming in the Classroom (p. 89)
11:00 AM–12 Noon	I	200B, Conv. Center	Live Wind Data in Your Classroom (p. 89)
11:00 AM–12 Noon	H	L100G, Conv. Center	Measuring the Monster in the Middle (p. 92)
12:30–1:30 PM	M–H	L100G, Conv. Center	Astronomy: Solar Labs and Activities Workshop (p. 97)
2:00–3:00 PM	H	L100G, Conv. Center	What Is Your Cosmic Connection to the Elements? (p. 101)
2:00–3:00 PM	M	L100I, Conv. Center	NSTA Press Session: Keeping Your Distance: A Lesson from Earth Science Success (p. 102)
2:00–3:00 PM	E–H	Grand Salons E&F, Hilton	National Earth Science Teachers Association Earth Science Share-a-Thon (p. 102)
2:00–3:15 PM	3–8	101G, Conv. Center	Discover the Solar System and Beyond with GEMS® Space Science Sequences (p. 102)
3:30–4:30 PM	H	200D, Conv. Center	Thirty-Minute Labs with Maximum Results (p. 105)
3:30–4:30 PM	H–C	200H, Conv. Center	Analyzing Black Holes and Supernovae Through International X-ray Eyes (p. 106)
3:30–4:30 PM	G	L100G, Conv. Center	Recording the Rhythms of Stellar Heartbeats (p. 106)
3:30–4:30 PM	G	Grand Salons E&F, Hilton	National Earth Science Teachers Association Rock and Mineral Raffle (p. 107)
4:00–5:15 PM	9–C	101D, Conv. Center	Teaching Climate Change with a Global Climate Model and Software (p. 108)

## Schedule at a Glance Earth/Space Science

4:00–5:15 PM	K–12	101G, Conv. Center	MS Degree in Geosciences via Distance Learning from Mississippi State University (p. 108)
4:00–5:15 PM	6–8	M100D, Conv. Center	Using Math and Science as the New Literacy to Reach At-Risk Students (p. 108)
4:00–5:15 PM	5–C	M100E, Conv. Center	Galileo Skies (p. 109)

### Saturday

8:00–9:00 AM	E–H	200A, Conv. Center	Astronomy: 50 Great Resources in 50 Minutes—All Free! (p. 111)
8:00–9:00 AM	M–H	200B, Conv. Center	Making Climate Change Local Using Online Data (p. 111)
8:00–9:15 AM	6–9	M100E, Conv. Center	Teaching About the Rock Cycle and Earth Times (p. 114)
9:30–10:30 AM	G	200B, Conv. Center	SATELLITES: Using Geospatial Technologies to Teach the Science of Alternative Energies and Climate Change (p. 114)
9:30–10:30 AM	M	200E, Conv. Center	Round and Round We Go—Exploring Orbits in the Solar System (p. 115)
9:30–10:30 AM	E–H	200H, Conv. Center	Teaching Inquiry-based Earth Science Using Student-generated Field Investigations (p. 116)
11:00 AM–12 Noon	G	200B, Conv. Center	Using NOAA's Climate Change Resources in Your Classroom (p. 116)
11:00 AM–12 Noon	E–M	200E, Conv. Center	Walking Through Millions of Years to Teach Integrated Science (p. 117)

