

FRIDAY, MARCH 13

NATIONAL CONFERENCE
on **SCIENCE EDUCATION**

CHICAGO

MARCH 12-15, 2015

#NSTA15



VOL. 2

NSTA National
Science
Teachers
Association
#NSTA15

DISCOVER

Destination: Success™

Let USciences guide you to your rewarding future

USciences' Destination: Success™ is a unique educational platform that helps students discover their "perfect fit" career in the sciences or health professions.

Extensive, intensive, and customized, Destination: Success™ facilitates the USciences journey through:

- **Expanded advising:** Guided by multiple advisors, students can discover other options and confirm that they are on the right path.
- **Flexible curricula:** Students can transition smoothly between majors and programs that fit their goals and strengths, and typically graduate on schedule.
- **Hands-on experiential learning:** Students can begin research as early as the first year, with internships, and professional shadowing opportunities to reinforce and strengthen their experience.
- **"Early Assurance" seats:** Through USciences' articulation relationships, students have access to reserved seats in professional programs at USciences, and 8 other partner institutions leading to degrees in Medicine, Dentistry, Veterinary Medicine, Optometry, Physical Therapy, Occupational Therapy and more.

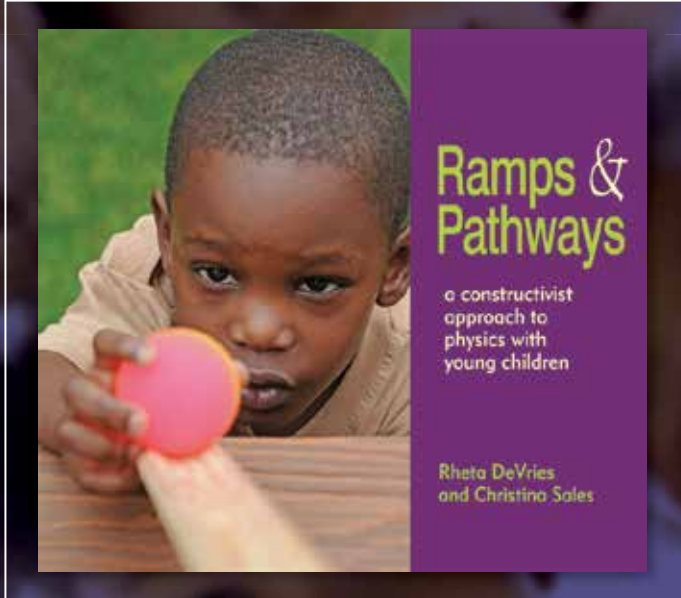
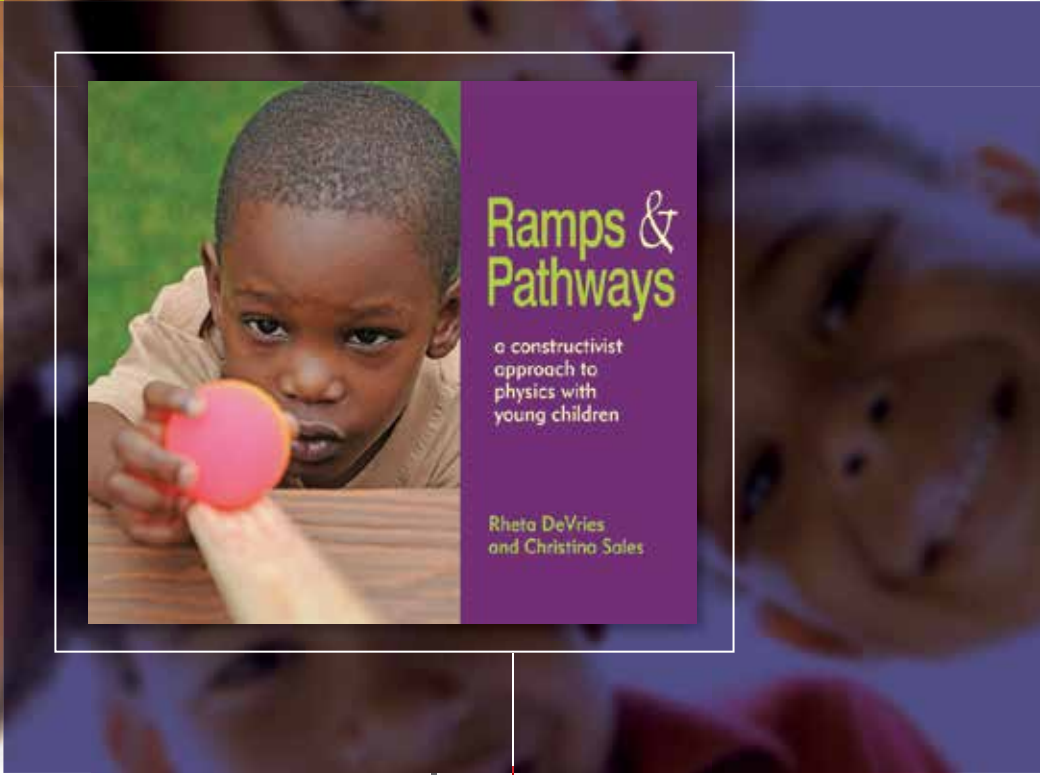


To learn more, visit
usciences.edu/DestinationSuccess/NSTA



Where healthcare and science converge.

Join us every day for demonstrations of physics and young children based on our book *Ramps and Pathways*.



Join us at the Elementary Extravaganza

Friday, March 13, 8-10AM

We'll be in Skyline W375c, McCormick Place.

TCiTM

Booth 1552



Session 1

Date: Friday, Mar 13
Time: 10:00-11:30 AM

Room: W194a

Ignite the NGSS with Today's Cutting-edge Technology

Session 2

Date: Saturday, Mar 14
Time: 8:00-9:30 AM

Room: W194a

Ride the Wave with *Bring Science Alive!*



Session 3

Date: Saturday, Mar 14
Time: 10:00-11:30 AM

Room: W194a

Modeling the Earth, Sun, and Other Stars with *Bring Science Alive!*

teachtci.com

CHICAGO

MARCH 12–15, 2015

NSTA NATIONAL CONFERENCE ON SCIENCE EDUCATION



NSTA 63rd National Conference on Science Education

Chicago: Great Lakes/Great Ideas

Chicago, Illinois • March 12–15, 2015

Volume 2 Friday, March 13

Conference Highlights (Friday)	5
Conference Strands	6–8
NGSS@NSTA Forum	9
Meet Me in the Middle Day	10
Elementary Extravaganza	10
NSTA Press® Sessions	12
Three Dimensions of the <i>Next Generation Science Standards</i>	14
<i>Friday Daily Program</i>	17
Meetings and Social Functions (Friday)	123
Index of Exhibitor Workshops (Friday)	125
Schedule At A Glance (Friday)	132
Index of Participants (Friday)	152
Index of Advertisers	160

National Science Teachers Association

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

Cover photo credit:

Thinkstock



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

Visit NSTA's SCIENCE STORE

Exhibit Hall F2,
McCormick Place West

Travel Light with
FREE Shipping
for Online
Orders!



Offering the latest resources
for science teachers, including
new releases and best sellers!

- Fun NSTA-branded gear—unique hats, shirts, mugs, collectible pins, and more
- Everyone enjoys member pricing: **20%** off all NSTA Press® titles

Check in often for special giveaways, contests, and more throughout the conference!

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

STORE HOURS

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

NSTA National
Science
Teachers
Association

Courtesy of Michael Weiss



Mission Statement

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

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

Friday, March 13

7:30–9:00 AM	High School Breakfast (M-2): Ann Brokaw	17
8:00–10:00 AM	Elementary Extravaganza	10, 36
8:00 AM–5:00 PM	NGSS@NSTA Forum	9
9:00 AM–5:00 PM	Exhibits	38
9:30–10:30 AM	Robert H. Carleton Lecture: Jack Rhoton	40
9:30–10:30 AM	Featured Presentation: Peter Exley	41
10:00 AM–4:00 PM	Meet Me in the Middle Day	10, 50
11:00 AM–12 Noon	Featured Presentation: Liam Heneghan	58
12 Noon–2:00 PM	NSELA/ASTE Luncheon: Jeanne Century	71
12:30–1:30 PM	SCST Marjorie Gardner Lecture: Michael Jackson	73
1:30–2:30 PM	NSTA Chapter and District Meet and Greet in Honor of Wendell Mohling, <i>sponsored by GEICO</i>	84
2:00–3:00 PM	AGU Lecture: Jim White	86
6:00–8:45 PM	NSTA Teacher Awards Gala (M-3)	122
9:00 PM–12 Mid	President’s Mixer with DJ and cash bar	122

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

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

Teaching Every Child by Embracing Diversity

All classrooms are diverse. Learners bring a variety of cultures, backgrounds, and experiences to the study of science. Educators must provide opportunities to meet the needs of all students, including English language learners, students with special needs, and those with diverse learning styles and abilities. Successful instructional approaches must address methods, materials, facilities, and partnerships. These sessions will confirm the belief that every student can excel in science.

The Science of Design: Structure and Function

Architecture and engineering provide the infrastructure for human-made systems. Designing for the future requires imagination and a commitment to sustainability. It also involves the crosscutting concepts of structure and function and the practices of science and engineering. Communities like Chicago provide examples of great design and great science.

Student Learning—How Do We Know What They Know?

The goal of every teacher is to maximize student learning. Monitoring learning is the responsibility of both the teacher and the student. To successfully monitor learning requires authentic assessment, including formative and summative strategies. The progressions embedded in the *NGSS* provide opportunities for students to engage in the practices of science and engineering; these should be assessed through a variety of modalities.

Natural Resources, Natural Partnerships

Sustaining natural resources requires collaborative partnerships among many stakeholders, and science is the key to making smart decisions about resources. Educators and students can engage with environmental groups, agencies, and businesses to build and support a sustainable future. This strand will help teachers identify possibilities and potential partnerships.

Student Learning—How Do We Know What They Know?

Friday, March 13

8:00–9:00 AM

Student Assessment: Reviewing *NGSS* and Critical Assessment Components

9:30–10:30 AM

Standards-based Grading and the *NGSS*

11:00 AM–12 Noon

Sound and Waves: An Integrated K–8 Hands-On Approach Supporting the *NGSS* and *CCSS*

12:30–1:30 PM

Immediate Student Feedback Without Those Expensive Clickers

1:00–5:00 PM

Short Course: Integrating STEM and Art with Pretty Astronomy Pictures
(By Ticket: SC-9)

2:00–3:00 PM

Transitioning Curriculum, Instruction, and Assessments to Meet the *NGSS*

3:30–4:30 PM

Creating Assessments for Physical Science that Integrate the Three Dimensions of the *NGSS*

5:00–6:00 PM

The Flipped Classroom: Now There's Time for More Meaningful Assessments

**Youth Environmental Science Medal Presentation to
Dr. Barrett Rock**



Join YLACES for the presentation Friday, March 13, 2015 at 3:30 PM
Burnham C Hyatt Regency McCormick Place

Learn more about Youth Learning as Citizen Environmental Scientists.

Teaching Every Child by Embracing Diversity

Friday, March 13

8:00–9:00 AM

Science for Bl(ack) Children: Making Meaning Through Language and Culture

9:30–10:30 AM

Creating Classroom Access and Equity to Transform Student Science Outcomes

11:00 AM–12 Noon

El Club de Padres: Maximize Science Learning for Your Bilingual Students by Promoting a Learning Partnership with Their Parents

12:30–1:30 PM

Low Tech to No Tech with High-End Results

1:00–5:00 PM

Short Course: “All Standards, All Students” Appendix D and Case Studies (By Ticket: SC-8)

2:00–3:00 PM

NGSS Science and Engineering Practices: Combining Science Learning and Language Development for ELLs

3:30–4:30 PM

Ready, Set, STEM!

5:00–6:00 PM

Aprendamos Juntos! (Let’s Learn Together): Embracing Native Languages in Non-bilingual Classrooms to Build Intermediate Science Literacy in English

Natural Resources, Natural Partnerships

Friday, March 13

9:30–10:30 AM

Trout in the Classroom

11:00 AM–12 Noon

NASA and GLOBE Connect K–12 Students to NGSS with Big-Data Applications

Featured Presentation: Beasts at Bedtime: Revealing the Embedded Environmental Curriculum in Classic Children’s Literature (Speaker: Liam Heneghan)

12:30–1:30 PM

Nature, One Game at a Time: Eco Stewardship via Augmented Reality Games

2:00–2:30 PM

Project-based Explorations of the Kentucky River Watershed

2:30–3:00 PM

Making STEM Meaningful with Sea Turtles

3:30–4:30 PM

Doing Service and Science in Your Local Forest Preserves

5:00–6:00 PM

Stormwater Literacy Project

The Science of Design: Structure and Function

Friday, March 13

8:00–8:30 AM

The Maker Movement

8:00–11:00 AM

Short Course: Engineering Understanding: Applying Science Concepts and Building Academic Language (By Ticket: SC-6)

8:30–9:00 AM

Helping Middle School Students “Discover Engineering”

9:30–10:30 AM

Featured Presentation: The Power of Play (Speaker: Peter Exley)

Facilitating Interdisciplinary STEM Learning Through Biomechanics

11:00 AM–12 Noon

Eco-Structure and Function: Analyzing River Health with Engineering Practices in Problem-based Situations

12:30–1:30 PM

“Buddy Up” to NGSS Through Companion Lessons

2:00–3:00 PM

Integrating Computing Principles to Enhance Science Classes

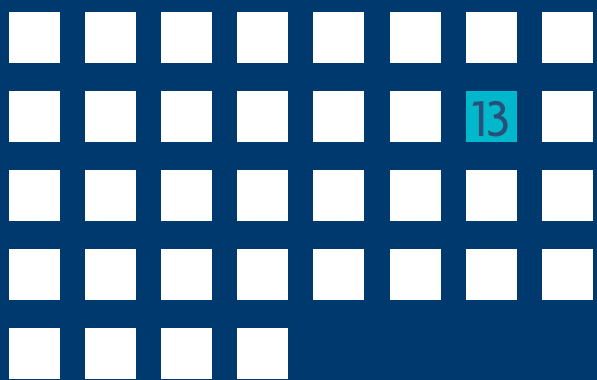
3:30–4:30 PM

Engineering Design Inspired by Nature

5:00–6:00 PM

Bioengineering Challenges and Middle School Life Science

ALL NGSS ALL DAY



12 EXPERTS
6 SESSIONS
1 ROOM

SPECIAL ONE-DAY EVENT

FREE TO ALL CONFERENCE ATTENDEES.
PARTICIPATE IN ONE OR MORE PRESENTATIONS.

For more details, visit www.nsta.org/ngss.

NGSS@NSTA FORUM

FRIDAY, MARCH 13, 2015

McCormick Place, W183a/b

Take a deep dive into the
Next Generation Science Standards
with writers, state science supervisors,
assessment experts, and more.

8:00–9:00 A.M. Implementing the Vision of the
*Framework and Next Generation
Science Standards*
Michael Lach

9:30–10:30 A.M. Helping Students Make Sense of the
World with Next Generation Science
and Engineering Practices
Brian Reiser

11:00 A.M.–12:00 P.M. Developing and Evaluating Three-
Dimensional Curriculum Materials
Joe Krajcik

12:30–1:30 P.M. Assessing NGSS in the Classroom
Christopher Harris, Angela DeBarger, & Bill Penuel

2:00–3:00 P.M. Curriculum Planning the NGSS Way
Stephen Pruitt

3:30–5:00 P.M. Implementing NGSS:
Stories From the Front Lines
Panel Discussion moderated by
NSTA Executive Director David Evans



NGSS@
NSTA
STEM STARTS HERE

Meet Me in the Middle Day

Friday, March 13, 10:00 AM–4:00 PM
 Vista S406a, McCormick Place
 (breakouts: S404b/c, S404d, S405a, and S405b)

Calling all middle school science teachers! Meet Me in the Middle Day is designed just for you. The day will include sessions geared toward middle school, and a share-a-thon with a room full of activities that you can take back to your classroom. Join us and re-energize your teaching. You may even be the lucky

winner of an iPad mini or other door prizes. Sponsored in part by Carolina Biological Supply, It's About Time, LAB-AIDS, the National Middle Level Science Teachers Association (NMLSTA), and PASCO scientific.

10:15–10:45 AM Concurrent Sessions
 11:00–11:30 AM Concurrent Sessions
 12:30–1:00 PM Concurrent Sessions


1:15–1:45 PM Concurrent Sessions
 2:00–4:00 PM Middle Level Share-a-Thon

ELEMENTARY EXTRAVAGANZA

Friday, March 13, 2015
 8:00–10:00 AM • Skyline W375c
 McCormick Place

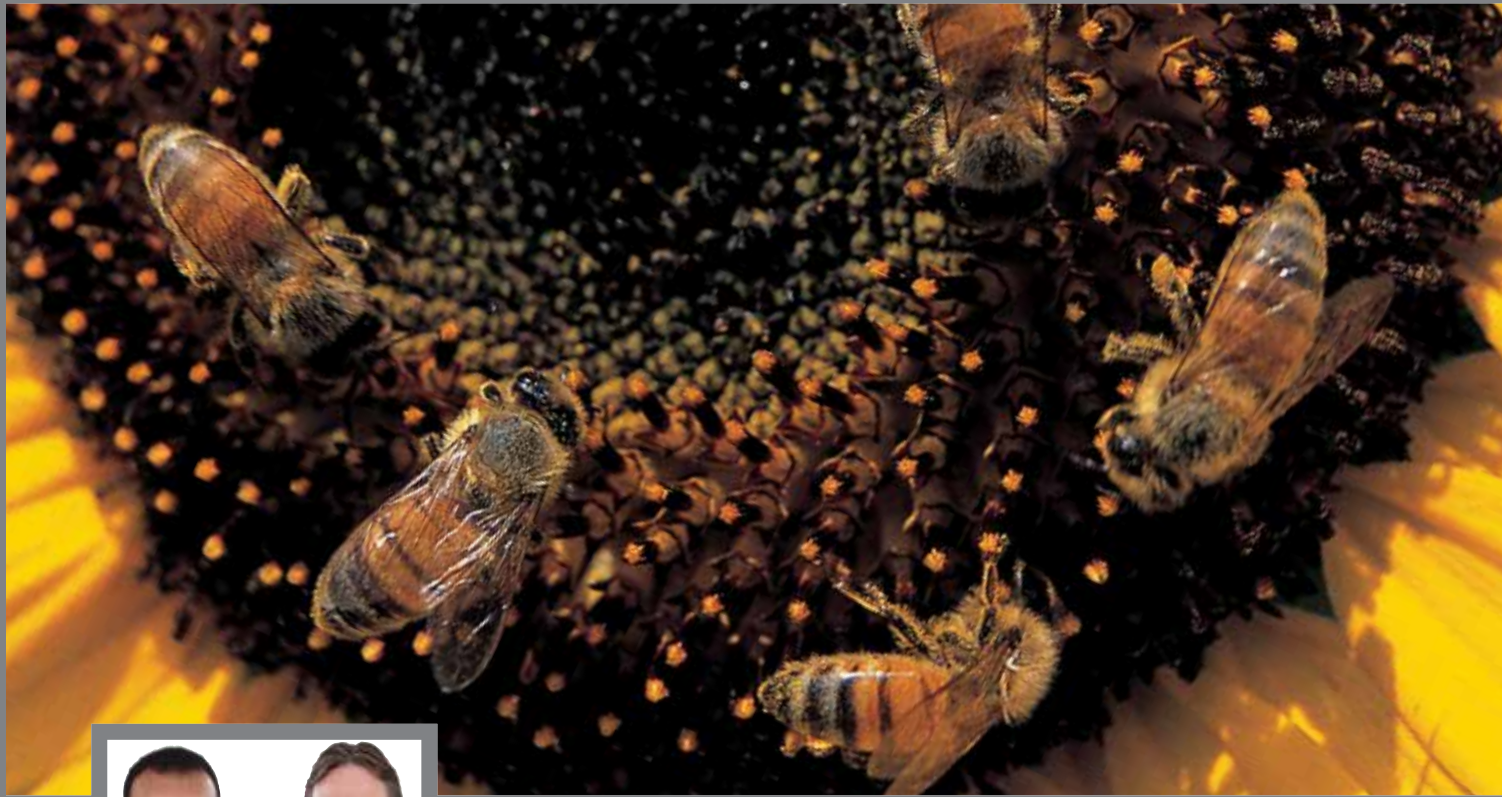
- Hands-on activities
- Preview science trade books
- Learn about award and grant programs
- Walk away full of ideas and arms filled with materials
- Door prizes and refreshments—Win an iPad!
- 100+ presenters

Sponsored by:



Organizations participating in the Elementary Extravaganza include the Association of Presidential Awardees in Science Teaching, the Council for Elementary Science International, the NSTA Committee on Preschool–Elementary Science Teaching, *Science & Children* authors and reviewers, and the Society of Elementary Presidential Awardees.





The Plus is Us! We're here to connect you to superior science supplies, plus personalized support.

Connect with Ward's Science in Booth #830

Product Demos, Plus FREE In-Booth Workshops and Science Giveaways

Meet the **Ward's Science Plus Us** team of science and education experts, attend hands-on workshops and special events, and enter to win free science prizes in our booth.

- Hands-on science for every subject and grade level
- See the latest tools for your classroom and win FREE science prizes in our booth
- Workshops available all day Thursday, Friday and Saturday in our booth and in McCormick Place Room #W192B



For complete workshop schedule and details, visit wardsci.com/conference

**ward's
science+**

NSTA Press Sessions

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

Friday, March 13 (Volume 2)

8:00–9:00 AM

Models and Approaches to STEM Professional Development

Scientific Argumentation in Biology: 30 Classroom Activities

9:30–10:30 AM

CCSS, Mathematics + NGSS = More Brain-powered Science

What Are They Really Thinking? Probe Formats that Uncover K–16 Students' and Teachers' Ideas

11:00 AM–12 Noon

Teaching STEM Subjects to Students with Special Needs

Picture-Perfect Science Lessons: Using Children's Books to Guide Inquiry, K–5

12:30–1:30 PM

Project Based Learning—the Why and How

What Students Think about and Learn from the Whole-Class Inquiry Curriculum

2:00–3:00 PM

Introducing the NGSS to Teachers and Administrators

Cracking The Case: Decoding Engineering Principles Using Case Studies

3:30–4:00 PM

Beyond the Numbers: Making Sense of Statistics



3:30–4:30 PM

Pendulums and Porch Swings

5:00–6:00 PM

Earth Science Puzzles—Making Meaning from Data

NSTA Teacher Awards Gala

Friday, March 13, 6:00–8:45 PM

Red Lacquer Ballroom, Palmer House Hilton

Cost: \$80

Enjoy a fabulous evening celebrating with this year's teacher award recipients! ALL of the teacher awards will be presented in one grand evening. Join your colleagues in recognition of this year's winners.

*By ticket only: #M-3
Evening/Cocktail attire requested.*

All Conference Attendees are invited for the President's Mixer—9:00 PM–12 Midnight in State Ballroom Palmer House (DJ and cash bar)

NSTA
National Science Teachers Association

Three Dimensions of the Next Generation Science Standards (NGSS)

Science and Engineering Practices	Crosscutting Concepts
SEP1 Asking Questions and Defining Problems	CCC1 Patterns
SEP2 Developing and Using Models	CCC2 Cause and Effect: Mechanism and Explanation
SEP3 Planning and Carrying Out Investigations	CCC3 Scale, Proportion, and Quantity
SEP4 Analyzing and Interpreting Data	CCC4 Systems and System Models
SEP5 Using Mathematics and Computational Thinking	CCC5 Energy and Matter: Flows, Cycles, and Conservation
SEP6 Constructing Explanations and Designing Solutions	CCC6 Structure and Function
SEP7 Engaging in Argument from Evidence	CCC7 Stability and Change
SEP8 Obtaining, Evaluating, and Communicating Information	

Disciplinary Core Ideas

Disciplinary Core Ideas in Physical Science	Disciplinary Core Ideas in Life Science	Disciplinary Core Ideas in Earth and Space Science	Disciplinary Core Ideas in Engineering, Technology, and the Application of Science
<p>PS1: Matter and Its Interactions PS1.A: Structure and Properties of Matter PS1.B: Chemical Reactions PS1.C: Nuclear Processes</p> <p>PS2: Motion and Stability: Forces and Interactions PS2.A: Forces and Motion PS2.B: Types of Interactions PS2.C: Stability and Instability in Physical Systems</p> <p>PS3: Energy PS3.A: Definitions of Energy PS3.B: Conservation of Energy and Energy Transfer PS3.C: Relationship Between Energy and Forces PS3.D: Energy in Chemical Processes and Everyday Life</p> <p>PS4: Waves and Their Applications in Technologies for Information Transfer PS4.A: Wave Properties PS4.B: Electromagnetic Radiation PS4.C: Information Technologies and Instrumentation</p>	<p>LS1: From Molecules to Organisms: Structures and Processes LS1.A: Structure and Function LS1.B: Growth and Development of Organisms LS1.C: Organization for Matter and Energy Flow in Organisms LS1.D: Information Processing</p> <p>LS2: Ecosystems: Interactions, Energy, and Dynamics LS2.A: Interdependent Relationships in Ecosystems LS2.B: Cycles of Matter and Energy Transfer in Ecosystems LS2.C: Ecosystem Dynamics, Functioning, and Resilience LS2.D: Social Interactions and Group Behavior</p> <p>LS3: Heredity: Inheritance and Variation of Traits LS3.A: Inheritance of Traits LS3.B: Variation of Traits</p> <p>LS4: Biological Evolution: Unity and Diversity LS4.A: Evidence of Common Ancestry and Diversity LS4.B: Natural Selection LS4.C: Adaptation LS4.D: Biodiversity and Humans</p>	<p>ESS1: Earth’s Place in the Universe ESS1.A: The Universe and Its Stars ESS1.B: Earth and the Solar System ESS1.C: The History of Planet Earth</p> <p>ESS2: Earth’s Systems ESS2.A: Earth Materials and Systems ESS2.B: Plate Tectonics and Large-Scale System Interactions ESS2.C: The Roles of Water in Earth’s Surface Processes ESS2.D: Weather and Climate ESS2.E: Biogeology</p> <p>ESS3: Earth and Human Activity ESS3.A: Natural Resources ESS3.B: Natural Hazards ESS3.C: Human Impacts on Earth Systems ESS3.D: Global Climate Change</p>	<p>ETS1: Engineering Design ETS1.A: Defining and Delimiting an Engineering Problem ETS1.B: Developing Possible Solutions ETS1.C: Optimizing the Design Solution</p> <p>ETS2: Links Among Engineering, Technology, Science, and Society ETS2.A: Interdependence of Science, Engineering, and Technology ETS2.B: Influence of Engineering, Technology, and Science on Society and the Natural World</p>

#1.
20% savings on
NSTA Press® books

#2.
Customized
lesson plans

#3.
Member-only
journals

#4.
Network with
teachers
nationwide

#5.
Unlimited
access to
journal
articles

10

REASONS TO BECOME AN NSTA MEMBER

#6.
16 vibrant
listservs

#7.
Discounts
on NSTA
Conferences

#8.
Countless
NGSS@NSTA
resources

#9.
Online learning

#10.
Professional
development
opportunities
year-round



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

NSTA National
Science
Teachers
Association



—Photo courtesy of Adam Alexander Photography/Choose Chicago

The largest science museum in the Western Hemisphere, the Museum of Science and Industry opened its doors in 1933.