## Environmental Science

### Thursday

8:00–8:30 AM	C	200I, Conv. Center	The Ecological Footprint Dilemma: A Case Study (p. 41)
8:00–9:00 AM	E–M	200G, Conv. Center	Ecological Footprints (p. 42)
8:00–9:00 AM	M–H	200H, Conv. Center	Be Particular: Air Quality Activities for the Secondary Classroom from the STORM Project (p. 42)
8:00–9:00 AM	G	L100E, Conv. Center	Biotechnology and Environmental Risk: Project Learning Tree's New Secondary Program (p. 43)
8:30–9:00 AM	G	200I, Conv. Center	Backyard Packs Promote Outdoor Activity for Learning and Fitness (p. 42)
11:00 AM–12 Noon	6–12	M100 A–B, Conv. Center	American Geological Institute—Whom Else Would You Ask About Earth Science? (p. 48)
12:30–1:30 PM	E	200C, Conv. Center	Introduction to the Teacher Institute on Science and Sustainability (p. 50)
12:30–1:30 PM	E–M/I	200G, Conv. Center	Become a Sherlock “Homes” Energy Detective (p. 52)
12:30–1:30 PM	P/E	200I, Conv. Center	Open the Door, Let's Explore: Seasonal Activities for Young Children (p. 50)
12:30–1:30 PM	E–M	205A, Conv. Center	NSTA Avenue Session: More and Muir Tech Tips for Teaching About a Greener Tomorrow (p. 51)
12:30–1:30 PM	G	L100E, Conv. Center	Connect Reading and the Environment (p. 52)
2:00–3:00 PM	E	200H, Conv. Center	Live a Day in the Life of a Teacher Participating in the Teacher Institute on Science and Sustainability (p. 56)
2:00–3:00 PM	E–H	L100E, Conv. Center	GreenSchools! (p. 57)
3:30–4:30 PM	M/I	200I, Conv. Center	Tackling the Global Warming Challenge in a Rapidly Changing World (p. 63)
3:30–4:30 PM	I	L100E, Conv. Center	Investigating the Great Lakes (p. 64)

### Friday

8:00–9:00 AM	G	200C, Conv. Center	Global Connections: Forests of the World (p. 71)
8:00–9:00 AM	H	200I, Conv. Center	Strengthening High School Environmental Science Courses: Wisconsin's Approach (p. 69)
8:00–9:00 AM	H–C	M101A, Conv. Center	Student-created Excel Models to Test Environmental Claims (p. 71)
9:30–10:00 AM	E–H	200I, Conv. Center	Wise About Waste: A School and Museum Collaboration (p. 80)
9:30–10:30 AM	M–H	200C, Conv. Center	Making Methane: It's a Gas (p. 81)
11:00 AM–12 Noon	G	200C, Conv. Center	How to Assess the Sustainability of Cellulosic Ethanol Production (p. 91)
12:30–1:30 PM	M	200A, Conv. Center	The Urban Water Cycle CD: An Interactive Resource for Teachers (p. 95)
12:30–1:30 PM	G	M101B, Conv. Center	NASA's GLOBE Program: U.S. Regional GLOBE Networking Session (p. 96)



## Schedule at a Glance Environmental Science

1:00–2:00 PM	6–12	M100 A–B, Conv. Center	Tough Topics in Environmental Science: Field Data Collection and Water Quality Sampling (p. 98)
2:00–3:00 PM	M	200G, Conv. Center	sChool Globes: The Art and Science of Climate Change (p. 101)
2:00–3:00 PM	I	200I, Conv. Center	Wilderness Writing for Wild Youth (p. 101)
3:30–4:30 PM	M–H	200C, Conv. Center	Examining the Human Footprint: Population, Land Use, and the Global Environment (p. 105)
3:30–4:30 PM	E–M	200E, Conv. Center	Energy Issues in a Changing World (p. 106)
4:00–5:15 PM	9–12	101H, Conv. Center	Need “Energy” in Your Environmental Classes? Learn About Carolina’s NEW Inquiries in Science™ Environmental Series (p. 108)

### Saturday

8:00–9:00 AM	I	200C, Conv. Center	DNR MinnAqua Program: Curriculum Resources and Environmental Education (p. 112)
8:00–9:00 AM	M	200I, Conv. Center	Teaching Green (p. 113)
9:30–10:30 AM	M–H	200C, Conv. Center	Invasive Plant Species (IPS) (p. 114)
11:00–11:30 AM	I	200C, Conv. Center	Connecting to Inquiry Science at Zoos and Aquariums (p. 116)
11:30 AM–12 Noon	G	200C, Conv. Center	A Collaborative Effort to Educate Teachers and Their Students (p. 116)

### Integrated/General

#### Thursday

8:00–8:30 AM	C	M101A, Conv. Center	NARST Session: The Influence of Context on Science Teaching Self-Efficacy (p. 41)
8:00–9:00 AM	G	200E, Conv. Center	NSTA Press Session: Designing Effective Science Instruction: What Works in Science Classrooms (p. 41)
8:00–9:00 AM	H	L100F, Conv. Center	Increasing Critical Thinking: Help Your High School Students Write Their Own Scientific Experiments (p. 43)
8:00–9:00 AM	E–H	L100G, Conv. Center	For Anyone with More Than One Student in Their Classroom! (p. 43)
8:00–9:00 AM	G	L100I, Conv. Center	Students Show What They Know (p. 44)
8:00–9:00 AM	G	Symphony III & IV, Hilton	NSTA Avenue Session: Is This Your First NSTA Conference? (p. 41)
8:00–9:15 AM	1–6	101B, Conv. Center	Experimental Design (p. 44)
8:00–9:15 AM	6–12	101E, Conv. Center	A Closer Look at Biology, Chemistry, and Earth Science Virtual Labs (p. 44)
8:00–9:15 AM	6–8	101F, Conv. Center	Inquiring with Interactive Science (p. 44)
8:00–11:00 AM	5–8	101C, Conv. Center	Using Science Notebooks with FOSS Middle School (p. 45)
9:00–11:00 AM	2–6	101D, Conv. Center	Seeds of Science/Roots of Reading: Integrating Science and Literacy at the Elementary Level (p. 46)
9:15–10:30 AM	G	Ballroom A, Conv. Center	General Session: Last Child in the Woods: Saving Our Children from Nature-Deficit Disorder (Speaker: Richard Louv) (p. 47)
10:00–11:15 AM	5–8	101B, Conv. Center	Inquiry and Literacy: Grades 5–8 (p. 47)
10:00–11:15 AM	7–10	101E, Conv. Center	Introducing Inquiry Investigations™: Hands-On Inquiry Activities Focusing on Technology (p. 47)
11:30 AM–1:30 PM	2–6	101D, Conv. Center	Seeds of Science/Roots of Reading: Integrating Science and Literacy at the Elementary Level (p. 49)
12 Noon–1:15 PM	K–12	101E, Conv. Center	Educational Science Lab Design and Implementation for the 21st Century Made Easy (p. 50)
12:30–1:30 PM	G	L100G, Conv. Center	Igniting Curiosity Through Discrepant Events (p. 52)
12:30–1:00 PM	P/E	200F, Conv. Center	On Solid Ground: Integrating Science and Literacy Skills (p. 50)
12:30–1:30 PM	E	200H, Conv. Center	The Joy of Elementary Engineering (p. 52)
12:30–1:30 PM	E–H	200J, Conv. Center	Developing an Integrated Program Around <i>The Story of Science</i> (p. 51)
12:30–1:30 PM	M–H	201 A/B, Conv. Center	Quick and Effective Visual Formative Assessments (p. 51)
12:30–1:30 PM	E–H	L100B, Conv. Center	Inquiry-based Hand-On Activities and Demonstrations (p. 52)
1:00–1:30 PM	P/E	200F, Conv. Center	Linking Science and Language Arts: From an Apple to an Atom (p. 50)