Friday, March 13

	Featured Speakers/Special Events	Featured Speakers/Special Events	Special Events	Special Events
7:00 AM				
8:00 AM				NGSS@NSTA Forum 8:00 AM–5:00 PM W183a/b, McCormick Place
9:00 AM			Elementary Extravaganza 8:00–10:00 AM Skyline W375c, McCormick Place	
10:00 AM	Featured Presentation 9:30–10:30 AM W190a, McCormick Place Speaker: Peter Exley	Robert H. Carleton Lecture 9:30–10:30 AM W185 b/c, McCormick Place Speaker: Jack Rhoton		Meet Me in the Middle Day 10:00 AM–4:00 PM Vista S406a, McCormick Place <i>sponsored by Carolina Biological Supply, It's About Time, LAB-AIDS, the National Middle Level Science Teachers Association, and PASCO scientific</i>
11:00 AM	Featured Presentation 11:00 AM–12 Noon W185b/c Speaker: Liam Heneghan			
12 Noon				
1:00 PM	SCST Marjorie Gardner Lecture 12:30–1:30 PM Clark C, Hyatt Speaker: Michael Jackson			
2:00 PM			NSTA Chapter and District Meet and Greet in Honor of Wendell Mohling 1:30–2:30 PM Exhibit Hall F2 <i>Sponsored by GEICO</i>	
3:00 PM	AGU Lecture 2:00–3:00 PM Skyline W375b, McCormick Place Speaker: Jim White			
4:00 PM				
5:00 PM				
6:00 PM				
7:00 PM	NSTA Teacher Awards Gala 6:00–8:45 PM Red Lacquer Ballroom Palmer House Ticket Required (M-3)			
8:00 PM				
9:00 PM				
10:00 PM	President's Mixer 9:00 PM–12 Midnight State Ballroom, Palmer House			

7:30–9:00 AM High School Breakfast

We Must Never Cease to Learn

(Ticket Required: \$50) **M-2** Regency D, Hyatt
 Science Focus: GEN, INF



Ann Brokaw (*abrokaw44@gmail.com*), Biology Teacher, Rocky River High School, Rocky River, Ohio

As the old saying goes, “To teach is to touch a life forever.” Throughout Ann Brokaw’s life, she has been blessed with amazing educators, both formal and informal. Join Ann as she takes you on a journey—a “story” if you will—during which every step has helped transform her classroom. She will share why she truly believes we must never cease to learn.

A strong advocate for biology and science education, Ann Brokaw is the recipient of numerous awards, including the 2013 Kim Foglia AP Biology Service Award from NABT, the 2007 Presidential Award for Excellence in Mathematics and Science Education, and the 2006 Outstanding Biology Teacher in Ohio award. As a biology teacher for 22 years at Rocky River High School, Ann extends her passion for working with students to providing professional development for teachers.

Ann has presented at numerous national, regional, and state conferences including several NSTA regional and national conferences, the National Association of Biology Teachers, the American Association of Immunologists, the Science Education Council of Ohio, and others. Ann has also presented several one-day workshops for AP and non-AP Biology teachers including workshops at Rice University’s Advanced Topics in AP Biology, at the American Museum of Natural History on behalf of HHMI, and for teachers in northeast Ohio.

In addition to providing professional development, she has developed several classroom resources for the HHMI’s BioInteractive.org website and has participated in the HHMI “Holiday Lectures on Science” Teacher Workshop for several years.

Tickets, if still available, must be purchased at the Registration Area before 3:00 PM on Thursday.

7:30–9:30 AM Networking Opportunity

AMSE Alice J. Moses Breakfast

(By Invitation Only) Regency B, Hyatt

Most conference sessions are scheduled in McCormick Place and Hyatt Regency McCormick Place (listed as “Hyatt” in this program), with short courses and a few other events scheduled at the Palmer House Hotel.

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

Science Area

A science area category is associated with each session. These categories are abbreviated on the Science Focus line for each session listing. On page 132, you will find the conference sessions grouped according to their assigned science area category.

The science areas and their abbreviations are:





- LS = Life Science**
- PS = Physical Science**
- ESS = Earth and Space Science**
- ETS = Engineering, Technology, and the Application of Science**
- GEN = General Science Education**
- INF = Informal Science Education**

NGSS





See page 14 for a complete list of the NGSS codes used in this program.

Strands

The Chicago Conference Committee has planned the conference around the following four strands, enabling you to focus on a specific area of interest or need. Strand events are identified by icons throughout the daily program. For strand descriptions, see page 6.

-  **Teaching Every Child by Embracing Diversity**
-  **The Science of Design: Structure and Function**
-  **Student Learning—How Do We Know What They Know?**
-  **Natural Resources, Natural Partnerships**

The following icons will be used throughout this program.

-  **Informal Education Sessions**
-  **NGSS@NSTA Forum Sessions**
-  **NSTA Press® Sessions**
-  **Professional Development Institutes**

8:00–8:30 AM Presentations

SCST Session: Using Instrumentation in Undergraduate Science Classes: Doppler on Wheels, Dropsondes, Circuits, and More!

(College)

Clark C, Hyatt

Science Focus: ESS

Redina Herman (*rl-herman@wiu.edu*), Western Illinois University, Macomb

Learn about atmospheric investigations using mobile radar, dropsonde, and interaction with scientists at the Center for Severe Weather Research and NCAR's Earth Observing Lab.

Great Lakes Stewardship Initiative: Expanding Classrooms, Strengthening Communities

(Grades 1–12)

Hyde Park A, Hyatt

Science Focus: GEN, SEP

Mary Whitmore (*mwhitmore@glft.org*), Great Lakes Stewardship Initiative, Lansing, Mich.

Using place-based education, sustained professional development, and school-community partnerships, the Initiative improves teaching and learning and develops environmental stewards. Learn more about it!

Meeting the Needs of Gifted and Talented Elementary Students in the STEM Fields

(Grades K–6)

S504bc, McCormick Place

Science Focus: ETS, SEP

Kimberly Clayton-Code (*@kimberlycode*; *codek@nku.edu*), Northern Kentucky University, Highland Heights

Are you looking for ideas to differentiate STEM instruction for gifted and talented elementary students? Specific connections to the NGSS as well as practices to increase student interest and knowledge in the STEM subjects will be included.

The Maker Movement

(Grades 6–8)

W186c, McCormick Place

Science Focus: ETS1

October Smith (*@octobersmith*; *smith.october@gmail.com*), Lamar CISD, Rosenberg, Tex.

President: Cathi Cox-Boniol (*ccox@lincolnschools.org*), Lincoln Parish School Board, Ruston, La.

Hear how one small private school built a programming club using Scratch, Codecademy, and LilyPads, from the ground up...and half of the participants are girls! Walk away with everything you need to start your own maker movement on your campus!

8:00–9:00 AM Presentations

Using the Practices of the Scientist for Scaffolding, Engagement, and Formative Assessment

(Grades 9–12)

Adler C, Hyatt

Science Focus: PS, SEP1, SEP3, SEP4, SEP6

Keith Wright (*wrightk@sps.springfield.ma.us*), Springfield Renaissance School, Springfield, Mass.

Kathleen Davis (*kdavis@educ.umass.edu*), UMass Amherst, Mass.

Examine student work to identify how NGSS practices can be used to increase student understanding and engagement in a chemistry classroom.

Safer STEM Activities Through Collaboration!

(Grades K–12)

Burnham A/B, Hyatt

Science Focus: GEN, INF, NGSS

Kenneth Roy (*royk@glastonburyus.org*), Glastonbury (Conn.) Public Schools

Tyler Love (*tslove@vt.edu*), Virginia Tech, Blacksburg

Trading in beakers for power tools to do STEM activities? Learn how collaboration helps to address the hazards and make it safer before they become liability issues!

Include Me! Inclusion Strategies for the Science Classroom

(Grades 6–College)

Clark A/B, Hyatt

Science Focus: GEN

Rachel Kannady (*rkannady@gmail.com*), White Station High School, Memphis, Tenn.

Dennis Kearney (*denniskearneyjr@gmail.com*), Upper Darby High School, Drexel Hill, Pa.

Teaching students in special education, deaf/hard of hearing, English language learners, and other special populations can be hard. We will share tried-and-true techniques that work!

Make a Difference! Steps to Success with Inquiry—The Evidence, the Examples, the Process

(Grades 6–12)

Dusable C, Hyatt

Science Focus: GEN, NGSS

Jeff Marshall (*marsha9@clemson.edu*) and **Daniel Alston** (*nosamd@gmail.com*), Clemson University, Clemson, S.C.

We will share why inquiry instruction is often better than other options and frequently necessary with NGSS. Come see evidence, examples, and steps to maximize effectiveness.

Deliver Your Science Content with iPads in Your 1:1 Classroom*(Grades 8–12)**Erie, Hyatt*

Science Focus: GEN, NGSS

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

Deliver your high-quality standards-based science curriculum to your students in your iPad 1:1 classroom to ensure genuine student learning, painlessly! BYOD!

NSELA Session: Leadership Strategies for Ensuring Each Student Has a STEM Future*(Grades K–12)**Field A/B, Hyatt*

Science Focus: GEN, SEP

Bob Sotak (*bsotak@mac.com*), Science/STEM Education Consultant, Edmonds, Wash.

Join me as I share strategies and tools used to implement a districtwide STEM program that impacted each student, as well as articulated with higher education and industry. I'll cover identifying resources, developing a vision, and measuring progress toward that vision.

Teach Astronomy to Third-Graders? Our Solar System: A Collaborative Project*(Grades 2–6, College)**Grant Park A, Hyatt*

Science Focus: ESS

Linda Schaffer (*lschaffer@curtisschool.org*), Curtis School, Los Angeles, Calif.

Join me as I describe the progression of teaching abstract astronomy concepts to children ages 8 and 9, and a capstone project in the form of a stop-motion animation video. The collaborative project involved science, art, mathematics, and technology.

Morning of Chemistry

The Best of Chem West



Friday, March 13, 2015
10:00 am - 11:45 am

McCormick Place West
Skyline Ballroom W375

Come be entertained and amazed as demonstrators from the ChemWest group perform 16 of their favorite demonstrations live on stage. These presenters from the metropolitan Chicago area will WOW you with dry ice, liquid nitrogen, implosions, and more! You will not want to miss the Flinn Scientific Morning of Chemistry. Activities and demonstrations from middle school to AP level chemistry will be presented. You'll learn some great science and have a truly fun experience. Handouts will be provided.

FLINN
SCIENTIFIC, INC.

See the list of demos and highlights from past shows at
www.flinnsci.com/moc2015

Using the NGSS Practices and Reflection to Build Confidence in Preservice Elementary Science Educators

(College)

Grant Park C, Hyatt

Science Focus: GEN, NGSS

Alicia McDyre (axd252@psu.edu), Penn State, University Park, Pa.

Kimber Hershberger (khm12@scasd.org), Radio Park Elementary School, State College, Pa.

Join us as we share our strategies for teaching elementary science methods. Journey into a classroom where students and teachers grapple with science content knowledge and pedagogical practices in order to promote confidence in science teaching.

K–12 Science Mentoring: High School, Middle School, and Elementary Students Learning Science Together

(Grades K–12)

Hyde Park B, Hyatt

Science Focus: GEN

Kristen Cacciatore (kcacciatore@boston.k12.ma.us), **Shannon Morey** (shannon.morey@gmail.com), and **Amanda Dillingham** (madelainemarie@hotmail.com), East Boston High School, Boston, Mass.

Discover an innovative science service-learning program in which urban high school students lead various science programs for nearby elementary and middle school students.

Authentic Research for Your Students Using Mastodons and the NGSS

(Grades 6–College)

Jackson Park A, Hyatt

Science Focus: ESS2.A, ESS2.C, ESS2.D, ESS2.E, ESS3.D, LS1.A, LS2.A, LS2.C, CCC3, CCC4

David Voorhees (dvoorhees@waubonsee.edu), Waubonsee Community College, Sugar Grove, Ill.

Unearth new learning in your Earth science and biology classes using sediment from a 2004 mastodon dig that brings real science to your students.

Students Respond to the Field: Teaching with Research Experiences Creates Future Scientists

(General)

Jackson Park D, Hyatt

Science Focus: INF

Janet Warburton (warburton@arcus.org), ARCUS, Fairbanks, Alaska

Teacher research experiences are shifting what it means to engage and to teach—and students are responding. Learn how to use research experiences to encourage future scientists.

Chemistry Activities Linked to the NGSS

(Grades 9–12)

Prairie A, Hyatt

Science Focus: PS

Deanna Cullen, Whitehall High School, Whitehall, Mich. Engage in some quick hands-on chemistry activities linked to the NGSS. Find out how these activities may be used as formative assessments of chemistry concepts. We'll also explore options to convert these into longer term inquiry projects. Door prizes!



NSTA Press® Session: *Models and Approaches to STEM Professional Development*

(General)

S401bc, McCormick Place

Science Focus: GEN, INF, NGSS

Brenda Wojnowski, WAI Education Solutions, Dallas, Tex.

Celestine Pea, National Science Foundation, Arlington, Va. Editors and authors will explore practices and strategies for making STEM professional development more effective through a focus on the research-based underpinnings of reform efforts.

Dissections Done Differently: An Evolutionary Focus

(Grades 9–12)

S402a, McCormick Place

Science Focus: LS1.A, LS4.A, CCC1, CCC6

Kristy Butler ([@kbutlerSCI](mailto:kbutlerSCI); kbutler@fhps.net) and **Patricia Richardson** (@PattiRichardson19; prichardson@fhps.net), Forest Hills Central High School, Grand Rapids, Mich.

Tired of just cutting and looking? Come learn an inquiry-focused way to teach dissections centered around the evolution of life. Handouts.

INF Environmental Stewardship: Engaging and Relevant PBL in the School Yard

(Grades K–12)

S403b, McCormick Place

Science Focus: LS, SEP

Karan Wood (karan@captainplanetfdn.org), Captain Planet Foundation, Atlanta, Ga.

Explore how teachers empowered students to solve real-world environmental problems through easily replicable projects such as raising and releasing an endangered species, restoring wildlife habitat, building bioswales, and fighting pollution with mushrooms.

Crafting a Cosmos—Making Connections in the NGSS*(Grades 6–8)**S404d, McCormick Place*

Science Focus: GEN, NGSS

Nola Heckmann (*mrsheckmann@yahoo.com*), Shanghai American Schoolm Puxi Campus, Shanghai

Take away ideas, assessments, and lessons on projects that allow students to connect multiple NGSS performance assessments into a larger learning outcome.

DIYP: Do It Yourself Physics*(Grades 8–12)**S501d, McCormick Place*

Science Focus: PS2, PS3, PS4, SEP5

Patrick Carter (*pcart40@yahoo.com*), Kaneland High School, Maple Park, Ill.

Discover how to build three affordable large-scale demonstrations that will be sure to get your students excited about physics. Instructions include tips for success, approximate cost to build, and questions/lessons to use in class.

Cosmetic Chemistry: A Hands-On Unit to Engage Students*(Grades 6–12)**S501a, McCormick Place*

Science Focus: PS

Emily Meyer (*emeyer@regisjesuit.com*), Regis Jesuit High School, Aurora, Colo.

Want to excite your students about chemistry while making your lab smell great for once? Get a whiff of this project exploring perfume and cosmetics.

CALLING ALL MIDDLE SCHOOL EDUCATORS

Friday, March 13, 2015 | 10:00 AM–4:00 PM | McCormick Place

Must be registered for the conference to attend

Join us for a special **“Meet Me in the Middle Day,”** designed just for middle school educators, at **NSTA’s 2015 National Conference in Chicago!**

The day’s events will include a networking session, more than a dozen presentations specifically for middle school educators, and an afternoon share-a-thon featuring more than 100 presenters. You’ll walk away with ideas you can put to use in your classroom tomorrow! Presenters include Ken Roy, Dick Moyer, Page Keeley, Dinah Zike, Michael Bowen, Christine Royce, Nicholas Nicastro, and many others!

Organized by the National Middle Level Science Teachers Association (NMLSTA)



Attend for a chance to win an iPad mini and other door prizes!

CAROLINA
carolina.com



PASCO
scientific

www.nsta.org/chicago

NSTA National
Science
Teachers
Association

Teacher Leader Pathways to Building Capacity

(Grades K–5) S503a, McCormick Place

Science Focus: GEN, NGSS

Kathy Schultz (kschultz@gwaea.org), Grant Wood Area Education Agency, Cedar Rapids, Iowa

Tammy Askeland-Nagle (taskeland-nagle@aea9.k12.ia.us), Mississippi Bend Area Education Agency, Bettendorf, Iowa

Jason Martin-Hiner ([@jmartinhiner](https://twitter.com/jmartinhiner); jmartin-hiner@aea1.k12.ia.us), Keystone Area Education Agency, Elkader, Iowa

Rosemary Peck (rosemary.peck@gpaea.org), Great Prairie Area Education Agency, Mount Pleasant, Iowa

Experience how teacher leaders can organize and deliver professional learning for colleagues through a research-based science module program.

Making Content Comprehensible for English Language Learners

(Grades K–3) S504d, McCormick Place

Science Focus: GEN, NGSS

Iuliana Roata and **Jennifer Jimenez Grant**, Stillmeadow Elementary School, Stamford, Conn.

Emphasis will be placed on strategies to meet the varied and challenging needs of ELLs as they acquire scientific concepts and skills. Participants will engage in an integrated science literacy lesson in a foreign language.

Urban Planning as an Engineering and Design Challenge

(Grades 4–8) S505a, McCormick Place

Science Focus: ETS

Douglas Hunnings ([@ETHOS_Douglas](https://twitter.com/ETHOS_Douglas); dhunnings@elkhart.k12.in.us), Riverview Elementary School, Elkhart, Ind.
Susan Disch, ETHOS Science Center, Elkhart, Ind.

Why are urban environments designed as they are? Learn to use a systems approach to look at ancient and modern urban engineering and systems design.



Integrating Sciences with Elementary Reading

(Grades K–3) S505b, McCormick Place

Science Focus: GEN

Sabrina Johnson (sabrina.johnson@trussvillecityschools.com), Paine Primary School, Trussville, Ala.

Discover how seamlessly language arts and science can be integrated for young students.

Everyone Can Be a Research Astronomer

(Grades 6–College) W176b, McCormick Place

Science Focus: ESS, INF, CCC, SEP

Jake Noel-Storr, InsightSTEM, Inc., Tucson, Ariz.

Join the Association for Astronomy Education for a panel discussion on citizen science. Find out how everyone—including you and your students—can be a research astronomer!

Social Media for Science Teachers

(General) W185 b/c, McCormick Place

Science Focus: GEN

Lauren Jonas ([@LaurenE_Jonas](https://twitter.com/LaurenE_Jonas); ljonas@nsta.org), Director, Social Media and e-Newsletters, NSTA, Arlington, Va.

Brad Graba ([@mr_graba](https://twitter.com/mr_graba); bgraba@d211.org), William Fremd High School, Palatine, Ill.

Christine Royce ([@caroyce](https://twitter.com/caroyce); caroyce@aol.com), Shippensburg University/PSTA, Shippensburg, Pa.

Tricia Shelton ([@tdishelton](https://twitter.com/tdishelton); tdishelton@gmail.com), Boone County High School, Florence, Ky.

Teachers will share social media strategies, both for in-classroom use and for professional development. This will be an interactive session where participants can share ideas and ask questions.



Science for BI(all)ck Children: Making Meaning Through Language and Culture

(Grades 8–12) W187b, McCormick Place

Science Focus: GEN

Theresa Robinson ([@TRobinson3000](https://twitter.com/TRobinson3000); theresa.robinson35@gmail.com), Elmhurst College, Elmhurst, Ill.

President: Stacy Maynard (maynard@idaschools.org), Ida Elementary School, Ida, Mich.

Join a conversation around how African-American and Latino culture, language, and discourse norms can be used to develop learners who are engaged and motivated to learn science. Examples of assignments and student work will be shared.

Keeping Seniors on Track to the Finish Line

(Grades 9–12) *W187c, McCormick Place*

Science Focus: GEN, SEP6, SEP7, SEP8

Sandee Coats-Haan (@scoatshaan; scoatshaan@gmail.com), Lakota East High School, Liberty Township, Ohio
 Battling senioritis in AP physics? Multiple strategies will be presented to help students finish strong. Strategies are applicable to other science disciplines as well.



Student Assessment: Reviewing NGSS and Critical Assessment Components

(Grades 6–College)

W190b, McCormick Place

Science Focus: GEN, NGSS

Andrea Burrows (aburrow1@uwyo.edu) and **Debbie French**, University of Wyoming, Laramie

Rick Sanchez, Clear Creek Middle School, Buffalo, Wyo.
 Leave with strategies for ensuring accurate student assessment by reviewing the NGSS and critical components of student data collection—formative/summative assessment strategies.



THE AWARD-WINNING PLANETARIUM SHOW GOES FLAT SCREEN!

Narrated by Tim Allen, *Back To The Moon For Good* is an immersive journey behind the scenes of the \$30M Google Lunar XPRIZE, a groundbreaking competition challenging teams from around the world to send lunar landers to the surface of the moon.

Now you can download or watch the movie online at home, in schools, science centers, libraries and just about anywhere on Earth.

THE NEW SPACE RACE IS ON!

Available in multiple languages



lunar.xprize.org/education/domeshow

8:00–9:00 AM Hands-On Workshop

NARST Session: Critical Thinking in Earth Science: Using the Model-Evidence Link Diagram

(Grades 6–12) *Dusable A/B, Hyatt*
Science Focus: ESS, SEP

Doug Lombardi (*doug.lombardi@temple.edu*), Temple University, Philadelphia, Pa.

Learn about and use model-evidence link diagrams for Earth science topics that help students critically evaluate connections between evidence and alternative scientific explanations.

I Can Teach Chemistry and Physics Using a Play? Tell Me How!

(Grades 10–College) *Grant Park B, Hyatt*
Science Focus: PS, INF, SEP

Nancy Spillane (*@nks1300*; *nks1300@gmail.com*), The George Washington University, Washington, D.C.

Engage with fellow teachers to use the play *Copenhagen* in an interdisciplinary adventure into nuclear science through history, geography, ethics, and the human experience.

Object-based Learning: Engaging All Students Through Authentic Experiences

(Grades K–12) *Jackson Park B, Hyatt*
Science Focus: GEN

Kyla Cook (*kcook@fieldmuseum.org*), The Field Museum, Chicago, Ill.

Discover how to use objects in your classroom to engage students of all abilities in authentic inquiry and essential science practices.

DuPont Presents: The Science of Packaging

(Grades 5–10) *Regency E, Hyatt*
Science Focus: PS

Timothy Dalby (*@tddalby*; *tdalby@wilmingtonfriends.org*), Wilmington Friends School, Wilmington, Del.

Get introduced to a brief history of polymers and how they are utilized in the packaging industry. Hands-on activities will illustrate the variables that must be considered as we design a package for a s'more.



NSTA Press® Session: Scientific Argumentation in Biology: 30 Classroom Activities

(Grades 6–12) *S401a, McCormick Place*
Science Focus: LS, SEP

Victor Sampson, The University of Texas at Austin
Sharon Schleigh (*sharonpschleigh@gmail.com*), SMART PD, Phoenix, Ariz.

Receive a brief overview of scientific argumentation and an introduction to three different approaches for engaging students in scientific argumentation. Experience one of the approaches firsthand.

Modeling the Work of Scientists and Engineers

(Grades 7–College) *S401d, McCormick Place*
Science Focus: GEN, NGSS

Jerrid Kruse (*@jerridkruse*; *jerridkruse@gmail.com*), Drake University, Des Moines, Iowa

Jesse Wilcox (*jwilcox.23@gmail.com*), Iowa State University, Polk City

We'll demonstrate an activity in which students behave like scientists and engineers. The students' work models data collection and interpretation related to the development of fundamental science ideas such as atomic theory, plate tectonics, and DNA. Leave with tips to help students make deep connections to NGSS outcomes. Handouts.

Genome Cache: A Scavenger Hunt Through the Human Genome

(Grades 7–12) *S402b, McCormick Place*
Science Focus: LS

Madelene Loftin, HudsonAlpha Institute for Biotechnology, Huntsville, Ala.

Using these free resources, your school can create a genome walk. Use your hallways, nature trails, or practice fields to allow students to stroll through chromosomes 1 through 22, plus X and Y, while learning about genetic points of interest.

NASA's Supernova Mathematics

(Grades 7–12) *S404a, McCormick Place*
Science Focus: ESS1.A, CCC1, CCC3, SEP

Janet Moore (*janetmoore@gmail.com*), NASA Educator Ambassador, Normal, Ill.

Use mathematical modeling to solve a supernova mystery. Teach your students to problem solve through proportional reasoning, linear models, and measurement. Free NASA materials!

NSTA CONFERENCES ON SCIENCE EDUCATION

SAVE THE DATES

2015

RENO
NEVADA

OCTOBER 22-24

SCIENCE AND LITERACY:
CREATING CONNECTIONS!

PHILADELPHIA
PENNSYLVANIA

NOVEMBER 12-14

REVOLUTIONARY SCIENCE

KANSAS CITY
MISSOURI

DECEMBER 3-5

RAISING THE STAKES IN SCIENCE

Professional Development Strands

- Bundling the *NGSS* and *CCSS*
- *NGSS*: Connecting Standards to Practice
- Creatively Engineering Future Resources

- Revolutionizing Engineering for the Future
- Integrating Literacy Strategies to Revolutionize PreK-12 Science Instruction
- Technology: Teaching Revolutionary Science in the Digital Age

- The Art and Craftsmanship of Teaching
- Combining Science with Agriculture
- Achieving Success with the *NGSS*



For more information and to register, visit:
www.nsta.org/conferences

NSTA National
Science
Teachers
Association

Explore Volcanoes!

(Grades K–12) *S404bc, McCormick Place*

Science Focus: ESS, CCC2, SEP4, SEP5, SEP8

Davida Buehler (*dbuehler@geosociety.org*), The Geological Society of America, Boulder, Colo.

Using several inquiry-based activities, we will explore volcanoes in a way that can allow students to become actively engaged in the learning process. Free resources!

Using Technology to Construct Science Meaning for English Language Learners

(Grades 6–8) *S405a, McCormick Place*

Science Focus: GEN, SEP4, SEP7, SEP8

Veronica Betancourt (*veronica.betancourt@harlandale.net*), Harlandale ISD, San Antonio, Tex.

Come use technology-based apps and tangible strategies for language development and work with others to action plan with a purpose.

Science + Literacy = Learning!

(Grades 6–8) *S405b, McCormick Place*

Science Focus: GEN, SEP6, SEP7, SEP8

Susanne Teague (*teagues@winthrop.edu*), S²TEM Centers SC, Spartanburg, S.C.