## Schedule at a Glance Integrated/General

1:00–1:30 PM	G	M101A, Conv. Center	NARST Session: STEM Institutes: Secondary Science Teachers' Engagement with Nanotechnology Education (p. 51)
1:00–2:30 PM	K–12	101B, Conv. Center	What's Going On in There? Inquiry Science for Administrators, Trainers, and Teachers (p. 54)
2:00–2:30 PM	G	M101B, Conv. Center	NSTA Teacher and Principal Awards and Recognitions (p. 54)
2:00–3:00 PM	G	101 I&J, Conv. Center	Featured Presentation: Newton, Einstein, and Friedman: Who's Next? (Speaker: William Sommers) (p. 55)
2:00–3:00 PM	G	200C, Conv. Center	Become a Teacher at Sea with NOAA Scientists (p.55)
2:00–3:00 PM	G	200D, Conv. Center	Professional Development Providers: What You Should Know and Be Able to Do (p. 55)
2:00–3:00 PM	E–M	200F, Conv. Center	From Science, Language Arts, and Social Studies to Service Learning (p. 55)
2:00–3:00 PM	E–H	205A, Conv. Center	NSTA Avenue Session: SciLinks: Using the Online Assignment Tool (p. 56)
2:00–3:00 PM	M–H	L100F, Conv. Center	Forensic Science Is the Across-the-Curriculum Course (p. 58)
2:00–3:00 PM	G	L100I, Conv. Center	NSTA Press Session: So You Want New Science Facilities (Science Facilities 101) (p. 58)
2:00–3:00 PM	E–M	M101A, Conv. Center	Waters to the Sea: Watershed Education for the 21st Century (p. 56)
2:00–3:15 PM	7–10	101E, Conv. Center	Inquiry Investigations™ Biotechnology Curriculum Modules and Kits (p. 58)
2:00–4:00 PM	3–6	101C, Conv. Center	FOSS Assessment: Valuing Academic Progress in Grades 3–6 (p. 59)
2:15–3:30 PM	6–12	101F, Conv. Center	Meet the Untamed Science Crew and Learn How to Make Your Own Science Videos! (p. 59)
2:15–3:30 PM	6–10	M100C, Conv. Center	STEMcart: Providing STEM Teachers with the Tools They Need (p. 60)
2:15–3:30 PM	K–12	M100 F–H, Conv. Center	Use Dinah Zike's Foldables® to Teach Science More Effectively (p. 59)
2:30–4:00 PM	K–8	101D, Conv. Center	FOSS and DSM Kit Refurbishment/Materials Management (p. 60)
3:00–4:30 PM	K–6	101B, Conv. Center	Science Gnus: The Stories of Science in the Stories of Scientists and Process Skills (p. 60)
3:30–4:30 PM	G	101 I&J, Conv. Center	Featured Presentation: What Are They Thinking? Using Formative Assessment to Improve Opportunities to Learn (Speaker: Page Keeley) (p. 61)
3:30–4:30 PM	E–H	200C, Conv. Center	Teaching About the Rain Forests of the Oceans Using NOAA Resources (p. 61)
3:30–4:30 PM	E–H	200D, Conv. Center	The Ideal Field Trip (p. 61)
3:30–4:30 PM	P/E	200H, Conv. Center	High-flying Fun: Linking Aerospace and Literature at the Elementary Level (p. 63)
3:30–4:30 PM	C/S	201 A/B, Conv. Center	Revising the NSTA Science Teacher Preparation Program Standards (p. 62)
3:30–4:30 PM	G	205A, Conv. Center	NSTA Avenue Session: Toshiba/NSTA ExploraVision Awards Program (p. 62)
3:30–4:30 PM	M–C	L100F, Conv. Center	Integrating PhET's Web-based Interactive Simulations in Inquiry-based Lessons (p. 64)
3:30–4:30 PM	G	L100G, Conv. Center	Sharpen and Shape Science Instruction with Scaffolded Inquiry (p. 64)
3:30–4:30 PM	G	L100I, Conv. Center	NSTA Press Session: The Architects Have Started Without Me...What Do I Do Now? (Science Facilities 102) (p. 64)
3:30–4:30 PM	G	M100J, Conv. Center	Writing for Interactivity: Creating Online Content with ASPIRE (p. 62)
3:30–4:30 PM	S	M101B, Conv. Center	Building Partnerships to Improve Teacher Quality and Student Outcomes: The Cleveland Math and Science Partnership (p. 62)
3:30–4:30 PM	P–M/I	L100D, Conv. Center	Magical Illusions Workshop for K–8 Teachers (p. 64)
4:00–5:15 PM	7–10	101E, Conv. Center	Inquiry Investigations™ Forensics Science Curriculum Module (p. 65)
4:00–5:15 PM	9–12	101F, Conv. Center	Wow! Realistic Laboratory Simulations for the Entire High School Science Curriculum You Have to See to Believe! (p. 65)
4:00–5:15 PM	4–C	M100C, Conv. Center	It's Easy to Go Digital! (p. 65)
4:00–5:15 PM	K–8	M100 F-H, Conv. Center	Misconception Mania: Exciting and Engaging Ways to Address Common K–8 Misunderstandings (p. 65)