Thomas Peters (*tpeters@clemsun.edu*), S²TEM Centers SC, Clemson, S.C.

Presider: Judith Lucas-Odom (*judyps23@yahoo.com*), Toby Farms Elementary School, Brookhaven, Pa.

Experience disciplinary literacy through participation and classroom videos. Leave with multiple classroom-tested strategies for incorporating reading, writing, and dialogue into the science classroom.

Slingshot Physics

(Grades 9–12) *S501bc, McCormick Place*

Science Focus: PS3.C, CCC4, CCC5, SEP2, SEP3, SEP4, SEP5, SEP8

Aaron Osowiecki (*aosowiecki@bosonpublicschools.org*) and **Jesse Southwick** (*jsouthwick@boston.k12.ma.us*), Boston Latin School, Boston, Mass.

Assess your students' understanding of work, energy, friction, and Newton's First Law of Motion using an inexpensive rubber band slingshot.

“Orange” You Glad You Came?

(Grades 2–4) *S502a, McCormick Place*

Science Focus: GEN, CCC6, SEP

Teresa Higgins (*teresa.higgins@unco.edu*), University of Northern Colorado, Greeley

Start off science learning with the essentials of good science practices. Investigating seeds and fruits with young learners has NGSS connections that you may not have considered. We'll use oranges to learn about structure and function, develop science practices, and explore language supports for English language learners.

Using Wind-Up Puzzles for Engineering Design and Assessment of Engineering Practices

(Grades 2–5) *S502b, McCormick Place*

Science Focus: ETS1, PS2, PS3, CCC1, CCC2, CCC4, CCC5, CCC6

Lesia Wilder (*lesiasings@gmail.com*), New York City (N.Y.) Dept. of Education

Emmy Matias-Leonard (*emmym68@yahoo.com*), The Earth School, New York, N.Y.

Wind-up toys are easy to make and fun to use. These puzzles provide models for representing wind-ups. They also can be used as an assessment instrument for gauging student understanding of how a variable affects a design.

Astronomy for Elementary Children: Modeling Evidence Circles and Formative Assessment

(Grades 1–6) *S503b, McCormick Place*

Science Focus: ESS, SEP

Jim McDonald (*@jimscienccegy; jim.mcdonald@cmich.edu*), Central Michigan University, Mount Pleasant

Using moon phases, learn how to use evidence circles, formative assessment, and the Claim-Evidence-Reasoning framework to find out what your students know.

Between the Science Question and the Answer in the K–5 Classroom

(Grades 1–5) *S504a, McCormick Place*

Science Focus: GEN, NGSS

Rebecca Dyasi (*bdyasi@aol.com*), Long Island University, Brooklyn, N.Y.

Explore how to provide enabling conditions for fruitful investigations by diverse students, including rich materials and discourse, as well as development of a sense of identity with the science activity by all the students.

NESTA Session: Earth Science Rocks! Using Earth Science Activities to Engage Students as Scientists

(Grades 6–12) Skyline W375e, McCormick Place
 Science Focus: ESS, CCC, SEP

Roberta Johnson Killeen (*rmjohnsn@nestanet.org*), National Earth Science Teachers Association, Boulder, Colo.

Margaret Holzer (*mholzer@monmouth.com*), Chatham High School, Chatham, N.J.

Michael Passow (*michael@earth2class.org*), Dwight Morrow High School, Englewood, N.J.

This NESTA workshop presents exemplary NGSS-based activities for the geology classroom that bring fundamental concepts in Earth science to life for your students. Handouts!

NGSS@NSTA Forum Session: Implementing the Vision of the Framework and Next Generation Science Standards

(Grades P–12) W183a/b, McCormick Place
 Science Focus: GEN, NGSS

Michael Lach, The University of Chicago Urban Education Institute, Chicago, Ill.

Part of a six-session series known as the NGSS@NSTA Forum, this presentation will provide insight from national experts on implementation of the *Next Generation Science Standards (NGSS)*. In addition, the forum will offer guidance on how teachers everywhere can improve student learning using the methods described in the *Framework for K–12 Science Education*.

Ticket #
M-6



Saturday, March 14, 4:00-6:00PM
McCormick Place, W196b

Ticketed Event: \$15 Advance; \$20 on-site

NSTA President Juliana Texley is extending a special invitation to Preservice/New Teachers and/or First-Time Conference attendees to join her and other members of NSTA in a special pizza and beverage reception in honor of Pi Day. To highlight the festivities, Jeffrey Lukens, a high school science educator with over 30 years of experience and 20 years of professional development leadership, will share some humorous stories and sage advice for educators new to the science classroom.

Ticket includes
pizza and beverages
(beer, soda, or water).

Attendance is limited
to the first 200
registrants.

Sponsored by





FUN = Foods help to Understand Nutrition

(Grades 3–8)

W192a, McCormick Place

Science Focus: LS

Suzanne Cunningham, Purdue University, West Lafayette, Ind.

Starch is one of the major nutrients we eat every day. Join me for a simple chemistry experiment that identifies starch, leading students to a better understanding of plant biology, the foods they eat, the digestion process, and balanced nutrition.

Help Us Start the Revolution

(Grades 1–12)

W196a, McCormick Place

Science Focus: ETS, INF

Maryann Stimmer, Educational Equity Center at FHI 360, New York, N.Y.

We are undergoing a technological revolution and students need to be fluent in science and math. Leave with the tools and strategies to start a STEM (science, technology, engineering, and math) revolution at your site.



8:00–9:00 AM Exhibitor Workshops

Supporting NGSS Requirements for Data Collection on Chromebooks

(Grades K–12)

W179b, McCormick Place

Science Focus: PS2, SEP

Sponsor: PASCO scientific

Joe Todd (jtodd@pasco.com), PASCO scientific, Roseville, Calif.

SPARKvue software can help you integrate NGSS science and engineering practices through lab explorations and help students reach key performance expectations. Learn how to get started with data collection, and how to use data-sharing for easy classroom management and to foster student collaboration on any computing platform.

Project-Based Inquiry Science™ (PBIS): Creating “Coherence and Science Storylines” for Middle School Science

(Grades 6–8)

W194b, McCormick Place

Science Focus: ESS

Sponsor: It’s About Time

Mary Starr, Michigan Mathematics and Science Centers Network, Plymouth

Please join us to learn about “Coherent Storylines” and explore the power of clearly articulated middle school science content storylines developed around answering a Big Question and addressing a Big Challenge. In this session, you will investigate the storyline for a *Project-Based Inquiry Science* unit “Living Together,” an ecology/water-quality unit, and discuss the nature of scaffolded, carefully ordered investigations that help students actively engage in answering questions and addressing a challenge. Explore the opportunities for formative and summative assessment as well as making students’ thinking visible.

8:00–9:30 AM Hands-On Workshop

PDI McREL Pathway Session: Incorporating Emerging Science and Engineering Content to Meet the Expectations of the NGSS

(Grades 7–College) W175a/b, McCormick Place
 Science Focus: ETS, INF, SEP

Whitney Cobb (*wcobb@mcrel.org*) and **Laura Arndt** (*larndt@mcrel.org*), McREL International, Denver, Colo.

Learn about nanoscience and technology and robotics and how you can integrate emerging content such as this into your curriculum in significant ways to help students develop understanding of these STEM concepts.

8:00–9:30 AM Exhibitor Workshops

What the Heck Happened?!

(Grades 2–9) W178a, McCormick Place
 Science Focus: PS1.B, PS2.A, PS3.A, PS3.B, PS3.C
 Sponsor: Educational Innovations, Inc.

Ted Beyer, Educational Innovations, Inc., Bethel, Conn. Discrepant events seize students’ attention, and Educational Innovations has real jaw-droppers. Come explore our favorite student confusers, including The Chinese Spouting Bowl, “anti-gravity,” and much more! Door prizes and freebies!

College Readiness in Science: What’s Ideal—and What’s Real?

(Grades 6–12) W179a, McCormick Place
 Science Focus: GEN

Sponsor: Pearson
Kenneth Miller, Brown University, Providence, R.I. What does “college readiness” in science really mean? *Miller & Levine Biology* co-author and Brown University professor Ken Miller offers insight into what he sees in his incoming freshman classes each year and what it means to have those students “ready” to succeed in science.



Connect with Ward’s Science in Booth #830

Join our workshops, all day Thursday, Friday and Saturday in our booth and in McCormick Place Room #W192B

The Plus is Us! We’re here to connect you to superior science supplies, plus personalized support.

Stop by Booth #830 to see live product demos and enter to win science prizes!



Fantastic Physical Science Demonstrations from Flinn Scientific

(Grades 6–12) *W180, McCormick Place*

Science Focus: PS

Sponsor: Flinn Scientific, Inc.

Janet Hoekenga (jhoekenga@flinnsci.com), Flinn Scientific, Inc., Batavia, Ill.

Amaze your students with quick demonstrations that teach common physical science topics—sound, color dynamics, energy, pressure, density, rotation, and scientific inquiry. More than a dozen effective demonstrations will be performed. Handouts provided for all activities.

Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens

(Grades 9–12) *W181a, McCormick Place*

Science Focus: LS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Explore animal diversity by comparing and contrasting anatomical adaptations of the pig, rat, dogfish, and frog. Participants use hands-on dissection to identify characteristics of these popular vertebrates. This is an excellent comparative dissection activity featuring our very best Carolina's Perfect Solution specimens. Free dissection supplies and great door prizes.

Making Waves in Middle School

(Grades 6–8) *W181b, McCormick Place*

Science Focus: PS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Focus on getting started with STEM education while effectively teaching the *Next Generation Science Standards* through inquiry-based practices. Experience lessons that demonstrate the learning progression.

Flipping Out Over Chemistry!

(Grades 9–12) *W181c, McCormick Place*

Science Focus: PS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Wish you had time to increase individual instruction and improve student understanding of key concepts? Explore a blend of digital and hands-on activities that allow students to review content as “homework” so you can devote valuable classroom time to inquiry activities, assignments, and tests. Free materials and giveaways.

Great Transitions: Meet the Birds' Inner Dino

(Grades 6–College) *W183c, McCormick Place*

Science Focus: ESS1, ESS2, LS4

Sponsor: HHMI BioInteractive

Jason Crean, Lyons Township High School South, Western Springs, Ill.

Valerie May, Woodstock Academy, Woodstock, Conn.

Sandra Blumenrath, Howard Hughes Medical Institute, Chevy Chase, Md.

Learn about discoveries that have made the origin of birds one of the most well-documented transitions in the history of life. Participants will be introduced to free, brand-new resources from HHMI's BioInteractive, including the latest short film on the origin of birds, supplementary online interactives, and hands-on activities.

Teaching Astronomy During the Day and Beyond the Classroom

(Grades 6–College) *W184a, McCormick Place*

Science Focus: ESS

Sponsor: Fisher Science Education

Robert Marshall (robert.marshall@thermofisher.com), Fisher Science Education, Pittsburgh, Pa.

Meet with the former program developer from Buhl Planetarium and Observatory and become a master at navigating the sky and learning celestial objects. We will investigate applicable hands-on learning activities you can implement in the classroom, then examine how to take the learning outside with observing projects and star parties.

CPO Science's Link™ Learning Module: A STEM Approach to Optics, Light, and Color

(Grades 6–12) *W184bc, McCormick Place*

Science Focus: PS

Sponsor: CPO Science/School Specialty Science

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

CPO's new Link Optics with Light and Color learning module uses proven STEM- and NGSS-based methods to teach reflection, refraction, index of refraction, convex and concave lenses, magnification, geometric optics, color mixing, and polarization. By using high-quality optical instruments and devices, students learn by doing and designing experiments themselves.



The existence of the ICLD is doubtful.

But there's no doubt that you and other NSTA members could save even more with a **special discount** on GEICO car insurance!

GEICO[®]

geico.com/edu/nsta | 1-800-368-2734





Predicting Pollinators with FOSS Diversity of Life for Middle School

(Grades 6–8)

W184d, McCormick Place

Science Focus: LS, SEP

Sponsor: Delta Education/School Specialty Science—FOSS **Virginia Reid**, The Lawrence Hall of Science, University of California, Berkeley

What is a pollination syndrome? How have pollinators and flowers coevolved? Explore these questions using active investigations from the newly revised FOSS Diversity of Life Course for Middle School. Encounter the NGSS science and engineering practices in a fresh way. New program features will be shown.

Chemistry with Vernier

(Grades 9–College)

W185a, McCormick Place

Science Focus: PS, SEP3, SEP4

Sponsor: Vernier Software & Technology

Elaine Nam (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

Use Vernier sensors to conduct a variety of chemistry experiments from our popular lab books in this engaging hands-on workshop. Experience data collection using LabQuest 2, Logger *Pro* computer software, and mobile devices. See how Vernier has been incorporating principles of the NGSS science and engineering practices for 34 years!

Physics with Vernier

(Grades 9–College)

W185d, McCormick Place

Sponsor: Vernier Software & Technology

David Carter (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

Science Focus: PS, SEP3, SEP4

Use Vernier sensors to conduct a variety of physics experiments from our popular lab books in this engaging hands-on workshop. Experience data collection using LabQuest 2, Logger *Pro* computer software, and mobile devices. See how Vernier has been incorporating principles of the NGSS science and engineering practices for 34 years!

Transformation Tips and Tricks

(Grades 8–College)

W186a, McCormick Place

Science Focus: LS, INF

Sponsor: Edvotek, Inc.

Brian Ell (info@edvotek.com) and **Maria Dayton** (info@edvotek.com), Edvotek Inc., Washington, D.C.

Are transformations giving you trouble? Then this is the workshop for you! We will transform *E. coli* with plasmids that express brightly colored rainbow proteins. They can even glow fluorescent green with GFP! We'll share tips and tricks along the way to ensure experimental success. Free flash drive/T-shirt drawing entry.

MINDSTORMS® EV3 Robotics in the Middle School Classroom: Getting Started

(Grades 6–9)

W186b, McCormick Place

Science Focus: ETS

Sponsor: LEGO Education

Laura Jackson, Retired Teacher/LEGO Education Trainer, Greenwood, Mo.

Cindy Howard, Retired Teacher/LEGO Education Trainer, Kansas City, Mo.

Learn firsthand how LEGO Education MINDSTORMS EV3 can get your students excited as they model real-life mechanisms and solve real-world challenges, all while building the critical-thinking and creative problem-solving skills that will serve them well for a lifetime.

Maximize Your Biotech Budget and Simplify Your Prep

(Grades 9–12)

W192b, McCormick Place

Science Focus: LS

Sponsor: Ward's Science

Liam Casey, VWR Education, Rochester, N.Y.

Teach real-world applications for biotechnology while saving time and money. Learn to prep gels months in advance, teach genotype/phenotype with dyes, and analyze gels in minutes not hours. Practice within the context of a real human disease, engage your students, and build connections between science and everyday life. Take home our Activity Guide!

Breaking the Rules: Hacking the Science Classroom with Arduino and Open-Source Electronics

(Grades 6–College)

W193a, McCormick Place

Science Focus: GEN, SEP3, SEP4, SEP5, SEP6, SEP8

Sponsor: SparkFun Electronics

Derek Runberg (derek.runberg@sparkfun.com), **Jeff Branson** (jeff.branson@sparkfun.com), and **Brian Huang** (brian.huang@sparkfun.com), Sparkfun Electronics, Longmont, Colo.

This workshop employs free Arduino software to explore classroom materials in an iterative, highly affordable framework. By combining everyday materials like cardboard with the Arduino electronics hardware, we will build instruments and experiments for classroom use. In this setting, we'll explore motion, forces, data-logging, and graphing tools to increase student engagement.

Detecting Radiation in Our Radioactive World

(Grades 5–12)

W194a, McCormick Place

Science Focus: PS1, PS2, PS3, PS4.A, PS4.B, CCC, SEP1, SEP3, SEP4, SEP5, SEP6, SEP7, SEP8

Sponsor: American Nuclear Society

Tim Devries, Retired Educator, Fox River Grove, Ill.

John Paczolt (jpaczolt@cs.com), American Nuclear Society Member, La Grange Park, Ill.

Join the American Nuclear Society for a 90-minute exploration of nuclear science and technology. Our knowledgeable nuclear professionals will work with you, providing guidance as you explore classroom-ready demonstrations and activities that support the current science standards. You'll leave the workshop ready to engage your students about learning nuclear science.



First-timers, Preservice Teachers and New Teacher Lounge

This lounge is for first-time attendees, preservice and new teachers to connect with colleagues, learn about relevant NSTA resources, enjoy a refreshment or just take a moment between sessions to relax. NSTA leaders and experience educators will be on-hand periodically to answer questions about the conference and NSTA resources in general

Lounge Hours:

Thursday, March 12—11:00AM–6:00PM

Friday, March 13 – 9:00AM–5:00PM

Saturday, March 14 – 9:00AM–3:00PM

McCormick Place West

(adjacent to NSTA Registration Area)

Lounge generously
supported by



Reclaiming the Metal

(Grades 6–8)

W195, McCormick Place

Science Focus: PS1.B

Sponsor: LAB-AIDS®, Inc.

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

In this activity from the SEPUP middle level physical science program, participants role-play a scenario involving the pre-treatment of copper containing liquid wastes from computer circuit board manufacture. We will examine trade-offs of metal replacement and chemical precipitation, techniques actually used in industrial applications and, in so doing, come to understand the science behind complex environmental issues.

Cool Tools for Electricity and Magnetism

(Grades 6–College)

W470a, McCormick Place

Science Focus: PS, INF

Sponsor: Arbor Scientific

Dwight Putnam (buzzputnam@gmail.com), Whitesboro High School, Marcy, N.Y.

Study the intimate relationship between electricity and magnetism as presented by award-winning teacher Buzz Putnam. These classroom-ready activities include wiggling a bulb filament 60 times/second, what a neodymium magnet and Total cereal have in common, levitating a frog via electromagnetism, and lighting a bulb with battery/wires. Learn about great tools that support STEM inquiry. Lesson plans and door prizes.

Biology for NGSS: A New Approach for a New Program

(Grades 9–12)

W470b, McCormick Place

Science Focus: LS

Sponsor: BIOZONE International Ltd.

Richard Allan (richard@biozone.co.nz), BIOZONE International Ltd., Hamilton, New Zealand

Find the tools you need to successfully implement the high school life science component of the NGSS program in BIOZONE's newest student workbook. This carefully constructed new resource is strongly focused on student inquiry and written from first principles to address all aspects of the NGSS system architecture. Attendees receive free books that support the NGSS.

Stellar Life Cycles Made Easy

(Grades 6–12)

W471a, McCormick Place

Science Focus: ESS1.A

Sponsor: Simulation Curriculum Corp

Herb Koller, Simulation Curriculum Corp., Minnetonka, Minn.

Where do stars come from? What happens during their life cycle? How do we know a star is dying? Where are the stellar graveyards? Join us as we answer these and other questions using Simulation Curriculum's award-winning *Starry Night* lessons and learn how to access a free classroom-ready lesson.

Bringing the NGSS to the Classroom with Discovery Education

(Grades 6–8)

W471b, McCormick Place

Science Focus: GEN, SEP

Sponsor: Discovery Education

Patti Duncan (educationpartnerships@discovery.com), Discovery Education, Silver Spring, MD

One of the most important aspects of a quality NGSS curriculum is the opportunity for students to develop science and engineering practices. Skills such as these are not taught directly but must be developed by experience. Learn how the Discovery Education Science Techbook brings these experiences to the forefront.

Struggling with How to Integrate Inquiry into Your AP Biology Course? (AP Big Idea 3)

(Grades 9–College)

W474a, McCormick Place

Science Focus: LS

Sponsor: Bio-Rad Laboratories

Leigh Brown (leigh_brown@bio-rad.com), Bio-Rad Laboratories, Hercules, Calif.

Join us to learn new ways to advance inquiry in the classroom—from guided to open—by establishing a strategy that integrates essential and real-world scientific practices encouraging students to direct the investigation. From generating scientifically reasonable questions to developing the procedure to interpret data, this model process will help you implement inquiry in your classroom laboratory!

Identify Patient Zero of a Zombie Apocalypse*(Grades 9–College)**W474b, McCormick Place*

Science Focus: LS

Sponsor: Bio-Rad Laboratories

Sherri Andrews (*sherri_andrews@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Explore how a zombie virus could spread through the population with this hands-on classroom lab using the power of an ELISA assay. The highly specific nature of antibodies allows researchers to develop tests for almost any biological molecule that elicits an immune response. Learn about how to use an ELISA to monitor transmission and track the spread of the disease!

Integrating Online Learning into the Science Classroom*(Grades 1–10)**W475a, McCormick Place*

Science Focus: GEN, NGSS

Sponsor: NewPath Learning

George Nassiss, NewPath Learning, Victor, N.Y.**Melissa Hughes**, Solon High School, Solon, Ohio

Experience NewPath Learning's online program, sponsored by the National Institutes of Health, that allows teachers to assign and present ready-to-use, standards-based multimedia lessons, interactive activities, lab simulations, and assessments, as well as track student progress. Additionally, the program provides easy-to-use authoring tools and templates to develop customized interactive lessons. Join us and take home a free trial subscription.

Biotechnologies: Protein Assays in STEM Education*(Grades 9–College)**W476, McCormick Place*

Science Focus: LS, SEP

Sponsor: G-Biosciences

Ellyn Daugherty (*ellyn@biotech.com*), Biotechnology Educator/Author, San Mateo, Calif.**Simon Holdaway** (*simonholdaway@vmaxbiotechnology.com*), Educator, Windsor, Conn.

Since proteins are usually colorless and always submicroscopic, how can scientists know they have a protein, know it is active, and determine how much protein they have? Using new G-Biosciences lab kits, participants will conduct three assays to show the presence and relative activity of two different types of amylase.

8:00–10:00 AM Roundtable**NSTA's Exemplary Science Programs (ESP) Meeting Current Reform Efforts***(General)**Regency C, Hyatt*

Science Focus: GEN, SEP1, SEP8

Peter Veronesi (*pverones@brockport.edu*), The College at Brockport, N.Y.**Judith Scheppler** (*quella@imsa.edu*), Illinois Mathematics and Science Academy, Aurora**Karl Spencer** (*@DIHMSA*; *karl.spencer@visualrealization.com*), *Visualrealization.com*, Houston, Tex.**Andrew Petto** (*@WIC4SCI*; *ajpetto@uwm.edu*), University of Wisconsin–Milwaukee**Lisa Martin-Hansen** (*@lmartinhansen*; *l.martinhansen@csulb.edu*), California State University, Long Beach**Todd Campbell** (*@dtcampbe*; *todd.campbell@uconn.edu*), University of Connecticut, Storrs Mansfield

President: Jeff Weld, Iowa Governor's STEM Advisory Council, Cedar Falls

The Four Goals/Justifications for Science were used by the National Science Education Standards (NSES)—first offered by Project Synthesis in 1981 in K–16 settings. The NSES, in turn, was used as a guide in the development of the recent *Next Generation Science Standards (NGSS)*. The goals indicate what students should experience while: 1) Doing Science; 2) Solving Personal Problems; 3) Solving Societal Problems; and 4) Making Career Choices.

The ESP series identifies people and places where the reforms recommended have emerged. The exemplars include: 1) Exemplary Science in Grades PreK–4; 2) Exemplary Science in Grades 5–8; 3) Exemplary Science in Grades 9–12; 4) Exemplary Science: Best Practices in Professional Development; 5) Inquiry: The Key to Exemplary Science; 6) Exemplary Science in Informal Education Settings; 7) Exemplary Science for Resolving Societal Challenges; 8) Exemplary Programs for Building Interest in STEM Careers; and 9) Exemplary College Science Teaching.

The series was conceived by Robert E. Yager (1982–1983 NSTA President), who continues ESP searches and ways of recognizing classroom successes while also encouraging more to try!

8:00–10:00 AM Presentation

Special Pathway Session: Shifts in High School Instruction to Meet the Next Generation Science Standards

(Grades 9–12) W175c, McCormick Place
Science Focus: LS, PS, CCC, SEP

Carol Baker (@keenebaker; carolkeenebaker@gmail.com), Community High School District 218, Oak Lawn, IL

Benjamin Twietmeyer (ben.twietmeyer@gmail.com), CHSD 218, Palos Heights, Ill.

Join us as we address the instructional shift teachers must undergo at the high school level to meet the NGSS. Specific examples in biology, chemistry, and physics will be shared!

8:00–10:00 AM Elementary Extravaganza

(Grades P–6) Skyline W375c, McCormick Place
Science Focus: GEN

Sponsored by Carolina Biological Supply; Educational Innovations, Inc.; FOSS and Delta Education; TCI; and University of Nebraska–Lincoln Center for Science, Mathematics & Computer Education.

Organized by **Linda Froschauer** (fro2@me.com), 2006–2007 NSTA President, and Field Editor, *Science & Children*, Pasadena, Calif.

This Extravaganza is not to be missed! Join elementary groups of professionals for an exceptional opportunity. Gather resources for use in your classroom immediately. Engaging hands-on activities, strategies to excite and encourage your students, a preview of the best trade books available, information about award opportunities, contacts with elementary science organizations, sharing with colleagues, door prizes, and much more will be available to participants. Walk away with a head full of ideas and arms filled with materials. Visit bit.ly/170B5Y2 for a complete list of Extravaganza participants or please pick up a program at the door.

Participating organizations include Council for Elementary Science International, NSTA Preschool/Elementary Committee, *Science & Children* authors and reviewers, and Society of Elementary Presidential Awardees.

8:00–10:00 AM Hands-On Workshops

CSSS Session: Model Course Mapping to the NGSS in Middle School and High School

(Grades 6–12) Regency A, Hyatt
Science Focus: GEN, NGSS

Peter McLaren (@PeterJMcLaren; peter.mclaren@ride.ri.gov), Rhode Island Dept. of Education, Providence

Recognizing the many ways that decisions are made about what to teach at what grade level, discussion centers on guiding this decision-making process using the NRC *Framework* and the NGSS.

PDI BSCS Pathway Session: Developing the NGSS Capacity Through Professional Development Partnerships

(General) W176a, McCormick Place
Science Focus: GEN, NGSS

Paul Numedahl (pnumedahl@bscs.org) and **Connie Hvidsten** (chvidsten@bscs.org), BSCS, Colorado Springs, Colo.

How will your district develop the necessary capacity to align classroom instruction with the NGSS? This session will explore several partnerships between school districts, universities, and nonprofit organizations and the different approaches they take to developing NGSS-savvy teacher leaders. Hear how others have designed partnerships and programs that lead to long-lasting impacts on classroom science instruction and student learning.

8:00–11:00 AM Hands-On Workshop

PDI AMNH Pathway Session: Using the BSCS Instructional Model to Design Learning Sequences

(Grades 6–12) W178b, McCormick Place
Science Focus: GEN, NGSS

Jim Short (jshort@amnh.org) and **Dora Kravitz** (dkravitz@amnh.org), American Museum of Natural History, New York, N.Y.

Using the BSCS 5E (Engage, Explore, Explain, Elaborate, and Evaluate) instructional model, participants will design an NGSS learning sequence that integrates the three dimensions: disciplinary core ideas, science and engineering practices, and crosscutting concepts.

8:00–11:00 AM Short Courses**Making Sense of Student Work: A Protocol for Teacher Collaboration (SC-4)**

(Grades 4–12) *Crystal, Palmer House*
 Science Focus: GEN, INF
Tickets Required; \$62

Kirsten Daehler (*kdaehle@wested.org*) and **Staceylyn Machi** (*smachi@wested.org*), K–12 Alliance/WestEd, San Francisco, Calif.

Kathy Huncosky, Madison (Wis.) Metropolitan School District

For description, see Volume 1, page 58.


Engineering Understanding: Applying Science Concepts and Building Academic Language (SC-6)

(Grades 4–8) *Salon 1, Palmer House*
 Science Focus: ESS2.C, ESS3.A, ESS3.C, ETS, PS1.A, PS2.A, CCC2, CCC4, CCC6, SEP
Tickets Required; \$35

Diana Velez (*dvelez@berkeley.edu*), The Lawrence Hall of Science, University of California, Berkeley

Claudio Vargas (*claudio.vargas@ousd.k12.ca.us*), Oakland (Calif.) Unified School District

For description, see Volume 1, page 59.

Classroom Redesign: Putting the NGSS into Practice in Elementary, Middle School, and High School (SC-7)

(General) *Salon 2, Palmer House*
 Science Focus: GEN, CCC1, CCC2, CCC3, CCC4
Tickets Required; \$27

Zoe Evans (*zoe.evans@carrollcountyschools.com*), Central Middle School, Carrollton, Ga.

Chris Embry Mohr (*chrisebry.mohr@olympia.org*), Olympia High School, Stanford, Ill.

Julie Olson (*julie.olson@k12.sd.us*), Mitchell Senior High School, Mitchell, S.Dak.

Jeremy Peacock (*jeremy@negaresa.org*), Northeast Georgia RESA, Winterville

Elizabeth O'Day (*betsy.oday@gmail.com*), Hallsville Intermediate School, Hallsville, Mo.

For description, see Volume 1, page 59.

Supporting K–12 Students in Argumentation Across Reading, Writing, and Talking (SC-5)

(Grades K–12) *Salon 3, Palmer House*
 Science Focus: GEN, SEP7
Tickets Required; \$27

Katherine McNeill (*kmcneill@bc.edu*) and **Nancy Blasi** (*nancy.m.blasi@gmail.com*), James P. Timilty Middle School, Boston, Mass.

Pamela Pelletier (*bps.science@gmail.com*) and **Dean Martin** (*dean.bpsscience@gmail.com*), Campbell Resource Center, Boston, Mass.

For description, see Volume 1, page 59.



8:30–9:00 AM Presentations

SCST Session: Electronic Lab Books and Notebooks for Instilling Science and Technology Workforce Skills

(Grades 10–College)

Clark C, Hyatt

Science Focus: GEN, INF

Brian Shmaefsky (@Drshmaefsky; brian.r.shmaefsky@lonestar.edu), Lone Star College–Kingwood, Tex.

Join me as I demonstrate how spreadsheet and document software can be used to reinforce science content while demonstrating science and technology workforce skills.

Planting a Seed of Passion in Our Students to Protect and Sustain Our Resources

(General)

Hyde Park A, Hyatt

Science Focus: ESS5, INF

Jody Terrell, Texas Woman's University, Denton

Cultivate partnerships through activities, discussion, and contacts with researchers to help plant a seed of passion for the sustainability of our natural resources.

Regional Adaptation of Science Curriculum Materials to Meet the NGSS: Modifications, Instruction, and Student Learning

(Grades K–6)

S504bc, McCormick Place

Science Focus: GEN, NGSS

Jessica Whisher-Hehl (jmwhishe@syr.edu), Syracuse University, Syracuse, N.Y.

Review research findings investigating how a multi-district consortium in the Northeast modified curriculum materials to better support the NGSS.



Helping Middle School Students “Discover Engineering”

(Grades 6–8)

W186c, McCormick Place

Science Focus: ETS, SEP2, SEP6

Brian Miller (bmiller@d47.org), **Mary Warren** (mewarren@d47.org), and **Jennifer Drozt** (jdrozt@d47.org), Hannah Beardsley Middle School, Crystal Lake, Ill.

Engineering is a key component of the NGSS. Hear about “Discover Engineering Week,” a program that introduces grade 8 students to engineering careers and design. Join us as we share multiple low-budget design challenges that you can easily replicate in your classroom.

8:30–9:30 AM Exhibitor Workshop

Zombie Apocalypse!

(Grades 6–12)

W193b, McCormick Place

Science Focus: GEN, INF, NGSS

Sponsor: Texas Instruments

Presenter to be announced

Become part of a zombie apocalypse as brains will be served (*while supplies last*). Learn about disease spread modeling using simulations and fun storylines about a zombie outbreak. Applicable for middle school and high school, this workshop is sure to scare you and your little zombies into learning how exciting Hollywood themes can be used to teach science concepts.

8:30–10:00 AM Meetings

Aerospace Programs Advisory Board Meeting

Boardroom 2, Hyatt

NMLSTA Board Meeting

Huron, Hyatt

Visit www.nmlsta.org for more information.

9:00 AM–10:30 AM Meeting

NSTA Reports Advisory Board Meeting

Boardroom 3, Hyatt

9:00 AM–5:00 PM Exhibits

Hall F2, McCormick Place

The NSTA Exhibit Hall is a must-see! NSTA brings you the leading science education companies and organizations to showcase products, services, curricula, and much more. You'll discover something new and exciting in the world of science teaching. Some exhibitors will offer materials for sale.

9:00 AM–5:00 PM Networking Opportunities

NSTA International Lounge

Michigan, Hyatt

Please stop by the NSTA International Lounge to relax or meet colleagues while you're at the conference. The lounge is open Thursday through Saturday, 9:00 AM–5:00 PM.

First-Timers, Preservice Teachers, and New Teachers Lounge

Hall F2, adjacent to Exhibit Hall Entrance, McCormick Place

This lounge is for first-time attendees, preservice teachers, and new teachers to connect with colleagues, learn about relevant NSTA resources, enjoy a refreshment, or just take a moment between sessions to relax. NSTA leaders and experienced educators will be on hand periodically to answer questions about the conference and NSTA resources in general.

9:30–9:50 AM Presentation

SCST Session: Creating an Interdisciplinary Course Using a Trade Book

(College)

Clark C, Hyatt

Science Focus: GEN

Sandra Latourelle (latourism@together.net) and **Karen Case** (kcase004@plattsburgh.edu), SUNY Plattsburgh, N.Y.

Hear how the book *Ghost Map* was used to create an interdisciplinary college course weaving mathematics, history, English, and forensics.

9:30–10:00 AM Presentations

Using Online Simulations and Interactive Websites to Help All Learners Succeed in Today's Classroom

(Grades 6–College)

Adler A/B, Hyatt

Science Focus: GEN

Julie Eglite ([@julieglitescience](mailto:jeglite@dist113.org); jeglite@dist113.org), Deerfield High School, Deerfield, Ill.

Explore numerous ways that interactive online simulations and websites can enhance an inquiry-based classroom, provide differentiated instruction, and truly allow you to become the classroom coach.

The Hybrid Flipped Model: A Collaborative, Time-Saving Approach to Flipping Your Classroom

(Grades 9–12)

Erie, Hyatt

Science Focus: GEN

David Bennett and **Peter Hamel**, Newton North High School, Newton, Mass.

Join a pair of teachers as they describe and demonstrate the mechanics and advantages of their collaborative method for recording live lectures and sharing them among all sections of a course.

NSTA 2016 National Conference on Science Education

Nashville, TN • March 31–April 3

Proposal Deadline:
4/15/2015

SHARE
YOUR IDEAS!

Have an idea for an inspiring presentation or workshop on science education? Submit a session proposal today.

To submit a proposal, visit

www.nsta.org/conferenceproposals

NSTA National
Science
Teachers
Association

Connecting Students and Scientists: Leveraging Technology to Extend the Classroom

(Grades 6–College) Hyde Park A, Hyatt

Science Focus: GEN, NGSS

Tricia Shelton (@tdishelton; tdishelton@gmail.com), Boone County High School, Florence, Ky.

Adam Taylor (@2footgiraffe; taylorchinesescience@gmail.com), Dickson County High School, Dickson, Tenn.

We will demonstrate how to connect students with scientists, providing opportunities for partnerships in learning that extend beyond classroom walls.

Graphing the Rocks: A Stratigraphy Project for Data Interpretation

(Grades 7–College) S403a, McCormick Place

Science Focus: ESS2.E, CCC6, CCC7, SEP4

Renee Clary (rclary@geosci.msstate.edu), Mississippi State University, Mississippi State, Miss.

Find out how to provide your students with opportunities for interpreting fossil data and generating graphics! Students analyze unique data—then graph, sketch, describe, and peer-review! Examples/resources provided.

Addressing NGSS Engineering Practices in a “Sustainable Energy” Module

(Grades 9–12) W196c, McCormick Place

Science Focus: ETS, SEP

Peter Clancy, Illinois Mathematics and Science Academy, Aurora

We will share how we modified the energy module in IMSA’s upper level engineering elective to better address the policy aspects of the NGSS engineering practices.

9:30–10:30 AM Meeting

Development Advisory Board Meeting

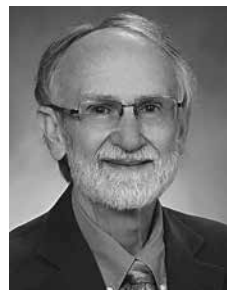
(By Invitation Only) Boardroom 1, Hyatt

**9:30–10:30 AM Robert H. Carleton Lecture
Building Capacity in Best Practices for STEM Teaching and Learning**

(General)

W185 b/c, McCormick Place

Science Focus: GEN



Jack Rhoton (rhotonj@etsu.edu), Professor Emeritus and Executive Director, Center of Excellence in Mathematics and Science Education, East Tennessee State University, Johnson City

With the revival in STEM education, along with the research, success stories rely on educators, employers, and

policy makers working together to make sure that our nation is fully preparing students for the future. Hear how Tennessee is working collaboratively with each of these entities to create effective STEM learning environments. Come join Jack Rhoton as he outlines how teachers can take stock of what they know—and what they need to know—about how these combined efforts can lead to good teaching practices and desired student outcomes.

Jack Rhoton is a tireless advocate and a strong voice in support of teacher professional development and restructuring of science education. He began his career as a high school science teacher in 1966 and subsequently served as a K–12 science supervisor for 14 years. He later joined East Tennessee State University as professor of science education in 1987 where he served as executive director of the ETSU Center of Excellence in Mathematics and Science Education.

In addition to his tenure as president of the National Science Education Leadership Association, Tennessee Academy of Science, and Tennessee Science Teachers Association, Jack has been a member of NSTA’s board of directors, chaired the planning committees for the organization’s area conferences, and served on numerous NSTA committees and task forces.

He has edited and written numerous books and journal articles on education, including the NSTA Press® book Science Education Leadership: Best Practices for the New Century. Founder of the Science Educator Journal, a publication of NSELA, he served as the journal’s editor from 1992–2010. He also served as director of the Tennessee Junior Academy of Science (TJAS) from 1992–2014, and editor of the TJAS Handbook and Proceedings.

9:30–10:30 AM Featured Presentation**The Power of Play***(General)**W190a, McCormick Place*

Science Focus: ETS, INF, CCC6, SEP2, SEP6



Peter Exley (@funarchitect; peter@architectureisfun.com), Architecture is Fun, Inc., Chicago, IL

President: Carrie Ward, Victor J. Andrew High School, Tinley Park, Ill.

The most successful design projects are participatory collaborations involving a diverse range of stakeholders.

Join Peter Exley as he shares tools and tactics to illustrate how leveraging participation, public space, and storytelling contributes to the creation of successful formal and informal places and spaces for play and learning. Exemplars illustrate evidence of the impact of design on learning and development, and demonstrate why design should be an everyday expectation and part of our collective skill set.

Peter Exley is an architect, designer, and advocate for interactive public environments, committed to construction of new paradigms in pedagogy, play, and participatory experience. His portfolio includes the DuPage Children's Museum and the Children's Museum of Fond du Lac. "Play is for everybody" is his motto.

Hailing from England, Peter arrived in Chicago for a year in 1985 and has been there ever since. In 1994, he founded Architecture Is Fun, a firm devoted to designing substantive play environments for adults and children. Peter is also an adjunct professor of Architecture and Interior Architecture at the School of the Art Institute of Chicago, the co-host of PechaKucha Night Chicago, winner of the 2012 Benjamin Moore HUE Award, and was the 2013 President of the American Institute of Architects Chicago.

9:30–10:30 AM Presentations**Preservice Teachers, How Their History Can Affect Their Future***(General)**Adler C, Hyatt*

Science Focus: GEN, INF, NGSS

Deborah Roberts-Harris, The University of New Mexico, Albuquerque

Preservice teachers often come to science methods courses with a science history. What factors contribute to this? How do we effect positive change?

NARST Session: Reconceptualizing High School Chemistry to Focus On Authentic Practices*(Grades 9–College)**Burnham C, Hyatt*

Science Focus: ETS, PS, CCC, SEP

Hannah Sevian (hannah.sevian@umb.edu), UMass Boston, Dorchester, Mass.

Jennifer Lambertz (jenniferdlambertz@gmail.com), Mary Lyon Pilot High School, Brighton, Mass.

Michael Clinchot (mclinchot2@bostonpublicschools.org), Edwards Middle School, Boston, Mass.

Coherence among stakeholders empowers updating secondary chemistry to use motivating contexts for chemical thinking so students have “chemical lenses” to reason about their worlds.

Leading Science Education Reform: How Leaders Overcome Barriers to the Change Process*(General)**Clark A/B, Hyatt*

Science Focus: GEN

Julie Gaubatz (jgaubatz@hinsdale86.org), Hinsdale Township High School District 86, Darien, Ill.

Educational leaders are expected to implement change, even when facing resistance. Discover proven leadership behaviors that facilitate overcoming various barriers to change.

Guiding and Assessing Experimental Design...and Surviving It!*(Grades 6–12)**Dusable C, Hyatt*

Science Focus: GEN, NGSS

Lynn Lauterbach, Retired Teacher, Loveland, Colo.

Kristi Bowling (@RiceCTTL), Rice University Center for Technology in Teaching and Learning, Houston, Tex.

Learn how to use graphic organizers to guide students in experimental design that they will actually understand. Also, use the organizers to guide formative and summative assessments in the process. Handouts. Free online support.

NSELA Session: Tools for Science Leaders

(General) Field A/B, Hyatt

Science Focus: GEN, INF, NGSS

Craig Gabler (cgabler@esd113.org), Capital Region ESD 113, Tumwater, Wash.

Elizabeth Mulkerrin (elizabethm@omahazoo.com), Omaha's Henry Doorly Zoo and Aquarium, Omaha, Neb.

Presider: Kenneth Heydrick (kheydrick@nsela.org), The University of Texas at Tyler

Come learn about the various tools and strategies that science leaders can use to enhance teaching and learning in their outreach.

Logical Arguments: Using Popular Media to Encourage Critical Discussion in Science Classrooms

(Grades 11–College) Grant Park B, Hyatt

Science Focus: LS

Regina Foster (@rdf1982; regina.foster@okstate.edu), Oklahoma State University–Okmulge

Join me as I outline activities involving popular media to teach biology. Examples include the documentaries *Food, Inc.* and *Blackfish* as ways to engage students and to get them to think critically about food sources and animals in captivity.

Co-Teaching to Improve Learning in STEM in Higher Education

(College) Grant Park C, Hyatt

Science Focus: GEN, INF

Natasha Yates (nlyates@stkate.edu), St. Catherine University, Saint Paul, Minn.

Co-teaching goes beyond team-teaching—learn about co-planning, the do's and don'ts, instructional strategies that enhance best practices, and tips regarding effective assessments.

From Melting Pot to Salad Bowl: Integrating Students' Cultures in Our Science Teaching

(Grades 6–College) Hyde Park B, Hyatt

Science Focus: GEN

Jacqueline McDonnough (@jackietrini; jtmcdonnough@vcu.edu), Virginia Commonwealth University, Richmond

Use classroom-tested strategies to create culturally responsive secondary science lessons. You will explore culture and try strategies that motivate and prepare your students for rigorous assessments.

Empower All Learners with Neuroscience

(General) Jackson Park A, Hyatt

Science Focus: LS

Katrina Scherben, Innovate Manhattan Charter School, New York, N.Y.

Kelsey Voller (@missvoller; kelsey_voller@icloud.com), Cheney Middle School, West Fargo, N.Dak.

Incorporating neuroscience can enrich the classroom culture, make differentiation easy, and increase student motivation. Walk away with resources and strategies for a diverse classroom.

The Best in Science Literature—Choosing It, Using It

(General) Jackson Park D, Hyatt

Science Focus: GEN

Suzanne Flynn, Lesley University and Cambridge College, Cambridge, Mass.

Emily Brady, Executive Administrator and Manager, NSTA Recommends, NSTA, Arlington, Va.

NSTA Recommends has a searchable database of 10,000 materials and NSTA has 42 years of “The Best of the Best” in trade books just waiting for you!



NSTA Press® Session: What Are They Really Thinking? Probe Formats That Uncover K–16 Students' and Teachers' Ideas

(General) S401bc, McCormick Place

Science Focus: GEN, NGSS

Page Keeley (@CTSKeeley; pagekeeley@gmail.com), 2008–2009 NSTA President, Fort Myers, Fla.

Joyce Tugel (jtugel@gmail.com), Maine Mathematics and Science Alliance, Augusta

Learn how to use the formats in the popular *Uncovering Student Ideas* series to maximize your use of formative assessments or to develop your own K–16 misconception-oriented probes.

Scaffolding Inquiry Using iPads and Model Organisms

(Grades 5–12) S402a, McCormick Place

Science Focus: LS, CCC, SEP

Randall Schregardus (randy.schregardus@vai.org), Van Andel Education Institute, Grand Rapids, Mich.

Find out how students can use the model organism *Daphnia magna* to experience three different levels of inquiry—structured, guided, and open. See the eight science and engineering practices in action.

Engaging Students in Developing and Using Models to Explain Acceleration

(Grades 7–12) *S501a, McCormick Place*
 Science Focus: PS

David Campbell (*todd.campbell@uconn.edu*), University of Connecticut, Storrs Mansfield

Join us as we reveal curriculum and instructional strategies that we have found useful in engaging students in developing models of a complex instantiation of acceleration.

High School ELL/SPED Students Present Claims and Evidence to AP Environmental Science Students About Clean Energy

(Grades 9–12) *S501d, McCormick Place*
 Science Focus: GEN, SEP7, SEP8

Katie Hutchison, Urbana High School, Urbana, Ill.

Join me as I share a peer collaboration between high school AP environmental science students and English language learners/Special Education students as they teach each other about clean energy using engineering design principles and claims and evidence.

Engaging Students at the Intersection of STEM and Common Core

(Grades K–8) *S504d, McCormick Place*
 Science Focus: ETS, SEP

Melissa Hughes, The Andrick Group, Charlotte, N.C.

Discover practical strategies, meaningful learning experiences, and STEM-based projects to engage students in collaborative problem-solving, inquiry, and engineering with a solid foundation in content literacy.

Building Community Relationships Through STEM

(Grades 1–5) *S505a, McCormick Place*
 Science Focus: ETS

Lisa Hayes (*lisa.hayes@jefferson.kyschools.us*), Eisenhower Elementary School, Louisville, Ky.

Find out how to successfully host a STEM family night that will encourage families to participate in hands-on activities to better understand STEM learning.

CONFERENCE APP

Connect. Share. Engage.

Download our conference app for the NSTA Chicago National Conference on Science Education—a social experience you don't want to miss.

Download the app to UNLOCK EXCLUSIVE SAVINGS + OFFERS

- Search sessions, exhibitors, and speakers to build a schedule of your favorites
- Access maps with pinpoint locations
- Take notes within app
- Bookmark an interesting speaker
- Share the play-by-play with social media channels
- Tweet a memorable quote from a session
- Access conference FAQs

Available for download on

iPhone + iPad Android

Please note that your conference app scheduler will not sync with the Personal Conference Scheduler found on NSTA's website.

Powered by: **NSTA** National Science Teachers Association

iPad Apps for STEM Activities in the Classroom

(Grades P–6) S505b, McCormick Place

Science Focus: ETS

Janet Jordan (janetjordan37@gmail.com), Retired Educator, Fort Wayne, Ind.

Discover many free or inexpensive iPad apps for STEM classroom activities. Practical tips for integrating iPad apps into the curriculum will be presented.

Reaching New Heights in Science with Toshiba/NSTA ExploraVision

(Grades K–12) W176b, McCormick Place

Science Focus: GEN

Acacia McKenna (amckenna@nsta.org), Director, Science Education Competitions, NSTA, Arlington, Va.

Patrick Adams (padams@bcp.org), Bellarmine College Preparatory, San Jose, Calif.

Bring your science instruction to new heights through Toshiba/NSTA ExploraVision! Learn how the ExploraVision competition encourages students in all grade levels to develop skills necessary for success in STEM. You'll gain knowledge of the TOMODACHI Toshiba Academy, an international program for teachers and students, which occurs in Tokyo, Japan, this August!

Trout in the Classroom

(Grades K–12) W187a, McCormick Place

Science Focus: LS1.A, LS1.B, LS2.A, LS2.B, LS3, LS4.C, CCC4, CCC5, CCC6, SEP2, SEP4, SEP5

INF

Joseph Lentino, Burroughs Elementary School, Chicago, Ill.

Lure students into becoming actively involved in protecting cold-water fisheries and watersheds. Join us and hear about the resources and opportunities available to schools through Trout Unlimited's national environmental education program, Trout in the Classroom. Connections to the NGSS included.

Creating Classroom Access and Equity to Transform Student Science Outcomes

(Grades 6–College) W187b, McCormick Place

Science Focus: GEN, CCC

Claudia Morrell, National Alliance for Partnerships in Equity, Gap, Pa.

High outcomes in science require accessible and equitable classrooms. Educators can improve their student learning outcomes by addressing culturally based implicit biases in their classrooms.



Physics for the Next Generation: Using a Patterns Approach to Meet NGSS in Physics

(Grades 9–12) W187c, McCormick Place

Science Focus: PS, SEP

Bradford Hill, Southridge High School, Beaverton, Ore.

Heather Buskirk (heather.buskirk@gmail.com), Greater Johnstown (N.Y.) School District

Four patterns are used to help students develop conceptual, graphical, and symbolic understanding of physics. Join us for hands-on inquiry and engineering that engages grades 9–12 students.

Standards-based Grading and the NGSS

(Grades 6–12) W190b, McCormick Place

Science Focus: GEN, NGSS

Scott Schaefer (@scott_schaefer; srschaefer@gmail.com), D.C. Everest Area School District, Schofield, Wis.

Hear how I used the disciplinary core ideas, science and engineering practices, and crosscutting concepts from the NGSS to implement standards-based grading in my classroom.

3, 2, 1! Send a Student-designed Experiment to the International Space Station!

(Grades K–12) W192a, McCormick Place

Science Focus: GEN

Jacob Tanenbaum (jtanenbaum@socsd.org), **Brian Newburger** (bnewburger@socsd.org), and **Kristy Nadler** (@kms2118; knadler@socsd.org), South Orangetown Central School District, Blauvelt, N.Y.

How would you like to launch a space program for your students? Come learn how one school district found a way.

9:30–10:30 AM Hands-On Workshops**Integrated STEM Education: The New Frontier***(College)**Burnham A/B, Hyatt*

Science Focus: GEN, NGSS

Patricia Simmons (*patricia_simmons@ncsu.edu*), 2011–2012 NSTA President, and North Carolina State University, Raleigh

Join me for creative activities that integrate the four disciplines, as well as hear how we developed our thriving partnership representing each of the STEM areas.

ASTE Session: Lessons That Create Opportunities for Students to Develop Proficiency in the 21st-Century Standards*(Grades 5–College)**Dusable A/B, Hyatt*

Science Focus: GEN, NGSS

Comfort Ateh (*catch@providence.edu*), Providence College, Providence, R.I.

Engage in lessons on population education that support 21st-century standards and bring real-world interconnections of the NGSS three dimensions to the classroom.

Construction of Mathematical and Scientific Thinking: A Must for STEM Success*(Grades 6–9, College)**Grant Park A, Hyatt*

Science Focus: ETS

Jane Metty (*metty_jm@mercer.edu*) and **Clemmie Whatley** (*whatley_cb@mercer.edu*), Mercer University, McDonough, Ga.

Engage in integrated math, science, and engineering activities designed to develop the habits of mind and critical thought process consistent with the CCSS and NGSS practices.

Enjoy a Wealth of FREE PD Resources to Build Pedagogical Content Knowledge

The NSTA Learning Center

- Science Objects (inquiry-based interactive, content modules)
- More than 500 web seminar archives
- More than 1,200 award-winning journal articles
- More than 200 book chapters
- Monthly special offers
- Searchable by keyword, subject, and grade level



Visit <http://learningcenter.nsta.org> to register for a free Learning Center account.

The Importance of True Science Journals

(Grades 3–12) Jackson Park B, Hyatt

Science Focus: GEN, CCC, SEP1, SEP7, SEP4

Michael Fragoso (mfragoso@cps.edu), Chicago (Ill.) Public Schools

Frank Panion (fapanion@cps.edu), Inter-American Magnet School, Chicago, Ill.

Sergio Hernandez (shernandez4@cps.edu), Madero Middle School, Chicago, Ill.

A uniform journal set-up not only organizes ideas, but also helps students clarify concepts, collect data, and reflect on the ideas and principles discussed in class. Find out how journals also can assess crosscutting concepts.

Comic Strips Can Invite Science

(Grades 3–College) Jackson Park C, Hyatt

Science Focus: INF, NGSS

Phyllis Katz (pkatz15@gmail.com), Retired Educator, Silver Spring, Md.

Add playfulness to your educator toolkit with comics. Come find the funny as we see how it makes science more accessible and memorable for students of most ages.

DuPont Presents: Driving Science

(Grades 7–12) Regency E, Hyatt

Science Focus: ETS, SEP

Dot Moss (dmoss@clemsun.edu), Clemson University, Clemson, S.C.

Presider: Marguerite Vavalla, DuPont, Wilmington, Del. Come learn how to connect science content and engineering design. Join us for this hands-on workshop and investigate standards related to Newton's laws of motion in the context of real-world applications and connections to motorsports. We'll examine design processes and teaching strategies that build connections across STEM disciplines.

NSTA Press® Session: CCSS, Mathematics + NGSS = More Brain-Powered Science

(Grades 5–College) S401a, McCormick Place

Science Focus: GEN, CCC, SEP

Thomas O'Brien (tobrien@binghamton.edu), Binghamton University, Binghamton, N.Y.

Discrepant event activities and cartoons model how to integrate mathematics and science literacy standards to show “the whole is greater than the sum of the parts.”