### Friday

8:00–8:30 AM	M–H	M100J, Conv. Center	Impact of an Eighth-Grade Science Program on College and Career Choices (p. 71)
8:00–9:00 AM	E–M	200A, Conv. Center	Integrating Technology into Outdoor Education (p. 69)
8:00–9:00 AM	P/E	200E, Conv. Center	Energy Concepts Measure Up (p. 72)
8:00–9:00 AM	M	200F, Conv. Center	City of Materials: Connecting Science to the "Stuff" in Kids' Lives (p. 69)

## Schedule at a Glance Integrated/General

8:00–9:00 AM	E	200J, Conv. Center	Creating a Powerful Synergy in the K–6 Classroom with Hands-On Investigations, Science Literacy Skills, and Science Content (p. 69)
8:00–9:00 AM	G	201 A/B, Conv. Center	Scenario-based Science Assessments in the Classroom (p. 69)
8:00–9:00 AM	G	205A, Conv. Center	Before and After Retirement: Practicalities and Possibilities (p. 70)
8:00–9:00 AM	G	205B, Conv. Center	Interventions and Reassessments (p. 70)
8:00–9:00 AM	C	M101B, Conv. Center	How Can You Attract Individuals to Science Teaching? (p. 71)
8:00–9:00 AM	E–H	M100I, Conv. Center	Become an Einstein Fellow! (p. 71)
8:00–9:15 AM	1–5	101B, Conv. Center	Put Some Spark into Science Investigations (p. 73)
8:00–9:15 AM	5–12	M100D, Conv. Center	Detecting Radiation in Our Radioactive World (p. 74)
8:00–9:30 AM	K–8	M100C, Conv. Center	K–8 Science with Vernier (p. 76)
8:00–10:00 AM	K–6	101C, Conv. Center	Introducing Science Notebooks with FOSS K–6 (p. 76)
8:30–9:00 AM	M–H	M100J, Conv. Center	Teacher Text (p. 71)
9:30–10:30 AM	G	101 I&J, Conv. Center	Featured Presentation: Building a Greener World: Indigenous Strategies for a Sustainable Future (Speaker: Winona LaDuke) (p. 78)
9:30–10:30 AM	G	200D, Conv. Center	Creating Inquiring Minds in Primary Classrooms (p. 81)
9:30–10:30 AM	P/E	200E, Conv. Center	Integrating Nonfiction Reading and Writing While Teaching About Energy (p. 81)
9:30–10:30 AM	H	200F, Conv. Center	NSTA High School Committee Share Session (p. 78)
9:30–10:30 AM	E	200H, Conv. Center	Fight Bac! Integrating Food Safety into Your Elementary Classroom (p. 81)
9:30–10:30 AM	E	200J, Conv. Center	Enhancing Science Instruction and Literacy with Quality Nonfiction Trade Books, Related Resources, and Investigations (p. 80)
9:30–10:30 AM	E–H	205A, Conv. Center	NSTA Avenue Session: Toyota TAPESTRY Grants for Science Teachers = \$\$\$ for Your School (p. 80)
9:30–10:30 AM	G	205B, Conv. Center	Using Community Service Projects to Enhance Learning in the Classroom (p. 80)
9:30–10:30 AM	M–H	L100H, Conv. Center	Scale the Universe (p. 82)
9:30–10:30 AM	H	M100J, Conv. Center	Crime Solved: Integrating Forensic Science into Core Classes (p. 80)