It's Not Complete 'til You Rinse and Repeat

(Grades 3–11) S401d, McCormick Place

Science Focus: ETS, SEP

William Reitz, Retired Educator, Stow, Ohio

Engineering is a cyclical process, not a onetime thing. Come explore how your students can go beyond creating a product to evolving one. Given a selection of children's literature, participants will define a problem raised in the selection and begin to design a solution to that problem.

Food for Thought: Modeling the Role of Glucose

(Grades 9–12) S402b, McCormick Place

Science Focus: LS

Thomas Wolfe (twolfe@d125.org), Adlai E. Stevenson High School, Lincolnshire, Ill.

Barbara Hug (bhug@illinois.edu), University of Illinois at Urbana–Champaign

Come experience a hands-on unit that incorporates the NGSS to explore metabolism, homeostasis, and health. Access to free NIH SEPA-funded curriculum materials.

Understanding the Gravity of the Situation: Honoring the CCSS Through the NGSS

(Grades 6–12) S403b, McCormick Place

Science Focus: ESS, INF, CCC, SEP

Mindy Pearson (@ScienceMindy; mindy.pearson@sdhc.k12.fl.us) and **Michele Detwiler** (michele.detwiler@sdhc.k12.fl.us), Hillsborough County Public Schools, Tampa, Fla.

Explore how to integrate the CCSS and NGSS through a hybrid Literacy Design Collaborative/5E (Engage, Explore, Explain, Elaborate, and Evaluate) unit of instruction on gravity's influence in our solar system.

NASA's Space Forensics: Integrating Storytelling into STEM Education

(Grades 8–12) S404a, McCormick Place

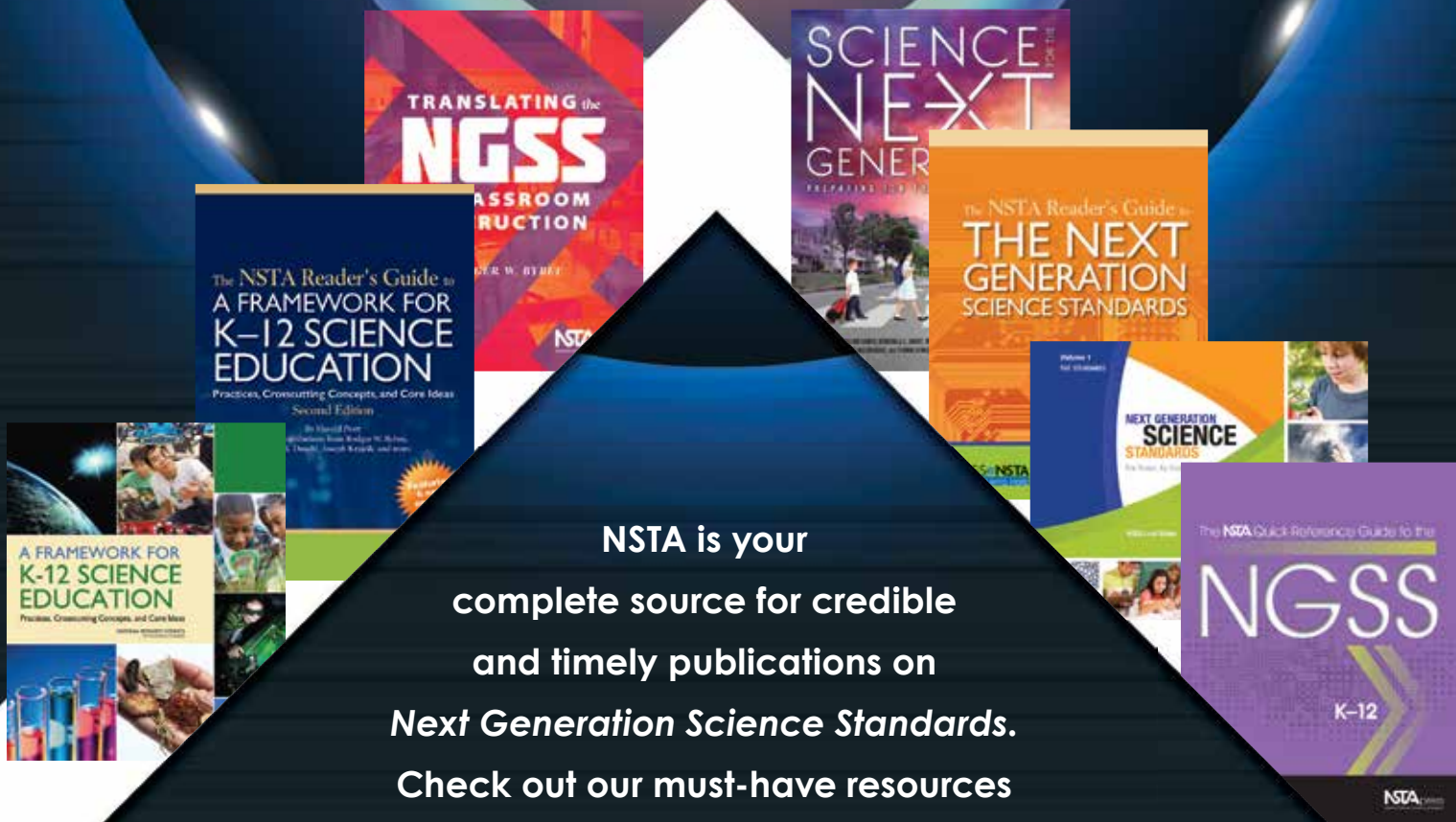
Science Focus: ESS1.A, PS1, SEP1, SEP4, SEP7, SEP8

Sara Mitchell (sara.mitchell@nasa.gov) and **Sarah Eyer-mann** (sarah.e.eyermann@nasa.gov), Syneren Technologies and NASA Goddard Space Flight Center, Greenbelt, Md.

Explosions, collisions, and deaths—the universe contains numerous cosmic “crime scenes.” Introduce students to scientific problem-solving through narratives and hands-on activities.

NGSS@NSTA

STEM STARTS HERE



NSTA is your complete source for credible and timely publications on *Next Generation Science Standards*. Check out our must-have resources from NSTA Press®.

To order or learn more, visit www.nsta.org/store

NSTA National Science Teachers Association

Some Like It Hot!

(Grades 6–College) S501bc, McCormick Place

Science Focus: ESS1.A, PS4.B, SEP3

Coral Clark (cclark@usrad.edu), SOFIA Education and Public Outreach, Mountain View, Calif.

Explore a potpourri of activities and resources to support teaching infrared radiation (heat), the electromagnetic spectrum, and the principles of light. Handouts.

Promoting Plant Literacy with the NGSS

(Grades 1–6) S502a, McCormick Place

Science Focus: LS

Lloyd Barrow (barrowl@missouri.edu), University of Missouri, Columbia

Help your K–6 students better understand the plant life cycle. Engage in a hands-on activity showing how to use “practices” in your plants unit. Frequent student (and teacher) misconceptions will be addressed.

STEAM: Give STEM an A for Arts!

(Grades 1–5) S502b, McCormick Place

Science Focus: INF

Jennifer Gates, Cobb County School District, Marietta, Ga.

Presider: Gangde Yu, Hangzhou Normal University, Hangzhou, Shejang, China

Bring life to STEM for all types of differentiated learners with the addition of one letter: A for Arts.

Just Build It!

(Grades K–5) S503a, McCormick Place

Science Focus: ETS

Kristin Rearden (krearden@utk.edu) and **Amy Broemmel** (broemmel@utk.edu), The University of Tennessee, Knoxville
Design structures and engage with science trade books about construction, architecture, and modeling in nature and the industrialized world.

Why Do You Think So? Asking Effective Questions in Engineering Activities

(Grades 1–5) S503b, McCormick Place

Science Focus: ETS1, SEP4, SEP6, SEP7

Chantal Balesdent (@EiE.org; eie@mos.org), Museum of Science, Boston, Mass.

Presider: Elizabeth Weissman (weissmane@ramaz.org), The Ramaz School, New York, NY

How can we delve deeper into students’ thinking around engineering? Come use examples of students’ work to generate questions that probe their thinking and encourage perseverance through failure.

Catching the Wind Together: A Successful Formal/Nonformal Partnership Focused on Wind Energy

(Grades 1–12) S504a, McCormick Place

Science Focus: ESS3.A, ESS3.C, ESS3.D, ETS, PS3.D, SEP1, SEP4, SEP6, SEP8

Christopher Petrone (@seaPetrone; petrone@udel.edu), Delaware Sea Grant Marine Advisory Service, Lewes

Learn about a curriculum-complementary program that puts students in contact with a 2-megawatt wind turbine and science research. You will also build wind-toys from phone-books. Leave with steps to plan, implement, and evaluate a pilot program on wind.

NESTA Session: NESTA Geology Share-a-Thon

(Grades 1–12) Skyline W375e, McCormick Place

Science Focus: ESS, CCC, SEP

Roberta Johnson Killeen (rmjohnsn@nestanet.org), National Earth Science Teachers Association, Boulder, Colo.

Michael Passow (michael@earth2class.org), Dwight Morrow High School, Englewood, N.J.

Margaret Holzer (mholzer@monmouth.com), Chatham High School, Chatham, N.J.

Carla McAuliffe (carla_mcauliffe@terc.edu), TERC, Cambridge, Mass.

Cris DeWolf (dewolf.cris@gmail.com), Chippewa Hills High School, Remus, Mich.

Michael Hubenthal (hubenth@iris.edu), IRIS Consortium, Washington, D.C.

Eric Muller, Exploratorium, San Francisco, CA

Janet (Jan) Woerner (jwoerner@csusb.edu), Professor Emeritus, California State University, San Bernardino

Join more than 20 NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

NGSS@NSTA Forum Session: Helping Students Make Sense of the World with Next Generation Science and Engineering Practices

(Grades K–12) W183a/b, McCormick Place

Science Focus: GEN, SEP

Brian Reiser, Northwestern University, Evanston, Ill.

Part of a six-session series known as the NGSS@NSTA Forum, this presentation will provide insight from national experts on implementation of the *Next Generation Science Standards* (NGSS). In addition, the forum will offer guidance on how teachers everywhere can improve student learning using the methods described in the *Framework for K–12 Science Education*.



Facilitating Interdisciplinary STEM Learning Through Biomechanics

(Grades 6–12) *W186c, McCormick Place*
 Science Focus: ETS, LS1.A, PS2.A, PS3.A, PS3.B, CCC3, SEP1, SEP2, SEP3

Heidi Rouleau, The Field Museum, Chicago, Ill.

Shannon Schmoll (*schmoll@pa.msu.edu*), Abrams Planetarium, East Lansing, Mich.

Presider: Megan Leider (*mleider@stritahs.com*), St. Rita of Casica High School, Chicago, Ill.

Discover how you can challenge your students to become biomechanics and view the natural world through the lens of physics.

Let's Get Physical—From Force and Friction to Water and Weather

(Grades P–5) *W192c, McCormick Place*
 Science Focus: PS

Ruth Ruud (*ruth.ruud@yahoo.com*), Cleveland State University, Cleveland, Ohio

Juliana Texley (*jtexley@att.net*), NSTA President, Boca Raton, Fla.

Don't look now, but the CCSS asks that you teach physical sciences as early as kindergarten, and the NGSS have very specific goals for early primary. No more procrastinating! The good news is that you have your equipment. Come get easy activities, lit basics, and basic teacher background so that you can start right away!

Enhancing STEM Teaching and Learning Through Graduate-Level Courses and Action Research Projects

(Grades 6–College) *W196a, McCormick Place*

Megan Campanile, **Norman Lederman** (*ledermann@iit.edu*), and **Judith Lederman** (*ledermanj@iit.edu*), Illinois Institute of Technology, Chicago

Science Focus: GEN

Find out how high school science teachers who have taken graduate-level science and action research courses are enhancing STEM teaching and learning.

Using Lab Notebooks in the Preschool and Elementary Classroom

(Grades P–5) *W196b, McCormick Place*

Science Focus: GEN, SEP8

Katie Morrison (*@ucds_seattle; katiem@ucds.org*) and **Deb Chickadel** (*@ucds_seattle; debc@ucds.org*), University Child Development School, Seattle, Wash.

Come learn how to guide young children with data collection, analysis, and recording. Take away tools to design and implement lab notebooks in preK–5 classrooms.

9:30–10:30 AM Exhibitor Workshops

Spectrometry: Investigate Light Emission, Colored Solutions, Plant Pigments, Solution Concentration, and Reaction Kinetics!

(Grades 9–12) *W179b, McCormick Place*

Science Focus: PS1.B, PS3.D, PS4.A, CCC1, SEP4

Sponsor: PASCO scientific

Jason Lee (*jlee@ega.edu*), East Georgia State College, Statesboro

Use PASCO's new Wireless Spectrometer and free Spectrometry software to perform introductory spectroscopy experiments for chemistry, biology, and physics on computers and iPads. In this hands-on workshop, you'll analyze emission spectra, absorbance/transmittance spectra, solution concentration data, and reaction kinetics data. One attendee will win a Spectrometer!

Active Chemistry: A Leading Project-based High School Chemistry Program Capturing the Essence of the NGSS and STEM Plus New Support Resources

(Grades 6–12) *W194b, McCormick Place*

Science Focus: PS

Sponsor: It's About Time

Arthur Eisenkraft, 2000–2001 NSTA President, and UMass Boston, Dorchester, Mass.

Learn from Arthur Eisenkraft, author and former NSTA president, how you can implement STEM and NGSS in your chemistry and/or physical science classroom. Gain an understanding of the benefits of the embedded engineering design cycle. Learn how chemists, chemical engineers, and science educators collaborated to design this innovative, NSF-funded and research-based, project-driven curriculum that has demonstrated significant success to engage ALL students AND increase student performance. New resources include an Active Chemistry 24/7 online support site for teachers.

9:50–10:10 AM Presentation

SCST Session: Implementation of a New Science Methods Course to Shift Teacher Candidate's Views of Nature of Science

(College) *Clark C, Hyatt*

Science Focus: GEN

Julie Angle (*@SCIEDU4U; julie.angle@okstate.edu*), Oklahoma State University, Stillwater

Hear about the design of a newly implemented secondary science methods course that has shifted teacher candidates' views of nature of science.

10:00–10:15 AM Meet Me in the Middle Day Welcome

Vista/S406A, McCormick Place

Calling all middle school science teachers! Meet Me in the Middle Day is designed just for you. The day will include sessions geared toward middle school, and a share-a-thon with a room full of activities that you can take back to your classroom. Join us and re-energize your teaching. You may even be the lucky winner of an iPad mini or other door prizes.

Sponsored in part by Carolina Biological Supply, It's About Time, LAB-AIDS, the National Middle Level Science Teachers Association (NMLSTA), and PASCO scientific.

**10:00–10:30 AM Presentations
Flipping for Mastery, Diversity, and Time**

(Grades 9–12)

Erie, Hyatt

Science Focus: PS

Carol Hedden, Lockport Township High School District 205, Lockport, IL

Three science teachers explain how flipping the classroom has improved performance, lab time, diversity, mastery, and content in their physics, chemistry, and AP chemistry classrooms.

Forming Partnerships to Enhance STEM Education
(General)

Hyde Park A, Hyatt

Science Focus: GEN, NGSS

Kristen Perkins (@NU_ETHS; kristen-perkins@northwestern.edu), Northwestern University, Evanston, IL

Prsident: Lois Nyren (nyren@ramaz.org), The Ramaz School, New York, NY

Hear a description of the partnership between one university and the local high school, including how you can use this model to build collaborative partnerships in your community.

Projects and Lots of 'em: STEM Edition

(Grades 9–12)

W196c, McCormick Place

Science Focus: GEN, NGSS

Ed Zuis (ezuis@hotmail.com), and **Larry McCarthy** (almbldr@yahoo.com), Oak Hill High School, Sabattus, Maine

Leave with directions and assessments for multiple STEM projects. These projects can be used to assess any of the NGSS's three dimensions. Handouts guaranteed!



10:00–11:00 AM Exhibitor Workshop

Body of Evidence: A Forensic Science Mystery!

(Grades 6–College)

W193b, McCormick Place

Science Focus: GEN, INF

Sponsor: Texas Instruments

Presenter to be announced

What can we learn from decomposing corpses? A lot! Join us for a hands-on lesson developed by Texas Instruments and the National Academy of Sciences with help from forensic anthropologist Diane France. Part of the STEM Behind Hollywood program, this lesson combines science, Hollywood, and STEM careers into one easy-to-follow lesson—free at www.stemhollywood.com!

10:00–11:30 AM Exhibitor Workshops**Flinn Scientific’s Morning of Chemistry: The Best of ChemWest**

(Grades 6–College) *Skyline W375a, McCormick Place*
 Science Focus: PS

Sponsor: Flinn Scientific, Inc.

ChemWest

Come be entertained and amazed as the ChemWest group performs 19 of their favorite demonstrations on stage. These presenters from the Chicago metropolitan area will WOW you with dry ice, liquid nitrogen, implosions, and more! Don’t miss the Flinn Scientific Morning of Chemistry with activities and demos from middle school to AP chemistry. Handouts.

Fantastical Chemistry Demos for All Classrooms

(Grades 3–12) *W178a, McCormick Place*
 Science Focus: PS1.A, PS1.B, PS2.B, PS3.A, PS3.B, PS3.D, PS4.B

Sponsor: Educational Innovations, Inc.

William Richey, Xenia High School, Xenia, Ohio

These super fun and exciting chemistry demonstrations can be used by all teachers at any level to get a classroom of students excited about the amazing world of chemistry. These easy and practical demonstrations will truly show your students what we already know—that science is fun!

The Next Generation Science Standards: What They Mean for Earth and Space Science

(Grades 6–12) *W179a, McCormick Place*
 Science Focus: ESS, CCC, SEP

Sponsor: Pearson

Michael Wysession, Washington University in St. Louis, Mo.

The NGSS represents a bold new direction for K–12 science in America, but it also poses many challenges and questions. Join Michael Wysession, NGSS writing team leader, as he discusses the implications for teaching, assessment, and professional development in Earth and space science education.

Advanced Inquiry Labs for AP Biology from Flinn Scientific

(Grades 9–College) *W180, McCormick Place*
 Science Focus: LS

Sponsor: Flinn Scientific, Inc.

Meg Griffith (*mgriffith@flinnsci.com*) and **Jennifer Von Schnase** (*jvon@flinnsci.com*), Flinn Scientific, Inc., Batavia, Ill.

Four big ideas, more great labs! The revised AP Biology curriculum integrates scientific inquiry and reasoning through student-directed laboratory investigations. Join Flinn Scientific as we model the inquiry process and demonstrate activities from our new guided inquiry labs. Improve students’ ability to generate meaningful questions, design experiments, and analyze scientific evidence. Handouts include alignment with the new AP Biology curriculum.

Hands-On Activities to Model Habitat Preference and Population Sampling

(Grades K–12) *W181a, McCormick Place*
 Science Focus: LS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Watch and learn! Create a terrestrial model to observe how pill bugs respond to habitat change. Use inquiry to develop experiments to observe the habitat preference of bess beetles and millipedes. Then investigate the advantages and disadvantages of different sampling methods to estimate population size in habitats. Door prizes provided.

Building Models to Explain the Changing Earth: Grades 4–5

(Grades 4–5) *W181b, McCormick Place*
 Science Focus: ESS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Join us in building a 3-D model of Earth, recreating a map of fractures in Earth’s crust and distinguishing patterns of change of the Pacific Plate along the Ring of Fire.

Building Inquiry in AP Chemistry Labs

(Grades 9–12) *W181c, McCormick Place*

Science Focus: PS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Struggling to bring inquiry to your AP Chemistry labs? Carolina's new AP Chemistry kits help students develop essential chemistry practices, understand core chemistry concepts, and learn chemistry through inquiry as per the new College Board curriculum. Experience three different activities in this hands-on workshop. Free handouts and door prizes.

The Origins of Humans and Recent Adaptations

(Grades 9–College) *W183c, McCormick Place*

Sponsor: HHMI BioInteractive

Science Focus: LS4, SEP4, SEP7

Laura Bonetta, HHMI BioInteractive, Chevy Chase, Md.

Mary Colvard, Retired Educator, Cincinnati, Ohio

Cheryl Hollinger, Educator, Portland, Ore.

Explore a wealth of free resources from BioInteractive for teaching human evolution. They include a new short film for the classroom that presents a clarified, accurate picture of our evolutionary history from the world's leading experts. You will also learn about ready-to-use worksheets, lesson plans, and interactives.

Environmental Technology: A Real-World Investigation

(Grades 7–12) *W184a, McCormick Place*

Science Focus: ESS

Sponsor: Fisher Science Education

Robert Marshall (robert.marshall@thermofisher.com), Fisher Science Education, Pittsburgh, PA

How do scientists know if the world around us is healthy? Using laboratory and field tools, conduct hands-on testing to investigate a real-world environmental science dilemma. Convince your students by showing the power of data collection and the story it tells about the vital ecosystems here on Earth.

Solving the Mystery of STEM Using Forensic Science

(Grades 6–12) *W184bc, McCormick Place*

Science Focus: GEN

Sponsor: Frey Scientific/School Specialty Science

Lou Loftin, Nevada's Northwestern RPDP, Reno

Conduct a number of STEM-focused forensic activities that link the scientific method with analysis and investigative skills to solve multifaceted "cases" involving fingerprint,

trace, DNA, and document evidence. Examine additional STEM-focused assets. See how the program software allows the integration of virtual labs, investigative activities, the preparation of web-based content, and individualized assessment.

Floods, Heat Waves, and Hurricanes: Analyzing Evidence for a Changing Climate Using FOSS

(Grades 6–8) *W184d, McCormick Place*

Science Focus: ESS, SEP

Sponsor: Delta Education/School Specialty Science–FOSS **Virginia Reid** and **Jessica Penchos**, The Lawrence Hall of Science, University of California, Berkeley

What is the current scientific evidence for climate change? Engage in hands-on activities and multimedia from the newly revised FOSS Weather and Water Course for Middle School to explore causes and implications of climate change and identify connections to NGSS science and engineering practices. New program features will be shown.

Environmental Science with Vernier

(Grades 7–College) *W185a, McCormick Place*

Science Focus: ESS, SEP3, SEP4

Sponsor: Vernier Software & Technology

Colleen McDaniel (info@vernier.com), Vernier Software & Technology, Beaverton, OR

Use Vernier sensors to conduct a variety of environmental science experiments from our lab books in this engaging hands-on workshop. Experience data collection using LabQuest 2, Logger Pro computer software, and mobile devices. See how Vernier has been incorporating principles of the NGSS science and engineering practices for 34 years!

Explore Motion with Vernier Video Physics for iOS

(Grades 6–College) *W185d, McCormick Place*

Science Focus: PS2, SEP4

Sponsor: Vernier Software & Technology

Matthew Anthes-Washburn (info@vernier.com), Vernier Software & Technology, Beaverton, OR

Interested in creating and analyzing videos using iPad, iPhone, or iPod Touch? Attend this hands-on workshop to explore science concepts of motion and to discover best practices for capturing videos you can use with Vernier's Video Physics app, now with automated object tracking. Extend analysis with our Graphical Analysis app.

Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR

(Grades 8–College)

W186a, McCormick Place

Science Focus: LS, INF

Sponsor: Edvotek, Inc.

Brian Ell (info@edvotek.com) and **Maria Dayton** (info@edvotek.com), Edvotek Inc., Washington, D.C.

Explore the relationship between genotype and phenotype using Phenylthiocarbamide (PTC). Some think PTC tastes bitter, while others find it tasteless. The ability to taste PTC has been linked to variations in a taste receptor gene. In this workshop, learn to use PCR to distinguish between PTC alleles. Free flash drive/T-shirt drawing entry.

MINDSTORMS® EV3 Robotics in the Middle School Classroom: Getting Started

(Grades 6–9)

W186b, McCormick Place

Science Focus: ETS

Sponsor: LEGO Education

Laura Jackson, Retired Teacher/LEGO Education Trainer, Greenwood, Mo.

Cindy Howard, Retired Teacher/LEGO Education Trainer, Kansas City, Mo.

Learn firsthand how LEGO Education MINDSTORMSEV3 can get your students excited as they model real-life mechanisms and solve real-world challenges, all while building the critical-thinking and creative problem-solving skills that will serve them well for a lifetime.

Grant Writing: Designing for Dollars

(Grades K–12)

W192b, McCormick Place

Sponsor: Ward's Science

Rusti Berent, Ward's Science, West Henrietta, NY

Science Focus: GEN

Expand your STEM ideas and turn them into well-designed projects that engage and excite funders. Practice identifying opportunities and matching them with standards-focused science activities. Come with ideas and leave with hands-on tools and sample project proposals to help plan, justify, budget, evaluate, and sustain your project.

Bringing Science Home: Integrating the Science Classroom with the Internet of Things

(Grades 6–College)

W193a, McCormick Place

Science Focus: GEN

Sponsor: SparkFun Electronics

Jeff Branson and **Brian Huang**, Sparkfun Electronics, Longmont, Colo.

Do you want your students to have access to their experiments from home? With a few open-source tools and electronics,

a computer, and an internet connection, your students can take their experiments and data into the web where they can access it from anywhere, anytime. We will demonstrate tools and techniques to allow students to become citizen scientists!

Ignite the NGSS with Today's Cutting-Edge Technology

(Grades K–8)

W194a, McCormick Place

Sponsor: TCI

Nathan Wellborne (nwellborne@teachtci.com), TCI, Rancho Cordova, Calif.

Science Focus: GEN

See how powerful HTML5 web tools can inspire your students with cutting-edge presentations, assessments, interactive tutorials, and online notebooks. You'll experience the power of TCI's Bring Science Alive in this workshop appropriate for grades K–8.

The Rock Cycle Game

(Grades 6–8)

W195, McCormick Place

Science Focus: ESS, SEP2

Sponsor: LAB-AIDS®, Inc.

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

Join us in this hands-on workshop and use The Rock Cycle Game from SEPUP and LAB-AIDS to determine how Earth's processes form different types of rocks. Leave with an innovative way of teaching the rock cycle as well as a deeper understanding of how Earth's processes play a role in this cycle.

Data Is Not a Four Letter Word! Use NOAA Resources to Build Student Proficiency in Data Analysis

(Grades 6–12)

W470a, McCormick Place

Science Focus: ESS

Sponsor: National Oceanic and Atmospheric Administration

June Teisan (june.teisan@noaa.gov), Einstein Fellow, NOAA, Washington, D.C.

Laura Rico-Beck (laura.rico-beck@msichicago.org), Museum of Science and Industry, Chicago, Ill.

Scientists at the National Oceanic and Atmospheric Administration collect a stunning array of data in their work. Learn how to access this treasure trove of archived and real-time data, and explore NOAA's data-rich resources, lesson plans, and visualization tools to help you build student proficiency in scientific data analysis.

Access and Analyze LIVE Ocean Data in the Classroom

(Grades 6–College) *W470b, McCormick Place*

Science Focus: ESS2

Sponsor: Ocean Classrooms

Caine Delacy (*caine@oceanclassrooms.com*) and **Cynthia Long** (*cyndi@oceanclassrooms.com*), Ocean Classrooms, Boulder, Colo.

With more than 3,600 floats, the Argo Buoy Project provides an unprecedented amount of data on ocean temperature, salinity, and dissolved oxygen from the surface to depths of 2,000 meters. Explore how Ocean Classrooms' user-friendly data portal, online curriculum, and inquiry-based activities encourage learning about our most precious resource—our ocean.

Plate Tectonics: Continents on the Move

(Grades 6–12) *W471a, McCormick Place*

Science Focus: ESS2.B

Sponsor: Simulation Curriculum Corp

Herb Koller, Simulation Curriculum Corp., Minnetonka, Minn.

Join us as we use Simulation Curriculum's *Layered Earth Geology* to investigate continental drift and the theory of plate tectonics. Classroom-ready STEM lessons engage students with interactive simulations and learning activities, thought-provoking exercises, and historical links while displaying a contextual and interactive model of Earth.

20 Creative Ways to Use Discovery Education Streaming in the Science Classroom

(Grades K–12) *W471b, McCormick Place*

Science Focus: GEN

Sponsor: Discovery Education

Mike Bryant (*educationpartnerships@discovery.com*), Discovery Education, Silver Spring, Md.

So you love Discovery Education Streaming, but like most teachers you spend most of the time with videos. You know there is more to use, but time just doesn't permit you to explore. Come experience 20 instructional activities that you never knew were so easy to incorporate into your science lessons.

Communicating Science Through Lab Notebooking

(Grades 9–College) *W474a, McCormick Place*

Science Focus: GEN, NGSS

Sponsor: Bio-Rad Laboratories

Leigh Brown (*leigh_brown@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Maintaining a proper lab notebook is key to communicat-

ing processes and findings to build on results. It's also been the difference in being awarded patents. Find out what the critical elements are to properly document results and how to assess student notebooks using a rubric.

Are Worms Smarter Than Your Students? (AP Big Ideas 1, 2, 3, 4)

(Grades 9–College)

W474b, McCormick Place

Science Focus: LS

Sponsor: Bio-Rad Laboratories

Sherri Andrews (*sherri_andrews@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

How do genes influence behavior? Using *C. elegans* (a nematode), compare normal and mutant worm behavior in a classical conditioned learning experiment (think Pavlov's worms). Explore worm taste preferences in a simple chemotaxis assay and examine how our worm mutant links to human diseases. A great alternative to AP fruit fly behavior lab!

The "E" in STEM: 3-D STEM Engineering

(Grades 5–College)

W475a, McCormick Place

Science Focus: ETS

Sponsor: WhiteBox Learning

Graham Baughman (*graham@whiteboxlearning.com*) and **Michelle Shafer**, Whitebox Learning, Louisville, Ky.

Engage your students in the complete engineering design process. WhiteBox Learning provides standards-, web-, and project-based applied STEM learning applications. Gliders2.0, Rover2.0, Structures2.0, Prosthetics2.0, Mouse-trapCar2.0, GreenCar2.0, Rockets2.0, and Dragster2.0 allow students to build, analyze, and simulate their designs, and compete "virtually," 24/7, all around the world...how cool is that?!

The NGSS and AP Chemistry: Promoting Conceptual Understanding with Molecular-Level Visualization

(Grades 7–College)

W476, McCormick Place

Science Focus: PS

Sponsor: Wavefunction, Inc

Paul Price (*sales@wavefun.com*), Wavefunction, Inc., Irvine, Calif.

The new focus on conceptual understanding—prominent in the *Next Generation Science Standards*, the revised AP Chemistry Curriculum, and most state standards—makes molecular visualization a must-have tool for the classroom. Bring your laptop (Windows or Mac OS X) to this hands-on workshop and learn how to teach chemistry more effectively with Odyssey Molecular Explorer.

National Earth Science Teachers Association Events at 2015 NSTA National Conference in Chicago



All NESTA sessions are in the Hyatt Regency McCormick Place, Skyline W375e unless otherwise indicated

Friday, March 13

- 8:00 – 9:00 am **Earth Science Rocks! Using Earth Science Activities to Engage Students as Scientists**
- 9:30 – 10:30 am **NESTA Geology Share-a-Thon**
- 11:00 am – noon **NESTA Climate, Ocean and Atmosphere Share-a-Thon**
- 12:30 – 1:30 pm **NESTA Earth System Science Share-a-Thon**
- 2:00 – 3:00 pm **Harnessing the Power of Earth System Science for Developing Science Practices and Crosscutting Concepts**
- 2:00 – 3:00 pm **American Geophysical Union Lecture, “Abrupt Climate Change: Past, Present and Future” by Dr. Jim White, University of Colorado, McCormick Place, Skyline W375b**
- 6:30 – 8:00 pm **Friends of Earth Science Reception (see www.nestanet.org for more info)**

Saturday, March 14

- 8:00 – 9:00 am **Multimedia Tools and Classroom Resources for Teaching Earth System Science**
- 9:30 – 10:30 am **Using Data in the Earth and Space Science Classroom to Engage Students as Real Scientists**
- 12:30 – 1:30 pm **NESTA Space Science Share-a-Thon**
- 2:00 – 3:00 pm **How Weird Can it Get? Developing Weather and Climate Literacy**
- 3:30 – 4:30 pm **NESTA Rock and Mineral Raffle**
- 5:00 – 6:00 pm **NESTA Annual Membership Meeting**

NESTA gratefully acknowledges co-sponsorship of our events by the following organizations:



10:10–10:30 AM Presentation

SCST Session: Growing Communities of Learners: A Gardening, Cooking, Science, and CCSS ELA Workshop for Teachers

(Grades 6–College)

Clark C, Hyatt

Science Focus: LS, PS

Darlene Panvini (darlene.panvini@belmont.edu), Belmont University, Nashville, TN

Professors from education, English, biology, and chemistry enhance their teaching by co-leading a gardening/cooking workshop for middle school and high school teachers that integrates science and CCSS ELA.



10:15–10:45 AM Presentations

Meet Me in the Middle Session: Roundtable Discussions for Middle School Educators

(Grades 5–9)

S404bc, McCormick Place

Science Focus: GEN, NGSS

Patty McGinnis (@patty_mcginnis; pattymcginnis1@gmail.com), Arcola Intermediate School, Eagleville, Pa.

Todd Hoover (thoove2@bloomu.edu), Bloomsburg University of Pennsylvania, Bloomsburg

Susan Dahl (sdahl@fnal.gov) and **Sue Sheehan** (sheehan@fnal.gov), Fermilab, Batavia, Ill.

Sarah Livesay (s.livesay@comcast.net) and **Jaclyn Stallard** (jstallard@plt.org), Project Learning Tree, Washington, D.C.

Laura McCoy (lmccoy@co.kendall.il.us), Kendall County Forest Preserve District, Yorkville, Ill.

Colleen Megowan-Romanowicz (amtaexec@modelinginstruction.org), American Modeling Teachers Association, Sacramento, Calif.

Tanya Parisi and **Terry Talley** (ttalley@acceleratelearning.com), Accelerate Learning, Houston, Tex.

Jennifer Saunders (jrsaunders@fallriverschools.org), Morton Middle School, Fall River, Mass.

Presider: **Mary Lou Lipscomb** (mllscience@aol.com), Illinois Mathematics and Science Academy, Aurora

Join middle school teachers for roundtable discussions featuring topics related to the NGSS, science literacy, and more!

Meet Me in the Middle Session: Safety Acknowledgment Forms—Legally Protecting You!

(Grades 5–8)

S405a, McCormick Place

Science Focus: GEN

Kenneth Roy (royk@glastonburyus.org), Glastonbury (Conn.) Public Schools

Find out how to better protect yourself as a science teacher legally by developing and using a safety acknowledgement form!

Meet Me in the Middle Session: Engineering to the Standard

(Grades 6–8)

S405b, McCormick Place

Science Focus: LS2, PS1, PS3, CCC5, CCC7, SEP6, SEP7

Susan German, Hallsville Middle School, Hallsville, Mo. Join us for three lessons that meet the demands of the Middle School performance expectations dealing with Matter and Interactions; Energy; and Ecosystems: Interactions, Energy, and Dynamics (specifically MS-PS1–6, MS-PS3-3, and MS-LS2–5). Opportunities for limited hands-on engagement. Lessons will be described with example solutions provided.

10:15–10:45 AM Hands-On Workshop

Meet Me in the Middle Session: The Dead Zone

(Grades 4–8)

S404d, McCormick Place

Science Focus: ESS

Liz Martinez (emartinez@imsa.edu), Illinois Mathematics and Science Academy, Aurora

Use stream tables, maps, and ocean data to investigate the relationships among erosion, runoff, and dead zones in the Gulf of Mexico.

10:30 AM–12 Noon Meeting

Urban Science Education Advisory Board Meeting

Boardroom 2, Hyatt

11:00–11:30 AM Presentations**Using Direct-Measurement Video to Teach Science Practice***(Grades 7–College)**Adler A/B, Hyatt*

Science Focus: GEN, SEP

Peter Bohacek, Hennepin County High School, Saint Paul, Minn.

Find out why teachers from middle school classrooms through MIT's Physics Massive Open Online Course (MOOC) are adopting this innovative and engaging method to teach science practices.

Using Student-generated Paper-Slide Videos to Promote Science Literacy and Argumentation*(Grades 9–12)**Erie, Hyatt*

Science Focus: GEN, NGSS

Rachel Beattie, Lincoln-Way East High School, Frankfort, Ill.

Join me as I share paper-slide video examples of science concepts and data-driven arguments and discuss how to engage and lead students through the process.

How Far the Moon? Measuring the Instantaneous Distance by Triangulation*(Grades 9–College)**Grant Park A, Hyatt*

Science Focus: ESS1.B, CCC3, SEP2, SEP5

Tom Lough (*tom.lough@gmail.com*), Retired Educator, Round Rock, TX

Using ordinary surveying instruments and geographic positioning system (GPS) resources, groups of students in two widely separated locations can work together to measure the Earth-Moon distance! Handouts.

AK to NSTA: Highlights of a Climate Change Course in Alaska for Local and Global Teaching*(Grades 4–12)**S403a, McCormick Place*

Science Focus: ESS

Sarah Bartholow and **Janet Warburton** (*warburton@arcus.org*), ARCUS, Fairbanks, Alaska

A four-day field course?!? Get the scientific highlights, skills to deal with skeptics, and educator activities for climate change education in your classroom.

Meet Me in the Middle Session: Roundtable Discussions for Middle School Educators*(Grades 5–9)**S404bc, McCormick Place*

Science Focus: GEN, NGSS

Patty McGinnis (*pattymcginnis1@gmail.com*), Arcola Intermediate School, Eagleville, Pa.**Todd Hoover** (*thoove2@bloomu.edu*), Bloomsburg University of Pennsylvania, Bloomsburg**Elizabeth Gorak** and **Mary Fassbender**, Forest Park Middle School, Franklin, Wis.**Sarah Livesay** (*s.livesay@comcast.net*) and **Jaclyn Stallard** (*jstallard@plt.org*), Project Learning Tree, Washington, D.C.

Join middle school teachers for roundtable discussions featuring topics related to the NGSS, science literacy, and more!

Meet Me in the Middle Session: Around the World with Eratosthenes*(Grades 6–9)**S404d, McCormick Place*

Science Focus: ESS

Nicholas Nicastro (@epitadas; Author, New York, N.Y.)

Eratosthenes' third-century BCE measurement of Earth's circumference qualifies as one of the most replicated experiments in the history of science. Both simple in its procedure but profound in conception, it is also one of the most elegant. In this presentation, we will review the underlying assumptions of Eratosthenes' geodesy, and survey its legacy—or surprising lack of a legacy—at a time it would have benefited explorers the most.

Meet Me in the Middle Session: The NSTA Learning Center—Free Professional Development Resources and Opportunities for Educators*(General)**S405a, McCormick Place*

Science Focus: GEN

Flavio Mendez (*flavio_m@nsta.org*), Senior Director, Learning Center/SciLinks, NSTA, Arlington, Va.

Looking for online resources to enhance your content knowledge and skills? With more than 11,000 resources (25% free), the NSTA Learning Center has the answers!

11:00–11:30 AM Hands-On Workshop**Meet Me in the Middle Session: Everyday Engineering***(Grades 5–8)**S405b, McCormick Place*

Science Focus: ETS

Richard Moyer (*rhmoyer@umich.edu*) and **Susan Everett** (*everetts@umd.umich.edu*), University of Michigan-Dearborn

Engage in activities that integrate engineering into your curriculum by focusing on the design and function of the simple things we use everyday—plastic baggies, ice cube trays, and toothbrushes.



11:00 AM–12 Noon Featured Presentation

Beasts at Bedtime: Revealing the Embedded Environmental Curriculum in Classic Children's Literature

(General) *W185 b/c, McCormick Place*
Science Focus: ESS



Liam Heneghan (@DublinSoil; *lhenegha@depaul.edu*), Chair and Professor of Environmental Science and Studies, and Co-Director, Institute for Nature and Culture DePaul University, Chicago, Ill.

Presider: Rachel Kannady, White Station High School, Memphis, Tenn.

Join Liam for an extensive content analysis of classic children's literature as he shows how collectively these stories contain a sophisticated and yet accessible short course on environmental themes. He will share examples from several favorite works and illustrate how teachers can use these books to promote environmental education, while deepening understandings of the ideal components of environmental literacy.

Liam Heneghan is an ecosystem ecologist working at DePaul University, where he is a professor and chair of Environmental Science and co-director of DePaul University's Institute for Nature and Culture. His research has included studies on the impact of acid rain on soil foodwebs in Europe, and inter-biome comparisons of decomposition and nutrient dynamics in forested ecosystems in North America and the tropics.

Over the past decade, Liam and his students have been working on restoration issues in Midwestern ecosystems. He is co-chair of the Chicago Wilderness Science Team. Liam is also a graduate student in philosophy (MA 2013) and an occasional poet pondering Hopkins' "nature is never spent."

11:00 AM–12 Noon Panel

AMSE Session: Classroom Teachers as Leaders: A Panel Discussion

(Grades K–12) *Prairie A, Hyatt*
Science Focus: GEN, NGSS

Joyce Gleason (*joycegle@earthlink.net*), Educational Consultant, Punta Gorda, Fla.

Lawrence Perretto (*lawrence@stemedcenter.org*), STEM Leadership Center, White Plains, N.Y.

Teachers do not automatically see themselves as leading others beyond the classroom. This panel will feature teachers doing both. Participants will tell their individual stories.

11:00 AM–12 Noon Presentation

Transitioning to the NGSS: The Chicago Public Schools' Perspective

(Grades P–12) *Adler C, Hyatt*
Science Focus: GEN, NGSS

Hallie Askuvich (*hmpeskin@cps.edu*), Sauganash Elementary School, Chicago, Ill.

Chandra James, Chicago (Ill.) Public Schools

Come learn about Chicago Public Schools' multiyear transition plan to the NGSS. Join us for a discussion of the successes and challenges of implementing the NGSS in a large urban school district.

Professional Development Models: Showcasing and Sustaining Meaningful Practices and Collaborative Approaches Focusing on STEM and the NGSS for Teacher Leaders and PD Providers

(General) *Burnham A/B, Hyatt*
Science Focus: GEN, SEP

LaMoine Motz (*llmotz@comcast.net*), Motz Consultant Group, White Lake, Mich.

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

Gerry Madrazo (*gerrymadrazo@gmail.com*), Educational Consultant/Clinical Professor, Elon, N.C.

Presider: LaMoine Motz

Join our group of science education leaders as we focus on STEM education and the NGSS in our delivery of professional development. Our panel will share trends, best practices, current research, teaching/learning models, projects, and collaborative approaches toward strengthening science teaching and learning. Handouts.

NARST Session: Science Youth Action Research: Empowering Students to Take Action Through Science

(Grades K–12) *Burnham C, Hyatt*
Science Focus: GEN, SEP

Elizabeth Coleman (*ecole15@uncc.edu*), The University of North Carolina at Charlotte

Hear about the Science Youth Action Research curriculum, which empowers students to take positive action through science. We will share lessons learned from implementation.

Quantitative Literacy: Essential in the 21st Century*(Grades 6–College)**Clark A/B, Hyatt*

Science Focus: GEN, NGSS

Gordon Wells (*gordon.wells@ovu.edu*), Ohio Valley University, Vienna, W.Va.

We will discuss what quantitative reasoning is and how we are involving faculty from different disciplines in implementing quantitative reasoning activities in their classes.

Teach STEM Content and Spark Science Career Interest with Free Online Games*(Grades 6–12)**Dusable C, Hyatt*

Science Focus: GEN, INF, NGSS

Kristi Bowling (*@RiceCTTL*), Rice University Center for Technology in Teaching and Learning, Houston, Tex.**Lynn Lauterbach** (*lynnlauterbach@gmail.com*), Retired Teacher, Loveland, Colo.

See how free online games get students involved in science career simulations by solving real-world science problems using the authentic tools and practices of scientists.

NSELA Session: Got Diversity?*(General)**Field A/B, Hyatt*

Science Focus: GEN

Vicki Massey (*vickimassey@cox.net*), NSTA Director, District XIV, Mesa, Ariz.

Let's explore how we can cultivate diversity in science leadership as we teach more and more diverse groups of students.

CSSS Session: By Teachers for Teachers: Engaging Colorado Educators as the Creators of 21st-Century Science Curricula*(General)**Field C, Hyatt*

Science Focus: GEN, CCC, SEP

Joanna Bruno (*bruno_j@cde.state.co.us*), Colorado Dept. of Education, Denver

We will combine sharing of information with small group/partner activities as a way to engage participants in the process teachers used to create their curriculum samples.

Crowdsourcing to Develop Test Items for the High School Life Science NGSS*(Grades 9–College)**Grant Park B, Hyatt*

Science Focus: LS

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

MOSART stands for Misconceptions-Oriented Standards-based Assessment Resources for Teachers. Hear how the MOSART assessment development team from the Harvard-Smithsonian Center for Astrophysics uses crowdsourcing to pilot its research test items as well as correlations to the NGSS.

Community College/University Partnership: Developing Interdisciplinary Math and Sciences Program for Undergraduate Middle School Teacher Preparation*(Grades 5–9, College)**Grant Park C, Hyatt*

Science Focus: GEN, NGSS

Paul Dolan, Huseyin Colak (*h-colak@neiu.edu*), and **Cathie Anderson** (*c-anderson9@neiu.edu*), Northeastern Illinois University, Chicago**Alia Hollister**, James B. McPherson Elementary School, Chicago, IL

Hear about a successful partnership for training math-science middle school teachers. Hear how we do it using math-science linked courses and inquiry activities.

Using Essential Questions to Engage Your Students in the NGSS Learning Progressions*(Grades 1–11)**Hyde Park A, Hyatt*

Science Focus: GEN, NGSS

Hilarie Davis (*hilarie@techforlearning.org*), Technology for Learning Consortium, Inc., North Kingstown, R.I.


Draw your students into learning with essential questions. Take away essential questions for Earth, life, and physical sciences as well as specific core ideas.

The Nevada STEM Education Framework for K–12*(Grades K–12)**Jackson Park D, Hyatt*

Science Focus: GEN, NGSS

David Crowther, University of Nevada, Reno

Hear about the Nevada STEM Education Framework for K–12 schools. Each of the descriptors will be reviewed with associated practices and assessments.

 **NSTA Press® Session: Teaching STEM Subjects to Students with Special Needs**

(Grades 4–College) *S401bc, McCormick Place*

Science Focus: GEN, CCC

Ed Linz (@bigbaddog65; erlinz@fcps.edu), Teacher/Author, Springfield, Va.

Mary Jane Heater (mheater@fcps.edu), West Springfield High School, Springfield, Va.

Attention will be paid to the unique challenges confronting teachers of STEM subjects when the classroom consists of a mix of general education students and students with special needs (or a self-contained class of all special needs students). Authors of the NSTA Press book, *Team Teaching Science, Success for All Learners* will guide participants through a step-by-step example of proven strategies so that ALL students can learn in various classroom settings.

One Million Lights: A Global Effort to Unite Students to Make the World a Better Place Through 3-D Printing

(Grades 3–College) *S401d, McCormick Place*

Science Focus: ETS, SEP

Tracey Winey and **John Howe** (@preSTEMhowe; jhowe@psdschools.org), Preston Middle School, Fort Collins, Colo.

Solve real-world problems through multi-age student collaboration, innovative engineering, and 3-D printing. Engineering and humanity merge to make the world a brighter place.

Forensic Entomology: Fun Inexpensive Inquiry Activities

(Grades 6–9, 11–College) *S402a, McCormick Place*

Science Focus: LS

Anthony Bertino (abertino@nycap.rr.com), Retired Educator, Scotia, N.Y.

Patricia Nolan Bertino, Retired Educator, Scotia, N.Y.

Add forensic entomology activities to your science classroom. Discover the fascinating world of blow flies—how they develop, how they are affected by environmental factors, and how they are used in solving crimes. Handouts.

Horticulture and Special Education: How to Make It Bloom

(Grades 6–12)

S501d, McCormick Place

Science Focus: LS

Jill Serikaku (jserikaku@glenbrook225.org), Glenbrook South High School, Glenview, Ill.

Cultivate a partnership between special education and science to serve diverse learners in your school. Discussion centers on the experiences of students with developmental disabilities in a co-taught horticulture class. We'll cover hands-on labs, implementation of IEP goals, and prevocational skills.

A Model for K–8 Science and Engineering Fairs: Participation and Success for All Students

(Grades K–8)

S504bc, McCormick Place

Science Focus: ETS

Carrie Kouadio (carrie.kouadio@gmail.com), University of Illinois at Urbana–Champaign

Hear how one school has pioneered a successful Science and Engineering Fair, in which ALL students participate and succeed.

“Can I Write About the Garden?” Science as a Context for Writing with Purpose and Passion in Primary Classrooms

(Grades K–3)

S504d, McCormick Place

Science Focus: GEN, SEP8

Patricia Bricker (bricker@email.wcu.edu), Western Carolina University, Cullowhee, N.C.

Melissa Faetz (melissa.faez@macon.k12.nc.us), South Macon Elementary School, Franklin, N.C.

Learn how students move from hands-on science investigations and investigation journals to creating their own scientific texts. Connections to science, language arts, and technology standards included.

Using Technology in Elementary Classrooms

(Grades P–5)

S505b, McCormick Place

Science Focus: ETS

Sandi Castro (sandi.castro25@gmail.com), Del Valle (Tex.) ISD

Limited resources? Incorporating technology into any lesson isn't easy. Come see how to use what you have available to make the most out of learning.

PDI McREL Pathway Session: Citizen Science: Leveraging Virtual Manipulatives to Develop Student Understanding (sTem)

(Grades 7-9, 11-12) *W175a/b, McCormick Place*
Science Focus: GEN, INF, NGSS

Laura Arndt (larndt@mcrel.org), McREL International, Denver, Colo.

Understand how to incorporate computer-based inquiry learning tools such as virtual manipulatives, animations, simulations, and technology-based tools to collect and report data as part of high-quality STEM instruction.



NASA and GLOBE Connect K–12 Students to NGSS with Big-Data Applications

(Grades K–12) *W187a, McCormick Place*
Science Focus: ESS2, ETS1.B, LS1.A, LS2.B, LS2.C, PS1.A, PS2.A, PS2.C, PS3.A, PS4.A, CCC1, CCC3, CCC4, CCC5, CCC7, SEP1, SEP2, SEP4, SEP5

Daniel Oostra (daniel.h.oostra@nasa.gov), NASA Langley Research Center, Hampton, VA

Join us as we present materials that demonstrate a big-data learning progression, using GLOBE environmental protocols and NASA remote-sensing data that meet the NGSS and CCSS.



INF El Club de Padres: Maximize Science Learning for Your Bilingual Students by Promoting a Learning Partnership with Their Parents

(Grades P–3) *W187b, McCormick Place*
Science Focus: INF

Bilexis Casado (bcasado@amnh.org) and **Kristen Olson** (kkolson@amnh.org), American Museum of Natural History, New York, N.Y.

Learn how to model a successful enrichment program for parents of English language learners and young students. Take home resources for science activities and guidance on how to promote science literacy for ELL students. Raffle!

Developing a Creative Culture...

(Grades 1–12) *W187c, McCormick Place*
Science Focus: GEN, NGSS

Carolyn Hayes (caahayes@comcast.net), NSTA President-Elect, and Indiana University School of Medicine, Indianapolis Encouraging our students to think creatively by asking questions and pursuing varied strategies is a valuable component of learning science as a process. Participate in developing a creative culture in your classroom with sample lessons.

Quantifying Earth Systems for Strengthening Mathematics Skills

(Grades 6–12) *W192a, McCormick Place*
Science Focus: ESS2.A, ESS2.B, ESS2.C, CCC1, CCC3, CCC4, SEP2, SEP4, SEP5

Eric Pyle (pyleej@jmu.edu), James Madison University, Harrisonburg, VA

This session will share the classroom activities and professional development activities of an NSF-funded program that integrates Earth science and mathematics instruction in middle school and high school.

Flipped Class 101: A User's Manual

(General) *W196b, McCormick Place*
Science Focus: GEN, NGSS, INF

James Schreiner (@biologyteacher; jcschreiner@bbchs.org) and **Tony Swafford** (@Mr_T_Swafford; tswofford@bbchs.org), Bradley-Bourbonnais Community High School, Bradley, Ill.

Using our framework and software suggestions, you'll leave with the ability to begin flipping your classroom. We have more than four years of experience developing the flip model and can get you started.

Boat-building Design Challenge: A Collaborative STEM and PBL Unit for Math and Science Teachers

(Grades 6–12) *W196c, McCormick Place*
Science Focus: ETS1, ETS2.A, PS2.A, PS2.C, CCC2, CCC3, CCC4, CCC6, SEP

Chloe Ruffin (ruffin12@up.edu), and **Katie Sard** (katie.sard@lincoln.k12.or.us), Isaac Newton Magnet School, Newport, Ore.

Navigate new STEM learning in your classroom with a boat-building challenge involving the engineering design process. Connections to the NGSS and CCSS *Mathematics* shared. Handouts.

11:00 AM–12 Noon Hands-On Workshops

ASTE Session: Making Time for Science and Engineering in Early Childhood Classrooms

(Grades P–3) *Dusable A/B, Hyatt*
Science Focus: ETS

Amanda Gilbert (amanda.moser@rockets.utoledo.edu) and **Debra Bloomquist** (debra.bloomquist@rockets.utoledo.edu), The University of Toledo, Ohio

Learn how to thematically integrate the *Common Core State Standards*, in English language arts and mathematics into your science and engineering lessons by designing and testing your own water filtration systems!

“Making” Sense of Science Learning Through Community Science Workshops

(Grades K–12) *Grant Park D, Hyatt*
Science Focus: GEN, INF, SEP

Jerry Valadez (@samacademymaker; jdvscience@yahoo.com), SAM Academy, Sanger, Calif.

Learn how to design a classroom that fosters learning, creativity, innovation, and experimentation while effectively implementing the NGSS science and engineering practices through “making.”