9:30–10:30 AM	P–M	Grand Salons E&F, Hilton	CESI Session: CESI Make and Take (p. 82)
9:30–11:30 AM	G	M100I, Conv. Center	NSTA ESP Symposium I: NSTA Exemplary Science Program (ESP)...Realizing the Visions of the National Standards: It Takes ESP to Find Exemplary Science Programs (p. 84)
10:00–11:15 AM	1–6	101B, Conv. Center	Integrating Science and Literacy: Grades 1–6 (p. 86)
10:00–11:15 AM	5–8	101F, Conv. Center	Inquiry, Evidence, and Thinking: The Heart of Science Teaching (p. 86)
10:00–11:15 AM	5–8	M100D, Conv. Center	Science of Everyday Life with the 3M/Discovery Education Young Scientist Challenge (p. 87)
10:00–11:15 AM	3–12	M100 F–H, Conv. Center	Teaching Science with Foldables (p. 86)
10:00–11:30 AM	7–C	M100C, Conv. Center	Developing 21st-Century Minds with Vernier (p. 88)
11:00 AM–12 Noon	G	101 I&J, Conv. Center	Featured Presentation: The Science-Literacy Connection: Myth or Reality? (Speaker: Michael Klentschy) (p. 89)
11:00 AM–12 Noon	E–M	200D, Conv. Center	You Got Their Attention with the Demonstration: What's the Next Step? (p. 91)
11:00 AM–12 Noon	P/E	200E, Conv. Center	Cooking Up Science in the Early Childhood Classroom (p. 91)
11:00 AM–12 Noon	H	200F, Conv. Center	NSTA High School Committee Presents: Leading Beyond the Classroom (p. 89)
11:00 AM–12 Noon	E–H	200I, Conv. Center	Exploring Solar Energy (p. 91)
11:00 AM–12 Noon	G	201 A/B, Conv. Center	Influences on Science Literacy in African American Female Students (p. 89)
11:00 AM–12 Noon	G	205B, Conv. Center	Community Science: Integrating Science with Community Resources (p. 90)
11:00 AM–12 Noon	G	L100H, Conv. Center	Developing Scientific Explanations: Making Student Thinking Visible (p. 92)
11:00 AM–12 Noon	E–M/C	M101B, Conv. Center	Teaching Preservice and New Elementary Teachers About Formative Assessment and Science Curriculum (p. 91)
11:00 AM–12 Noon	G	Grand Salons E&F, Hilton	Make and Take Polymer Activities for Everyone (p. 92)
12 Noon–1:15 PM	6–8	101F, Conv. Center	Concepts and Challenges—What Is It All About? (p. 93)
12 Noon–1:15 PM	3–12	M100 F–H, Conv. Center	Teaching Science with Foldables (p. 93)
12 Noon–1:30 PM	7–C	M100C, Conv. Center	Developing 21st-Century Minds with Vernier (p. 94)
12 Noon–2:00 PM	G	Marquette IX, Hilton	PreK–8 CESI Luncheon: Discrepant Events and Science from Junk: Discontinued Materials and the Inquiry Continuum (Speaker: Timothy M. Cooney) (p. 94)
12:30–1:30 PM	G	101 I/J, Conv. Center	An Update on the Science Anchors: A Vision for Clear, Coherent, and Manageable Standards (p. 95)
12:30–1:30 PM	E–H	200D, Conv. Center	Kids Like Art but Hate Science—Let's Do Something About That! (p. 96)