Equal Access to Science: Universal Design and Students with Disabilities

(Grades 2–12) *Hyde Park B, Hyatt*
Science Focus: GEN

Rachel Zimmerman Brachman (rachel.zimmerman-brachman@jpl.nasa.gov), NASA Jet Propulsion Laboratory, Pasadena, CA

Full inclusion of students with disabilities in STEM involves both accommodation strategies for students and universal design of instruction that enhances learning for all students. We will present the use of academic accommodations and student self-advocacy skills to promote student success.

Keeping Your Head Above Water!

(Grades K–12) *Jackson Park B, Hyatt*
Science Focus: ESS2.C

Dannah (Dane) Schaffer (danesch2001@yahoo.com) and **Lloyd Barrow** (barrowl@missouri.edu), University of Missouri, Columbia

Wade into activities and formative and summative assessments that can enhance K–12 students’ understanding of the water cycle.

“I Have a Theory”—Teaching About the Nature of Scientific Theories

(Grades 6–12) *Jackson Park C, Hyatt*
Science Focus: ESS2, LS4, PS1, CCC2, SEP6, SEP7

Jennifer Stites (jmstites@cps.edu), John Hancock College Prep High School, Chicago, IL

William Reed (@WmGReed; wgreed@cps.edu), Gwendolyn Brooks College Preparatory Academy, Chicago, IL

Deepen your students’ understanding of scientific explanations and what constitutes “evidence” with activities and lessons that support classroom discourse about the nature of scientific theories.

Portable Affordable Simple STEM (PASS)

(Grades P–2) *Regency E, Hyatt*
Science Focus: ETS

Renee O’Leary, Holy Angels School, Newark, Del.

President: Marguerite Vavalla, DuPont, Wilmington, Del. PASS (K–2) provides teachers of early learners with developmentally appropriate, integrated materials to introduce STEM concepts using simple multisensory childhood/elementary explorations delivered in zippered plastic bags with take-home and multidisciplinary follow-up. Walk away with sample lesson plans and material bags in English and Spanish.



NSTA Press® Session: Picture-Perfect Science Lessons: Using Children’s Books to Guide Inquiry, K–5

(Grades K–5) *S401a, McCormick Place*
Science Focus: GEN, NGSS

Emily Morgan (@EmilyMorganNTYS; emily@pictureperfectscience.com) and **Karen Ansberry** (karen@pictureperfectscience.com), Picture-Perfect Science, West Chester, Ohio

Join NSTA Press authors Emily Morgan and Karen Ansberry as they share how to use science-related picture books to integrate science and reading.

A Head Is a Terrible Thing to Waste: Using Hominid Skulls to Teach Evolution

(Grades 9–12) *S402b, McCormick Place*
Science Focus: LS, SEP

Melanie Hester, Florida State University Schools, Tallahassee
Collect data from skulls in order to investigate the evolutionary relationships among several hominid species both, extinct and extant. This lab exploration uses the argument-driven inquiry curriculum approach. Plenty of hands-on experiences and handouts.

Inquiry-based Instruction Using Astrobiology Across the Curriculum

(Grades 6–12) *S404a, McCormick Place*
Science Focus: ESS, ETS, LS, PS

Caitlin Ullock (*cullock@frontier.com*), Pittsford Mendon High School, Pittsford, N.Y.

Paul Dorney (*pdorney@yahoo.com*), The Chicago High School for the Arts, Chicago, Ill.

Reignite your students' imagination and curiosity by complementing your current curriculum with a set of astrobiology labs and activities.

Enhancing Visual-Spatial Ability Through Chemistry—From Physical Models to Apps

(Grades 9–12) *S501bc, McCormick Place*
Science Focus: LS1.A, PS1.A, CCC3, CCC4, SEP2

Jose Ricardo Almeida (*@colband; almeidaj@colband.com.br*), **Franco Ramunno** (*@colband; franco.ramunno@colband.com.br*), **Cristiana Mattos Assumpção** (*@crismattos; cmattos@colband.com.br*), and **Mariana Peão Lorenzin** (*mariana.lorenzin@colband.com.br*), Colégio Bandeirantes, São Paulo, Brazil

Engage in activities involving construction of physical models and use of molecular geometry apps that help develop visual-spatial ability—associated with the ability to mentally manipulate three-dimensional objects.

Sounds Like Fun: Ideas for the Science of Sound

(Grades 1–5) *S502a, McCormick Place*
Science Focus: PS

Katrina Brown (*kwb@pitt.edu*), University of Pittsburgh at Greensburg, Pa.

Investigate longitudinal waves, frequency, and wavelength using easy and fun activities. We will use a large volume of inexpensive supplies to explore various aspects of sound.

Designing Bridges and Hand Pollinators—What's the Connection?

(Grades 1–3) *S502b, McCormick Place*
Science Focus: ETS, CCC, SEP

Gretchen Brinza, STEM Magnet Academy, Chicago, Ill. What do bridges and hand pollinators have in common? Join us and design these technologies—understanding how structure and function are pivotal to their success.

Coaching Reluctant Elementary Teachers in to STEM Challenges

(Grades 1–4) *S503a, McCormick Place*
Science Focus: ETS, SEP

Jude Kesl (*@kesljude; judekesl@gmail.com*), K–8 Science Teaching Specialist, Milwaukee, Wis.

Explore math and science concepts with paper-copters (also known as rotor copters and whirligigs) and seeds using simple and easily accessible materials. We will also incorporate iPad and smartphone technology to help capture and analyze information that is difficult to see in real time.

Talking Like Scientists: Strategies in Action

(Grades 1–5) *S503b, McCormick Place*
Science Focus: GEN, SEP6, SEP7, SEP8

Elizabeth Edmondson (*ewedmondson@ycu.edu*) and **Suzanne Kirk** (*svkirk@ycu.edu*), Virginia Commonwealth University, Richmond

Are you using discourse/talk strategies effectively? Communicate science thinking using practiced talk steps. Engage with us in an interactive session using children's nonfiction literature.

Assessing Student Learning in Science Through Arts Integration

(Grades K–6) *S504a, McCormick Place*
Science Focus: GEN

Patti Allen, David Edwards Elementary School, Ames, Iowa
Sara Nelson, Iowa State University, Ames

Learn how a grade 3 science classroom used arts to assess student learning. Join us for an active approach that can easily be applied in your classroom!



NESTA Session: NESTA Climate, Ocean, and Atmosphere Share-a-Thon

(Grades 1–12) Skyline W375e, McCormick Place
Science Focus: ESS

Roberta Johnson Killeen (rmjohnsn@nestanet.org), National Earth Science Teachers Association, Boulder, Colo.

Margaret Holzer (mholzer@monmouth.com), Chatham High School, Chatham, N.J.

Michael Passow (michael@earth2class.org), Dwight Morrow High School, Englewood, N.J.

Carla McAuliffe (carla_mcauliffe@terc.edu), TERC, Cambridge, Mass.

Ginger Butcher (ginger.butcher-1@nasa.gov), NASA Goddard Space Flight Center, Greenbelt, Md.

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

Todd Ellis (todd.ellis@oneonta.edu), SUNY Oneonta, N.Y.

Peter Falcon (pcfalcon@jpl.nasa.gov), NASA Jet Propulsion Laboratory, Pasadena, Calif.

Kevin Goff (kdgoff@vims.edu), Virginia Institute of Marine Science, Gloucester Point

Patrick McQuillan (mcquillan@iris.edu), IRIS, Washington, D.C.

Deb Morrison (educator.deb@gmail.com), TREE Educational Services, Boulder, Colo.

Jennifer Palmer (education@earthvisioninstitute.org), Earth Vision Institute, Boulder, Colo.

Deanna TeBockhorst (deanna@atmos.colostate.edu), Colorado State University, Fort Collins

Join more than 20 NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

NGSS@NSTA **NGSS@NSTA Forum Session: Developing and Evaluating Three-Dimensional Curriculum Materials**

(Grades 1–12) W183a/b, McCormick Place
Science Focus: GEN, NGSS

Joseph Krajcik, CREATE for STEM Institute, Michigan State University, East Lansing

Part of a six-session series known as the NGSS@NSTA Forum, this presentation will provide insight from national experts on implementation of the *Next Generation Science Standards* (NGSS). In addition, the forum will offer guidance on how teachers everywhere can improve student learning using the methods described in the *Framework for K–12 Science Education*.



Eco-Structure and Function: Analyzing River Health with Engineering Practices in Problem-based Situation

(Grades 6–12) W186c, McCormick Place
Science Focus: ESS, SEP6, SEP8

Elana Jacobs (ejacobs7@gmail.com), Illinois Institute of Technology, Chicago

By analyzing river health, students make NGSS-based connections to environmental science and engineering practices through field investigations and writing activities. Take home lesson plans and activities.



Sound and Waves: An Integrated K–8 Hands-On Approach Supporting the NGSS and CCSS

(Grades K–8) W190b, McCormick Place
Science Focus: PS

Chih-Che Tai (cctai59@gmail.com), and **Karin Keith** (keithkj@etsu.edu), East Tennessee State University, Johnson City

Wade into the topic of sound and waves with progressive STEM activities that integrate math, reading, and science.

CESI Session: Butterfly Gardening Using Native Plants

(Grades K–12) W192c, McCormick Place
Science Focus: LS

Nancy Sale (butterflybonanza@yahoo.com), Lillie C. Evans K–8 Center, Miami, Fla.

Butterfly Bonanza provides a roadmap to success for implementing a native butterfly habitat. Take home a starter kit that will enable you to immediately set up a habitat at your school. Door prizes and a DVD shared.

Have Tablet, We'll Blend!

(General) W196a, McCormick Place
Science Focus: GEN, SEP1, SEP4, SEP6, SEP7, SEP8

Keith Palz (@STEMInSchools) Distinctive Schools, Chicago, Ill.

We'll cover the basics of hybrid classroom design, applications for large/small group instruction, and how to get the tablet in the students' hands.

11:00 AM–12 Noon Exhibitor Workshops

Adapting Traditional Biology Labs to Sensor Technology

(Grades 9–12) *W179b, McCormick Place*
 Science Focus: LS1.C, LS2.B, CCC5

Sponsor: PASCO scientific

Jason Lee (*jlee@ega.edu*), East Georgia State College, Statesboro

Conduct hands-on inquiry investigations on enzyme activity and cellular respiration using PASCO sensors and SPARKvue software. See how sensors can transform tedious qualitative labs into short data-driven learning experiences for standards-based labs for grades 9–12 general, AP, and IB courses. One attendee will win a CO₂ sensor!

Engineering in the NGSS—Grades 9–12

(Grades 9–12) *W194b, McCormick Place*

Sponsor: It's About Time

Science Focus: ETS, SEP)

Cary Sneider, Portland State University, Portland, Ore.

The NGSS breaks from previous documents by including science and engineering practices. This workshop, led by NGSS lead author Cary Sneider, will illustrate how an innovative project-based high school curriculum—Engineering the Future: Science, Technology, and the Design Process—can help students develop their abilities to argue from evidence and learn core ideas about energy through engaging hands-on activities that can help you create your NGSS/STEM classroom.

NSTA District Director and Chapter/Associated Group Social

– sponsored by **GEICO**

In honor of Wendell Mohling, enjoy complimentary refreshments while meeting and networking with colleagues and representatives from all of NSTA's 18 districts. Learn more about events, initiatives, and happenings in your district, directly from your representatives, in an informal setting. The GEICO Gecko may even make an appearance!

Friday, March 13

1:30–2:30 PM

McCormick Place West
 (Located near the First-Timer/
 Student/New Teacher Lounge)



NSTA National
 Science
 Teachers
 Association

11:00 AM–12:30 PM Presentation

Special Pathway Session: Formative Assessment: Lessons Learned

(Grades 3–6)

W175c, McCormick Place

Science Focus: GEN

Kathy Long (klong@berkeley.edu) and **Diana Velez** (dvelez@berkeley.edu), The Lawrence Hall of Science, University of California, Berkeley

Christopher Soldat (csoldat@gwaea.org), Grant Wood Area Education Agency, Cedar Rapids, Iowa

Jeanne Bancroft (jnn.bancroft@gmail.com), Creative Connections, Coralville, Iowa

Erica Larson (erica.larson@act.org), ACT INC, Iowa City, Iowa

Helen Weber, Science Education Consultant, Trenton, N.J.

Arthur Camins (@arthurcamins; arthurcamins@gmail.com), Stevens Institute of Technology, Hoboken, N.J.

Join a panel of experienced teachers and professional developers to discuss the challenges and benefits of implementing formative assessment. We'll discuss strategies for keeping it simple but effective, share ways to increase frequency, and provide examples of next steps that can help students move forward.



11:30 AM–12 Noon Presentations

Use Social Media to Create a Shared Science Experience: A Social Science Club Example

(Grades 6–College)

Adler A/B, Hyatt

Science Focus: ETS, INF, SEP

Ariel Zych (@Arielquent; azych@sciencefriday.com), Science Friday Initiative, New York, N.Y.

Discover how to plan an informal science education experience for any audience, anywhere, using social media. *Science Friday's* education manager talks tips and tricks!

Using WorldWide Telescope to Bring Astronomical Data into the Classroom

(Grades 10–College)

Grant Park A, Hyatt

Science Focus: ESS1.A, SEP2, SEP4, SEP5, SEP7, SEP8

Matthew Rickert, Northwestern University, Evanston, Ill.

Pan around outer space with your students via the WorldWide Telescope. WWT brings the planetarium experience to a computer screen, and contains a variety of astronomical data that can be used in the classroom. Come learn how to use WWT to collect brightness measurements for stars.

Local Parks as Partners: Outdoor Science in Your Community

(Grades K–12)

S403a, McCormick Place

Science Focus: INF, ESS3.A, LS2.A, INF, SEP

Jessica Culverhouse (jculverhouse@nrpa.org), National Recreation and Park Association, Ashburn, Va.

Parks often serve as outdoor labs where students investigate the natural world. Join us as we outline three unique examples of successful park-school partnerships that have led to increased student engagement and achievement in the science classroom.

The Power of Computational Modeling and Simulation in the Biology Classroom

(Grades 7–College)

W176b, McCormick Place

Katahdin Cook Whitt (kate.cook@wright.edu), Dayton Regional STEM School, Kettering, Ohio

Howard Knodle (@hknodle; hknodle@maine207.org), Maine South High School, Park Ridge, Ill.

SunAh Lee (slee@maine207.org) and **Karen Wolfe** (kwolfe@maine207.org), Maine East High School, Park Ridge, Ill.

Science Focus: LS2, CCC1, CCC2, CCC4, CCC5, CCC7, SEP1, SEP2, SEP3, SEP4, SEP5, SEP7, SEP8

Discover the power of computational modeling and simulations in helping students construct deep understandings of population ecology and evolutionary change.

11:30 AM–12:30 PM Exhibitor Workshop
Chelcie’s Story: STEM Careers and the Science Classroom

(Grades 6–College) *W193b, McCormick Place*
 Science Focus: GEN, INF, NGSS

Sponsor: Texas Instruments

Presenter to be announced

Come learn about Chelcie’s story with a lesson dedicated to the understanding of STEM careers in a medical setting through the story of a young lady diagnosed with type 1 diabetes. Created by Texas Instruments and Sanford Health, this interactive lesson on the mechanism, treatment, and diagnosis of type 1 diabetes is appropriate for middle school and high school.

12 Noon–1:00 PM Meeting
Illinois Science Teachers Association Annual Meeting

Regency A, Hyatt

Visit www.ista-il.org for more information.

12 Noon–1:30 PM Exhibitor Workshops

Cool! Can We Do That Again?!

(Grades 2–9) *W178a, McCormick Place*
 Science Focus: PS1.A, PS1.B, PS4.A

Sponsor: Educational Innovations, Inc.

Jeffrey Feidler, Consultant, Wilmington, Del.

Tired of hearing “Do we have to do that” from your students? Come check out some of the coolest activities involving color, light, and mirrors. Your students will be asking if they can do that again! Door prizes, freebies, and fun!

New Tools, New Insights, and New Ways of Understanding Science with Miller and Levine *Biology*

(Grades 9–12) *W179a, McCormick Place*

Science Focus: GEN, NGSS

Sponsor: Pearson

Kenneth Miller, Brown University, Providence, R.I.

Joseph Levine, Author, Boston, Mass.

What does the NGSS mean, really? Best-selling *Biology* authors Ken Miller and Joe Levine will walk you through the tools and insights in their new program that supports the NGSS. (Hint: You’re already doing it. It’s about good teaching).

Flinn Favorite Biology Lab Activities and Games

(Grades 6–12) *W180, McCormick Place*

Science Focus: LS

Sponsor: Flinn Scientific, Inc.

Jennifer Von Schnase (jvon@flinnsci.com) and **Meg Griffith** (mgriffith@flinnsci.com), Flinn Scientific, Inc., Batavia, Ill.

Actively involve your students in hands-on activities that are not only fun, but also create learning opportunities. We’ll

share some inquiry-based labs, interactive demonstrations, and collaborative games to motivate your students. We’ll focus on core topics like cell biology, genetics, and ecology—you’re sure to find a Flinn Favorite that works for you! Handouts for all activities.

Introduction to Wisconsin Fast Plants®

(Grades K–12) *W181a, McCormick Place*

Science Focus: LS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Experience the versatility of Wisconsin Fast Plants. These small, quick-growing plants are ideal classroom tools for all learning levels. Learn basics for successful planting, flower dissections, and pollination. Integrate plant development, life cycle, environmental effects, genetics, and evolution into your class with these amazing plants. Door prizes.

Science Notebooks to Address the NGSS and CCSS

(Grades K–5) *W181b, McCormick Place*

Science Focus: GEN, CCC

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Engage in innovative ideas for teaching with science notebooks. Experience the power of inquiry-based instruction and the *Common Core State Standards*. Learn about these essential CCSS components: essential questioning, writing, speaking, vocabulary, and listening through science notebooking.

They Come in Pairs: Using Socks to Identify and Address Student Misconceptions About Chromosomes

(Grades 9–College) *W181c, McCormick Place*

Science Focus: LS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Understanding the stages of meiosis and clarifying chromosome behavior has always been a challenge. What if those concepts were as easy to understand as folding laundry? This workshop will help you identify and address student misconceptions using ChromoSocks. Presented in partnership with HudsonAlpha. Door prizes provided.

Domestication: Plant and Animal Evolution in a Human World

(Grades 9–College) *W183c, McCormick Place*

Science Focus: LS1, LS3, LS4, CCC1, CCC2, CCC6, SEP2, SEP4

Sponsor: HHMI BioInteractive

Jennifer Barnes, Woodstock High School, Woodstock, Ga.

Bob Kuhn, Centennial High School, Roswell, Ga.

Laura Helft, HHMI BioInteractive, Chevy Chase, Md.

Explore a new short film about the domestication of corn from its wild relative teosinte. Then, delve into the genetics of dog traits using SNP data from genome wide association studies (GWAS). Take home free media and classroom-ready resources. Explore free resources from HHMI's *BioInteractive.org*.

Genetics: Crazy Traits and CPO's Link™ Learning Module

(Grades 6–12) *W184bc, McCormick Place*

Science Focus: LS

Sponsor: CPO Science/School Specialty Science

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

CPO's new Crazy Traits Link learning module uses STEM- and NGSS-based strategies in a real-time tablet-based learning environment to learn genetics. Concepts like traits, alleles, phenotypes, genotypes, and heredity will come alive as you create crazy creatures with a unique kit, and study probability, dominance, and recession.

Crosscutting Concepts: What Do They Look Like in a FOSS Elementary Classroom?

(Grades 1–5) *W184d, McCormick Place*

Science Focus: GEN, CCC

Sponsor: Delta Education/School Specialty Science–FOSS

Brian T. Campbell, The Lawrence Hall of Science, University of California, Berkeley

FOSS modules provide students with opportunities to uti-

lize crosscutting concepts to deepen their understanding of science content. Engage in experiences exposing cause and effect, patterns, and structure and function. We'll share different ways for students to progress in their understanding of crosscutting concepts.

Water Quality with Vernier

(Grades 7–College) *W185a, McCormick Place*

Sponsor: Vernier Software & Technology

Science Focus: ESS, SEP3, SEP4

Colleen McDaniel (*info@vernier.com*), Vernier Software & Technology, Beaverton, Ore.

Learn how to use sensors and LabQuest 2, with its Data Matrix Mode and built-in GPS, to study water quality in the field. Try the Optical DO Probe, designed to make dissolved oxygen measurements easy! See how to map your data on Google Maps using Logger *Pro* software.

Advanced Physics with Vernier

(Grades 9–College) *W185d, McCormick Place*

Science Focus: ETS1.A, ETS1.B, PS, SEP3, SEP4, SEP5

Sponsor: Vernier Software & Technology

Fran Poody (*info@vernier.com*), Vernier Software & Technology, Beaverton, Ore.

Already experienced using Vernier's basic physics sensors? This hands-on workshop will introduce additional Vernier sensors and lab equipment that can enhance your AP, IB, or college physics laboratory in mechanics and beyond. Plus, you will learn to employ advanced data-analysis techniques to explore quantitative relationships.

Diagnosing the Flu

(Grades 8–College) *W186a, McCormick Place*

Science Focus: LS, INF

Sponsor: Edvotek, Inc.

Brian Ell (*info@edvotek.com*) and **Maria Dayton** (*info@edvotek.com*), Edvotek Inc., Washington, D.C.

The yearly seasonal flu epidemic is caused by the Influenza virus. As a general rule, flu symptoms are enough to warrant its diagnosis during flu season. However, further testing may be necessary to rule out serious conditions like pneumonia. In this simulation, two common tests (ELISA, RT-PCR) are performed to diagnose the flu in a clinical setting.

Multiple Subjects, One Platform: Tackle STEM Learning with LEGO® Education WeDo!

(Grades 1–5)

W186b, McCormick Place

Science Focus: ETS

Sponsor: LEGO Education

Laura Jackson, Retired Teacher/LEGO Education Trainer, Greenwood, Mo.

Cindy Howard, Retired Teacher/LEGO Education Trainer, Kansas City, Mo.

Discover how elementary students can practice STEM learning through digital technology! LEGO Education WeDo consists of LEGO bricks, a simple age-appropriate software, and a variety of activity packs correlated to the CCSS. Experience how to create engaging, cross-curricular lessons that develop 21st-century skills while inspiring students to become lifelong learners.

STEM on Wheels: Rubber Band Racer Engineering

(Grades 4–12)

W192b, McCormick Place

Science Focus: ETS, PS

Sponsor: Ward's Science

Lea Benedict, VWR Education, Rochester, N.Y.

Put the fun back in physical science and experience the “E” in STEM with engineering from TeacherGeek! In this make-and-take workshop, you’ll design, build, and test rubber band racers—and experience engaging hands-on lessons that can be used in your classroom to teach physics concepts.

Genes, Genomes, and the New World of Personalized Medicine

(Grades 9–College)

W193a, McCormick Place

Science Focus: LS1.A, LS1.D, LS3.A, LS3.B, CCC1, CCC2, CCC3, CCC4, CCC5, CCC6, CCC7, SEP1, SEP2, SEP6

Sponsor: MSOE Center for BioMolecular Modeling

Diane Munzenmaier (munzenmaier@msoe.edu), MSOE Center for BioMolecular Modeling, Milwaukee, WI

Introduce students to the new science of genomics and personalized medicine with interactive tools such as the DNA Discovery Kit, new Flow of Genetic Information Kit, and gene maps. We will tell a “genomic story” of how whole genome sequencing has been used to reach a molecular diagnosis of a disease.

Experience Amplify Science: Immerse Students into the World of Scientists and Engineers with the Newest Curriculum from The Lawrence Hall of Science

(Grades 6–8)

W194a, McCormick Place

Science Focus: ETS

Sponsor: Amplify

Traci Wierman (@seedsroots; twierman@berkeley.edu) and **Rebecca Abbott** (@seedsroots; rebabbott@berkeley.edu), The Lawrence Hall of Science, University of California, Berkeley

Experience how you can engage students in rich argumentation involving hands-on investigations, immersive digital simulations, engaging text and media, and unique engineering internships. Join us to learn how this complete program—created in collaboration by The Lawrence Hall of Science and Amplify—provides comprehensive instruction for both CCSS ELA and the NGSS.

Calling All Carbons

(Grades 9–12)

W195, McCormick Place

Science Focus: ESS2.D

Sponsor: LAB-AIDS®, Inc.

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

The element of carbon is critical to life on Earth. All living organisms contain different and essential carbon-based molecules. Several Earth processes work together to cycle carbon from one carbon reservoir to another and to keep the amount in each reservoir stable. Join us to learn about and model different carbon transfer processes.

The Value of Inquiry and Scientific Explanations

(General)

W470a, McCormick Place

Science Focus: GEN, SEP

Sponsor: Accelerate Learning

Heather Wilde, Accelerate Learning, Houston, Tex.

By analyzing evidence to make a claim statement and using scientific reasoning to explain how the claim is connected, we learn more about the phenomenon. Engagement with real-world science followed by discourse about how observations support scientific explanations provides insight into the need for inquiry in making science meaningful.

Plotly: Graphing, Statistics, and Data Analysis for the Modern Science Classroom

(Grades 7–College)

W470b, McCormick Place

Science Focus: GEN, SEP4

Sponsor: Plotly

Matthew Sundquist (matt@plot.ly), Plotly, San Francisco, Calif.

Plotly is a platform for scientific graphing and data analysis used by researchers and thousands of educators. Learn how to make box plots, histograms, scatter plots, and add error bars and fits to your graphs with examples from physics, biology, and chemistry. Compatible with Google Drive, Dropbox, and Chromebooks, Plotly is entirely online and free for public use.

How Do Scientists Think?

(Grades 4–12)

W471a, McCormick Place

Science Focus: GEN, NGSS

Sponsor: Perimeter Institute

Kelly Foyle and **Kevin Donkers**, Perimeter Institute for Theoretical Physics, Waterloo, Ont., Canada

Science has revolutionized our world, changing the way we live and perceive ourselves. What is so special about the way scientists think? In this workshop, we will explore the process of science through a models-based perspective when tackling problems. Give your students a taste of what being a scientist is about.



STEM—Discover, Collaborate, Innovate

(Grades K–11)

W471b, McCormick Place

Science Focus: GEN

Sponsor: Discovery Education

Patti Duncan (educationpartnerships@discovery.com), Discovery Education, Silver Spring, Md.

In a STEM learning environment, we want students to ask deep real-world questions, collaborate with their peers, arrive at meaningful conclusions, and explore STEM careers. Join us to learn about a variety of digital resources and professional development strategies that help make this possible.

It's Elementary—Light and Optics for Kids

(Grades K–10)

W475a, McCormick Place

Science Focus: PS, INF

Sponsor: SPIE, the international society for optics and photonics

Colette DeHarpporte (colette@laserclassroom.com), LASER Classroom™, Minneapolis, Minn.

With a simple, yet powerful kit, you can introduce light and optics to kids ages 5 to 16. Engage and excite young scientists with 10 fun activities that lay the foundation for understanding the fundamentals of light and optics: reflection, refraction, color, shadows, and more.