## Schedule at a Glance Integrated/General

12:30–1:30 PM	E	200E, Conv. Center	Introducing Engineering to Parents and Children (p. 96)
12:30–1:30 PM	E–M	200G, Conv. Center	Inquiry-based Assessment in the Elementary Science Classroom (p. 97)
12:30–1:30 PM	S	205A, Conv. Center	NSTA Avenue Session: The NSTA Learning Center: Free Classroom Resources and Professional Development for Educators (p. 95)
12:30–1:30 PM	G	L100H, Conv. Center	“Literacy” vs. “literacy”—What’s the Difference? (p. 97)
12:30–1:30 PM	M–C/S	M100I, Conv. Center	Project TIN: Supporting Beginning Educators with Technology (p. 96)
12:30–1:30 PM	M–C	M100J, Conv. Center	Size Matters: Dinosaurs to Nanotechnology—Galileo’s Revolution (p. 96)
12:30–1:30 PM	G	Grand Salons E&F, Hilton	Central Michigan Student Chapter Share-a-Thon (p. 96)
1:00–2:15 PM	K–8	101B, Conv. Center	Working as One with Hands and Minds (p. 98)
2:00–2:30 PM	G	M101B, Conv. Center	Nontraditional Grading in a Traditional Environment (p. 99)
2:00–3:00 PM	G	200A, Conv. Center	The Minnesota Science Teachers Education Project (MnSTEP) (p. 99)
2:00–3:00 PM	G	200B, Conv. Center	Let’s Look at How Science REALLY Works! (p. 99)
2:00–3:00 PM	E–M	200D, Conv. Center	A Scientific Path from Geometry to Geography (p. 101)
2:00–3:00 PM	P–M	200F, Conv. Center	Dumbledore’s Transfiguration Class: Science and Magic from Hogwarts’s Academy (p. 99)
2:00–3:00 PM	E–M	200H, Conv. Center	Questions Are the Key to Inquiry (p. 101)
2:00–3:00 PM	G	200J, Conv. Center	Using Science Notebooks in the Elementary Classroom (p. 100)
2:00–3:00 PM	G	201 A/B, Conv. Center	Bring the Year of Science into Your Classroom with NOAA Resources (p. 100)
2:00–3:00 PM	G	205A, Conv. Center	Starting an NSTA Student Chapter: Student and Faculty Perspectives (p. 100)
2:00–3:00 PM	G	M100I, Conv. Center	Tapping the Engineering Skills of the Society of Women Engineers (p. 100)
2:00–3:15 PM	3–12	101D, Conv. Center	Developing Quality Science Assessment Items (p. 102)
2:00–3:30 PM	7–C	M100C, Conv. Center	Developing 21st-Century Minds with Vernier (p. 103)
2:00–4:30 PM	3–6	101C, Conv. Center	Making Sense of Science Notebooks with FOSS 3–6 (For Experienced Users) (p. 103)
2:30–4:00 PM	6–12	M100 A–B, Conv. Center	Using SPARK Science Learning System to Enhance Hands-On Science (p. 104)
3:30–4:00 PM	M–H	200I, Conv. Center	Assessment and Management of Natural Resources (p. 104)
3:30–4:00 PM	G	205A, Conv. Center	NSTA Avenue Session: NSTA Membership Jeopardy (p. 104)
3:30–4:30 PM	G	200A, Conv. Center	CESI Session: Get the Scoop (p. 105)
3:30–4:30 PM	G	200B, Conv. Center	The Role of “S” in STEM: Opportunities and Challenges for Science Educators (p. 105)
3:30–4:30 PM	M	200G, Conv. Center	Integrating Science and Math in the Middle/Junior High Classroom (p. 106)
3:30–4:30 PM	G	200J, Conv. Center	Incorporating Science and Multicultural Literature (p. 105)
3:30–4:30 PM	E–H	201 A/B, Conv. Center	Help Students Meet Science Standards (p. 105)
3:30–4:30 PM	E–H	L100H, Conv. Center	Science Really Is an Art (p. 106)
3:30–4:30 PM	G	M100I, Conv. Center	NSTA ESP Symposium II: NSTA Exemplary Science Program (ESP)... Realizing the Visions of the National Standards: It Takes ESP to Find Exemplary Science Programs (p. 104)
4:00–5:15 PM	6–8	101F, Conv. Center	From Science to Engineering (p. 108)

### Saturday

8:00–9:00 AM	E–M	200D, Conv. Center	Kites in the Classroom (p. 112)
8:00–9:00 AM	E	200E, Conv. Center	Leave the Fear Behind: Implement Student-based Inquiry (p. 113)
8:00–9:00 AM	M–H	200J, Conv. Center	Aligning Standards to Assessments and Improving Achievement (p. 112)
8:00–9:00 AM	G	205A, Conv. Center	A Balanced Relationship: Creating Effective Partnerships Between Museums and Schools (p. 112)
8:00–9:00 AM	G	M101A, Conv. Center	Preservice Teachers’ Conceptions of Standards: Does Curriculum Topic Study Make a Difference? (p. 112)
8:00–9:00 AM	G	M101B, Conv. Center	It’s All in the Targets (p. 112)
8:00–9:15 AM	6–8	101F, Conv. Center	The Digital Path and Essential 21st-Century Skills (p. 113)
9:00–11:00 AM	E	Exhibit Hall B, Conv. Ctr.	Special Event: <i>Science Matters</i> in Minneapolis (p. 114)
9:30–10:30 AM	E	200F, Conv. Center	Engage Primary Scientists (p. 114)
9:30–10:30 AM	E–M	200G, Conv. Center	Science Is a Story (p. 115)
9:30–10:30 AM	G	200J, Conv. Center	Using the History of Science in Science Instruction (p. 115)
9:30–10:30 AM	H	201 A/B, Conv. Center	Using Digital Storytelling in the Science Classroom (p. 115)



## Schedule at a Glance Integrated/General

9:30–10:30 AM	G	205A, Conv. Center	Building Science Assets: Guiding Students to Become “People of Science” (p. 115)
9:30–10:30 AM	M–C	M101A, Conv. Center	Usable Lessons! Trends That STEP to Partnership Sustainability (p. 115)
9:30–10:30 AM	G	M101B, Conv. Center	Can They Earn It? Yes, They Can! (p. 115)
11:00 AM–12 Noon	G	200D, Conv. Center	Integrating “How Toys Are Made” into the Curriculum (p. 117)
11:00 AM–12 Noon	E	200F, Conv. Center	Engage Today’s Learner: Incorporate Technology into Your Science Teaching (p. 117)
11:00 AM–12 Noon	M	200G, Conv. Center	Imagining the Possible: Reading and Writing Science Fiction to Teach and Learn Science (p. 118)
11:00 AM–12 Noon	E–H	L100A, Conv. Center	Fun Experiments Using Polymers (p. 118)
11:00 AM–12 Noon	G	M101A, Conv. Center	K–12 STEM Education: Preparing Students for the Innovation Economy (p. 117)

### Physics/Physical Science

#### Thursday

8:00–8:30 AM	H	201 A/B, Conv. Center	Using Dark Matter to Teach Physics Concepts (p. 41)
8:00–9:00 AM	G	L100H, Conv. Center	Energyze and Energy-Wise Your Students! (p. 44)
8:00–9:00 AM	7–9	M100 A–B, Conv. Center	InterActions in Physical Science: When Your Students Interact with Science They Discover; They Learn (p. 44)
8:00–9:00 AM	M–H/I	M100J, Conv. Center	Wind Turbine Challenge: How to Hold One in Your State or Region (p. 42)
8:00–9:15 AM	4–6	101H, Conv. Center	Force! Momentum! Energy Kids Discover More with the STC Program™ Motion and Design (p. 44)
12 Noon–1:30 PM	5–12	101A, Conv. Center	Collision Physics: A Smashing Good Time! (p. 50)
12:30–1:30 PM	E–H	L100H, Conv. Center	Slip Sliding with Glacier Goo (p. 52)
12:30–1:30 PM	H	M100J, Conv. Center	Energizing Physics (p. 51)
2:00–3:00 PM	E–M	200I, Conv. Center	Ice, Ice, Baby (p. 56)
2:00–3:00 PM	M–C	L100H, Conv. Center	Cloud Chambers for the Classroom (p. 58)
2:00–3:00 PM	9–12	M100 A–B, Conv. Center	<i>Active Physics</i> ® Third Edition: Newly Revised with More Content, More Math, More Physics (p. 58)
2:00–3:00 PM	H–C	M100J, Conv. Center	The Elegance of Design: An Honors Art/Physical Science Course (p. 56)
2:00–3:30 PM	5–12	101A, Conv. Center	Fun with Electricity and Circuits (p. 58)
3:30–4:30 PM	H	L100H, Conv. Center	Beyond Introductory Circuits: Electronics (p. 64)
4:00–5:30 PM	5–12	101A, Conv. Center	Light and Optics: A Series of EnLIGHTening Experiments! (p. 66)

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8:00–9:00 AM	M–H	L100H, Conv. Center	Modeling the Spectrum (p. 72)
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9:30–10:30 AM	E–M	L100D, Conv. Center	PSD Session: Laser Light—What Makes It So Special? (p. 82)
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2:00–3:00 PM	H	L100A, Conv. Center	AAPT Session: Physics Make and Take (p. 101)

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3:30–4:30 PM	H	L100A, Conv. Center	AAPT Session: Physics Make and Take (Part II) (p. 106)
3:30–4:30 PM	E–M	L100D, Conv. Center	PSD Session: Diffraction—Using Light to Measure (p. 106)
4:00–5:30 PM	5–12	101A, Conv. Center	Collision Physics: A Smashing Good Time! (p. 109)

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8:00–9:00 AM	M–H	L100A, Conv. Center	Launching into Science Inquiry (p. 112)
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