Smoking and Lung Cancer Microarray

(Grades 9–College)

W476, McCormick Place

Science Focus: LS1.A, LS3.B, SEP3, SEP4

Sponsor: FOTODYNE Incorporated

Theresa Dlugi (t.dlugi@fotodyne.com), FOTODYNE Incorporated, Hartland, Wis.

Sophisticated biotechnology experiments can be affordable! This popular kit was designed for you by a high school teacher. It allows your students to connect the phenotype of lung cancer to the genotype. Gene expression in smokers, nonsmokers, and former smokers will be compared using a DNA microarray. Only minimal equipment needed!

12 Noon–2:00 PM NSELA/ASTE Luncheon What Will It Take to Bring “Lasting Change” to STEM Education?

(By Ticket Through NSELA; \$25)

Regency B, Hyatt

Science Focus: GEN



Jeanne Century (@jcentury; @outlierchicago), Director, Outlier Research & Evaluation, CEMSE, The University of Chicago, Ill.

NSELA and ASTE announce a new venture in recognizing the host schools during the NSTA national conference. Join us to hear Jeanne Century discuss the contexts and conditions that research tells us contribute to and inhibit change in our education systems. She will share considerations for differences between how we define and enact change efforts now and how we might do so moving forward so that reforms have a better chance to endure and, in turn, have an impact on students.

During her 25-year career, Jeanne Century has developed science instructional materials for the elementary and middle school levels and has provided professional development, technical assistance, and strategic planning for teachers as well as administrators for schools, districts, and states. Her research has focused on the impact of inquiry science instruction, strategies for improving utilization of research and evaluation, sustainability of reform efforts, measurement of intervention fidelity and innovation implementation, STEM schools, and computer science education.

During her 25-year career, Jeanne Century has developed science instructional materials for the elementary and middle school levels and has provided professional development, technical assistance, and strategic planning for teachers as well as administrators for schools, districts, and states. Her research has focused on the impact of inquiry science instruction, strategies for improving utilization of research and evaluation, sustainability of reform efforts, measurement of intervention fidelity and innovation implementation, STEM schools, and computer science education.

Jeanne is currently the director of Outlier Research and Evaluation at the University of Chicago’s Center for Elementary Mathematics and Science Education (CEMSE). Prior to coming to the University of Chicago in 2005, she was a senior researcher at Education Development Center (EDC) in Waltham, Massachusetts.

Tickets were available for purchase through NSELA until March 6.

12:30–1:00 PM Presentations Claims, Evidence, Reasoning, and Modeling, Oh My! Student Shifts in Classroom Discourse

(Grades 5–12)

Adler A/B, Hyatt

Science Focus: GEN, SEP2, SEP7, SEP8

Jesse Byers, Franklin Central Supervisory Union, Saint Albans, Vt.

Deb Morrison (@educatordeb; educator.deb@gmail.com), TREE Educational Services, Boulder, Colo.

Christie Barchenger (cbarchen@uw.edu), University of Washington, Seattle

Explore the shifts in science classroom discourse around students’ use of claims, evidence, and reasoning during intentional modeling instruction.

Building an Inquiry-based Classroom

(Grades K–12)

Dusable A/B, Hyatt

Science Focus: GEN, SEP

Lora Wellman, Owensboro Middle School, Owensboro, Ky.

Join us as we explore the struggles and successes encountered in the classroom when shifting to a teaching philosophy that focuses on inquiry-based instruction.

Informational Literacy: Using Trade Books Instead of Textbooks to Teach Science

(Grades 6–12)

Dusable C, Hyatt

Science Focus: GEN, SEP1, SEP8

Matthew Vick (vickm@uww.edu), University of Wisconsin–Whitewater

Learn reading strategies to help students comprehend, analyze, and synthesize knowledge about science topics that may not be easily adapted to hands-on investigations.

Meet Me in the Middle Session: Tearing Down the Wall: How to Build Better Partnerships with Your Administrator

(Grades 6–8)

S404bc, McCormick Place

Science Focus: GEN

Zoe Evans, Central Middle School, Carrollton, Ga.

Join a former science teacher and current school administrator as she explains the view from the “dark side.” Learn how to build better relationships with your administrator for student success.



Meet Me in the Middle Session: Science Formative Assessment: What Do Middle School Students Really Think?

(Grades 6–8)

S404d, McCormick Place

Science Focus: GEN

Joyce Tugel (jtugel@gmail.com), Maine Mathematics and Science Alliance, Augusta

Find out how a variety of formative assessment techniques can be used to promote intellectual engagement and uncover middle school students' ideas and ways of reasoning.

Meet Me in the Middle Session: What the NGSS Mean to a Middle Level Teacher: Thoughts From a Member of the Writing Team

(Grades 5–8)

S405a, McCormick Place

Science Focus: GEN, NGSS

Kenneth Huff (kenneth.huff@roadrunner.com), Williamsville (N.Y.) Central School District

Engage in a conversation about the development of the *Next Generation Science Standards* and how they impact a middle level classroom.

Meet Me in the Middle Session: Data Literacy in the Middle School Years

(Grades 6–9)

S405b, McCormick Place

Science Focus: GEN, CCC1, SEP4, SEP5, SEP6, SEP7

Michael Bowen (gmbowen@yahoo.com), Mount Saint Vincent University, Halifax, N.S., Canada

Tony Bartley (abartley@lakeheadu.ca), Lakehead University, Thunder Bay, Ont., Canada

Making sense of data starts in middle school when lab

investigations begin. We will present ideas and practices about data organization and interpretation appropriate for middle school.

Science Notebooking: The REAL Deal!

(Grades P–4)

S504d, McCormick Place

Science Focus: GEN

Anne Durrance (anne.durrance@gmail.com), Rapoport Academy Elementary School–North Campus, Waco, Tex.

Teach organizational skills, writing skills, journaling, and science—all wrapped up in one notebook! Young students can benefit from these vital skills while enjoying science lessons. In addition, students develop a real sense of ownership in their work.

Nutritional Biochemistry: A Fun High School Science Elective for College-bound Seniors

(Grade 12)

W187c, McCormick Place

Science Focus: ETS2

Emily Dorsey (@emilydorsey; emilydorsey@foresthills.edu), Anderson High School, Cincinnati, Ohio

Serve up new learning with this fun science course that incorporates many areas of science, the food industry, health issues, and—of course—cooking!

12:30–1:30 PM SCST Marjorie Gardner Lecture Strategies for Incorporating Research into the Undergraduate Curriculum

(Grades 10–College)
Science Focus: PS

Clark C, Hyatt



Michael Jackson (jacksonm@cwu.edu), Professor of Physics, Central Washington University, Ellensburg

Within the physics community, engaging undergraduates in research is an element found in many thriving undergraduate physics programs, as outlined in the Strategic Programs for Innovations in Undergraduate

Physics (SPIN-UP) report. A challenge, however, is how to provide meaningful faculty-mentored research experiences to all undergraduates. This talk will address some strategies available to guide faculty in mentoring undergraduates in research and in assessing their performance. While the examples discussed have been used in physics, they can be applied across many disciplinary areas.

Michael Jackson is a professor of physics at Central Washington University (CWU). His ongoing scientific research is on the discovery and measurement of laser radiation in the terahertz region, with applications in molecular spectroscopy. In carrying out these investigations, he has consistently and productively engaged undergraduates in this research and mentored them as partners in the scientific process. One significant measure of this is that undergraduates have served as co-authors on about 80% of the peer-reviewed manuscripts he has published as a faculty member. His research has been continuously funded by several agencies and organizations, including the National Science Foundation and NASA's Space Grant Consortium, for nearly 15 years.

As chairperson of the physics department, Michael revamped the introductory physics sequence as well as addressed unmet student and department needs to incorporate meaningful research experiences for undergraduates, which has spurred growth in the number of physics majors.

12:30–1:30 PM Presentations

NARST Session: Teaching Global Climate Change and Assessing Student Understanding

(Grades 10–12)

Burnham C, Hyatt

Science Focus: ESS

Devarati Bhattacharya (devarati@umn.edu), STEM Education Center, St. Paul, Minn.

Review findings from CYCLES, a three-year professional development program focused on promoting understanding about global climate change in native populations in Northern Minnesota. We will share lesson ideas and ideas for assessment.

What Do They Think? Engaging and Assessing Through the Use of Visual Media

(General)

Clark A/B, Hyatt

Science Focus: GEN, INF

Bruce Jones, Mesa (Ariz.) Public Schools

Vicki Massey (vickimassey@cox.net), NSTA Director, District XIV, Mesa, AZ

Grab your students' attention and find out what they are thinking by using cartoons, engaging visuals, and short videos. Take home a list of resources.

Impact of a PCB Sequence on Student Outcomes: Reports from Two High Schools

(Grades 9–12)

Erie, Hyatt

Science Focus: LS, PS

Julie Gaubatz (jgaubatz@hinsdale86.org), Hinsdale Township High School District 86, Darien, IL

Sophia Liarakos (sophia.liarakos@chsd117.org), Lakes Community High School, Lake Villa, IL

Hear from two department chairs from two different districts as they describe their transition to a Physics-Chemistry-Biology (PCB) sequence and its remarkable impact on student achievement.

Building, Evaluating, and Applying Systems Models

(Grades 9–College)

Grant Park A, Hyatt

Science Focus: SS2.A, ESS3.A, ESS3.C, ESS3.D, ETS2, LS1.A, LS1.B, LS1.D, LS2, CCC, SEP

Claudia Ludwig (@SystemsEd; cludwig@systemsbiology.org), Institute for Systems Biology, Seattle, Wash.

Dexter Chapin (dchapin@seattleacademy.org), Seattle Academy of Arts and Sciences, Seattle, Wash.

Explore an NSF-developed curriculum combining STEM to teach students how systems models are developed, evaluated, and applied to understand cancer and the environment.

“Making the Shift” from Teacher-centered to Learner-centered Instruction

(Grades P–12)

Grant Park B, Hyatt

Brian Grublesky (bgrublesky@imsa.edu) and **Robyn Lee-Diaz** (rldiaz@imsa.edu), Illinois Mathematics and Science Academy, Aurora

Science Focus: GEN, SEP

Explore shifting instruction to become more learner centered and less teacher centered. Attention will be paid to investigating ideas and tools for shifting your own lessons and/or unit plans.

My Life with Charles Darwin

(Grades 9–College)

Grant Park C, Hyatt

Science Focus: GEN, INF, SEP

Elizabeth Burck (lizburck@gmail.com), Polaris Educational Consulting, Kasilof, Alaska

Emma Darwin has a story to tell. Her unique perspective weaves together science and society—revealing a deeper understanding of her husband and his work.

What Teachers Need to Know About Stereotypes and Stereotype Threat in the Science Classroom

(General)

Hyde Park B, Hyatt

Science Focus: GEN

David Sparks (@ProfSparkplug; david.sparks@uta.edu), The University of Texas at Arlington

Students of color and females face stereotypes every day. Implications for the science classroom will be discussed as well as strategies for reducing stereotype threats.

Severe Weather (and Paradigm) Shifts: How the Climate Change Dialogue Has Changed Using Scientist Interviews

(Grades 8–College)

Jackson Park A, Hyatt

Science Focus: ESS2, CCC1, CCC7, SEP7, SEP8

Ariel Zych (@Arieloquent; azych@sciencefriday.com), Science Friday Initiative, New York, NY

Through listening to expert interviews from scientists over the last decade, students will literally hear a consensus shift with new scientific evidence. Leave with fact-checked lessons and free multimedia.

Becoming Teacher Leaders in a Turnaround School

(Grades 4–12)

Jackson Park D, Hyatt

Science Focus: GEN

Sandra Sullivan (sullivans401@aol.com) and **Sarah Chapin** (sarah_chapin@yahoo.com), Matthew J. Kuss Middle School, Fall River, Mass.

Join us to identify your leadership style, learn strategies to become a teacher leader at your school, and stay sane through it all.

AMSE Session: Opening the Gateway to Success Using Case Studies to Help Implement Scientific Concepts

(Grades 9–12)

Prairie A, Hyatt

Science Focus: GEN, NGSS

Chelia McCoo Dogan, Elsik High School, Houston, Tex. Gain a better understanding of the relevance and implementation of the NGSS by using case studies as a powerful tool to enhance scientific instruction with multicultural populations.

INF Zoo Genetics: A Partnership Between Scientist and Teacher

(Grades 6–12)

S402a, McCormick Place

Science Focus: LS, INF

Jason Crean (jcrean@lths.net), Lyons Township High School South, Western Springs, IL

Examine real-world conservation issues and how modern genetics helps to answer questions while simulating actual laboratory methods with this free curriculum. Zoo Genetics incorporates actual data from science research labs.

Teen Science Cafés: Exploring Real-World Science with Scientists

(Grades 6–College)

S403a, McCormick Place

Sean Herberts (herbertscience@gmail.com), Riverton Middle School, Riverton, Ill.

E. Howard Rutherford (@ehrutherford; hrutherford@usf.edu), University of South Florida College of Marine Science, St. Petersburg

Michelle Hall (hall@scieds.com), Science Education Solutions, Los Alamos, N.Mex.

Science Focus: GEN, INF

Hear how Teen Science Cafés Network, an NSF-funded community of practice, has developed a number of strategies for attracting and training scientists and engineers as presenters for diverse grades 6–12 audiences.

Connecting the Dots: Using Particles and Gas Laws to Scaffold Student Understanding of Weather

(Grades 6–12) S403b, McCormick Place

Science Focus: ESS2.D, PS1.A, CCC1, CCC2, SEP1, SEP2
Jesse Wilcox (jwilcox.23@gmail.com), Iowa State University, Polk City

Garrett Hall (@chemichall; hallgt@gmail.com), Southeast Polk High School, Pleasant Hill, Iowa

Hallie Edgerly (hallieedgerly@gmail.com), Adel-Desoto-Minburn Middle School, Adel, Iowa

Precipitate new learning about weather in your classroom—find out how to use the 5E learning cycle (Engage, Explore, Explain, Elaborate, and Evaluate) to scaffold students that is in line with the NGSS—from gas laws to deeply understanding weather concepts.

Using Authentic Performance Assessment to Structure Physics First Curriculum

(Grades 7–12) S501a, McCormick Place

Science Focus: PS, SEP

Lauren Coil-Sherck (lauren.coil@gmail.com), Culver Academies, Culver, Ind.

In order to engage students and better assess their understanding, we have redesigned our physics first course around four performance assessment “challenges.” We will share an overview of the curriculum, our design process, and an in-depth look at one unit’s activities and assessments.

Increasing Student Achievement in an Urban Science Classroom

(Grades 7–12) S501d, McCormick Place

Science Focus: GEN

Saniyyah Thomas (sanithomas@dallasisd.org), James Madison High School, Dallas, Tex.

Shane Woods (shane.woods@fwisd.org), Fort Worth (Tex.) ISD

Danielle Moore (danielle.moore@fwisd.org), Western Hills High School, Fort Worth, Tex.

Join us as we share methods and strategies proven to increase student achievement in science among socially and economically challenged students.

Dream Homes: Applying Concepts, Practices, and Core Ideas

(Grades 4–8)

S505b, McCormick Place

Science Focus: GEN, NGSS

Lynn Gatto (lynngatto@rochester.rr.com), University of Rochester, N.Y.

View photographs of student work and hear a detailed description of this authentic and highly motivating project. Take home a CD with detailed lesson plans.

Authors Needed: How to Publish Your Ideas in an NSTA Journal

(General)

W176b, McCormick Place

Science Focus: GEN

Ken Roberts (ken_r@nsta.org), Assistant Executive Director, Journals, NSTA, Arlington, Va.

Learn how to properly prepare and submit an article for publication in an NSTA journal. Discuss and critique your article ideas with the editors.

Magical Illusions and Scintillating Simulations for Science—It’s Showtime!

(Grades 3–College)

W185 b/c, McCormick Place

Science Focus: LS, PS, INF

Alan McCormack (amccorma@mail.sdsu.edu), 2010–2011 NSTA President, and San Diego State University, San Diego, Calif.

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



Nature, One Game at a Time: Eco Stewardship via Augmented Reality Games

(Grades 4–College)

W187a, McCormick Place

Science Focus: INF

Judy Perry (jperry@mit.edu), Massachusetts Institute of Technology, Cambridge

Location-based augmented reality games offer a novel approach to fostering environmental stewardship by deeply engaging informal learners with STEM content through active, authentic role-playing scenarios.



Low Tech to No Tech with High End Results

(Grades P–2)

W187b, McCormick Place

Science Focus: GEN, NGSS

Jaymee Herrington, Katy (Tex.) ISD

Come see how digital media and low-tech options yield high-end results while teaching NGSS to K–2 students.



Immediate Student Feedback Without Those Expensive Clickers

(Grades K–12) *W190b, McCormick Place*

Science Focus: GEN

Bob Abrams (@misterabrams; abrams_bob@hotmail.com), Rich East High School, Park Forest, Ill.

Presider: Malcolm Cheney (cheneymac@comcast.net), K–12 Science and Math Consultant, Windsor, Conn.

Perform assessments and get immediate feedback using mobile devices and web-based applications. Join me as I share multiple free methods. These methods can increase engagement, student confidence, and student achievement!

CESI Session: Integrating Art and STEM

(Grades P–5) *W192c, McCormick Place*

Science Focus: ETS2.B, INF

Lila Carrick (lilacarr@aol.com), New Jersey City University, Jersey City

View the artistic work of children ages 3–8 resulting from their studies of artists along with the integration of art and STEM.

Science 2.0: Putting Web 2.0 into the Science Classroom

(Grades 3–College) *W196b, McCormick Place*

Science Focus: ETS, SEP

Ben Smith (@edtechben; ben@edtechinnovators.com), Red Lion Area Senior High School, Red Lion, PA

Web 2.0 tools allow for students to create products online, all while focusing upon collaboration and creativity. Grouping and associating these products through “tagging” allows students to join the conversation with students of similar interests and ideas.

Engineer This! Getting Students to Design, Build, Test, and Modify

(Grades 6–12) *W196c, McCormick Place*

Science Focus: ESS, ETS, PS, CCC3, CCC4, CCC6, SEP

James Kedvesh (jkedvesh@dupage88.net), Willowbrook High School, Villa Park, IL

Engage students in the engineering design process through the use of these tested example lessons and projects.

12:30–1:30 PM Hands-On Workshops

Calling All Secondary Administrators, Coaches, and Teachers!

(Grades 6–12)

Burnham A/B, Hyatt

Science Focus: GEN, CCC

Carolyn Pistorius and **Rhonda Duvall** (rhonda.duvall@uah.edu), The University of Alabama in Huntsville

Let us show you what a NGSS-based hands-on, inquiry-based science lesson looks like when its incorporated with the *Common Core State Standards*, in English language arts and mathematics.

Lincoln Park Zoo’s Partners in Fieldwork: School Yard Citizen Science!

(Grades 7–College)

Hyde Park A, Hyatt

Science Focus: LS

James Doyiakos (doyiakos1@aol.com), Amundsen High School, Chicago, Ill.

Matthew Mulligan (mmulligan@lpzoo.org), Lincoln Park Zoo, Chicago, Ill.

Join us and learn how to measure local biodiversity using several citizen science projects developed by Lincoln Park Zoo, conducting bird and bat surveys is one of many examples. Free materials.

Professional Development for Administrators: NGSS and the 5E Model of Instruction

(Grades 1–12)

Jackson Park B, Hyatt

Science Focus: GEN, SEP

Rachel Shefner (rshefne@luc.edu), Loyola University Chicago, Ill.

Using classroom video, engage in activities illustrating how the 5E (Engage, Explore, Explain, Elaborate, and Evaluate) instructional model guides implementation of the NGSS science and engineering practices.

Bringing Literacy and Science Together (BLAST)

(Grades 3–5)

Regency E, Hyatt

Science Focus: GEN, NGSS

Renee O’Leary, Holy Angels School, Newark, Del.

Presider: Marguerite Vavalla, DuPont, Wilmington, Del. BLAST for Success at School and Home (for grades 3–5) uses hands-on explorations and “fractured fairy tales” as catalysts to introduce STEM concepts to early learners. Take home sample plans and materials with multisensory and integrated practices you can immediately use in your classroom. Lessons are in English and Spanish.

NSTA Press® Session: Project Based Learning—The Why and How

(Grades 11–College) *S401a, McCormick Place*

Science Focus: GEN, SEP

Norman LaFave (@nlafave0; nlafave0@yahoo.com), Northland Christian School, Houston, Tex.

Join us as we cover the motivations for and implementation of Project Based Learning in the classroom and its effects on student motivation. A demonstration of short-term and long-term projects included.

NGSS: Make Your Lessons 3-D

(Grades 1–5) *S401d, McCormick Place*

Science Focus: GEN, NGSS

Karen Ostlund (@karen_ostlund; klostlund@utexas.edu), 2012–2013 NSTA President, and The University of Texas at Austin

Experience model lessons designed to integrate the three dimensions in the NGSS: science and engineering practices, disciplinary core ideas, and crosscutting concepts.

Organelle of the Day

(Grades 7–12) *S402b, McCormick Place*

Science Focus: LS

Whitney Hagins, Massachusetts Biotechnology Education Foundation, Cambridge

Experience an innovative approach to teaching and learning about cell structure and function while using proper microscope technique. Digital cameras and iPads document student work.

Using Hand Samples, Geologic Maps, and Google Earth to Teach the Geology of Hawaiian Shield Volcanoes

(Grades 6–12) *S404a, McCormick Place*

Science Focus: ESS

Claire Sobolak and **Stephen Mattox** (mattox@gvsu.edu), Grand Valley State University, Allendale, Mich.

Explore a new integrated approach to teaching igneous petrology and volcanology of Hawaiian shield volcanoes using hand samples, Google Earth, and geologic maps.

Modeling Instruction: A Way of Teaching That Foregrounds NGSS Science and Engineering Practices

(Grades 7–12) *S501bc, McCormick Place*

Science Focus: PS, SEP

Colleen Megowan-Romanowicz (amtaexec@modelinginstruction.org), American Modeling Teachers Association, Sacramento, Calif.

Join us for a brief demonstration of the Modeling Method of Instruction in the context of the physical sciences and demonstrate how it incorporates each of the NGSS science and engineering practices. Attention will be paid to the types of structure that are inherent in the fundamental conceptual models that form the content core of the sciences.

Digging Deeper in Science for Grades 3–5 Teachers

(Grades 3–5) *S502a, McCormick Place*

Science Focus: PS

Stacey Shrewsbury (@slshrew; stacey.shrewsbury@heartland.edu), Challenger Learning Center at Heartland Community College, Normal, Ill.

Join us for an engaging hands-on exploration of the science behind the standards. Activities include experiments with magnets, waves, and gravitational forces. Leave with take-aways and resources.

Elementary Cloud Science

(Grades 2–6) *S502b, McCormick Place*

Science Focus: ESS2.D

Lisa Gardiner (@lisagard2; @UCARSciEd), UCAR Center for Science Education, Boulder, Colo.

The science of clouds helps students learn concepts of physics, the water cycle, and atmospheric science while being awed by nature. Join us to learn about a collection of cloud science activities.

Birds Bring Your Science Class Alive

(Grades K–8) *S503a, McCormick Place*

Science Focus: GEN, INF, NGSS

Ileana Betancourt (@BirdSleuth), The Cornell Lab of Ornithology, Ithaca, N.Y.

Pam Evans (pevans@charleston.k12.il.us), Jefferson Elementary School, Charleston, Ill.

Let learning take wing! Join this group of educators for an interactive hands-on presentation of ideas, activities, and resources that teach fun and engaging science through birds.

Engineering Teamwork: Reinforcing Collaborative Communication Through Design Challenges

(Grades K–6) S503b, McCormick Place

Science Focus: LS1.A, LS1.B, SEP1, SEP6, SEP7, SEP8

Sharlene Yang (sharleneyang@gmail.com), SY|STEM Education Consulting, Cambridge, Mass.

Experience a hands-on package engineering activity and explicitly discuss how teamwork on a design challenge can reinforce English Language Arts skills in listening and speaking.

Literacy and Science

(Grades 6–12) S504a, McCormick Place

Michelle Joyce (@awesomescience; awesomeSTEM@gmail.com), Palmetto Ridge High School, Naples, FL

Science Focus: GEN

Using proven strategies from reading and English language learner (ELL) endorsement training as well as Exceptional Students Education (ESE) certification, participants will engage in activities that can be used immediately or adapted for their own classroom and beyond.



NESTA Session: NESTA Earth System Science Share-a-Thon

(Grades 1–12)

Skyline W375e, McCormick Place

Science Focus: ESS

Roberta Johnson Killeen (rmjohnsn@nestanet.org), National Earth Science Teachers Association, Boulder, Colo.

Margaret Holzer (mholzer@monmouth.com), Chatham High School, Chatham, N.J.

Michael Passow (michael@earth2class.org), Dwight Morrow High School, Englewood, N.J.

Carla McAuliffe (carla_mcauliffe@terc.edu), TERC, Cambridge, Mass.

Todd Ellis (todd.ellis@oneonta.edu), SUNY Oneonta, N.Y.

Peter Falcon (pcfalcon@jpl.nasa.gov), NASA Jet Propulsion Laboratory, Pasadena, Calif.

Tom Lough (tom.lough@gmail.com), Retired Educator, Round Rock, Tex.

Jean Pennycook (jean.pennycook@gmail.com), SAM Academy, Sanger, Calif.

Emily Schaller (emily.schaller@nasa.gov), National Suborbital Education and Research Center, Palmdale, Calif.

Mary Shane (shanem@interact.ccsd.net), Advanced Technologies Academy, Las Vegas, Nev.

Michele Svoboda (msvoboda@cppschoools.com), Mill Creek Middle School, Comstock Park, Mich.

John Taber (taber@iris.edu), IRIS, Washington, D.C.

Deanna TeBockhorst (deanna@atmos.colostate.edu), Colorado State University, Fort Collins

Join more than 20 NESTA members and other education specialists as they share their favorite classroom activities. Lots of free handouts!

NGSS@NSTA Forum Session: Assessing NGSS in the Classroom

(Grades K–12)

W183a/b, McCormick Place

Science Focus: GEN, NGSS

Christopher Harris, SRI International, Menlo Park, Calif.

Angela DeBarger, The George Lucas Educational Foundation, San Rafael, Calif.

William Penuel, University of Colorado Boulder

Part of a six-session series known as the NGSS@NSTA Forum, this presentation will provide insight from national experts on implementation of the *Next Generation Science Standards* (NGSS). In addition, the forum will offer guidance on how teachers everywhere can improve student learning using the methods described in the *Framework for K–12 Science Education*.



“Buddy Up” to NGSS Through Companion Lessons

(Grades 1–5)

W186c, McCormick Place

Science Focus: GEN, SEP

Reeda Hart (hartr@nku.edu), **Lila Brindley** (brindley11@nku.edu), and **Carrie Holloway** (carrie.holloway@outlook.com), Northern Kentucky University, Highland Heights

Active, powerful lessons model how to address both science and engineering practices while integrating important science content. Take home a free CD with lesson plans and resources.

Engineering with Models and Sensors

(Grades 3–12)

W192a, McCormick Place

Science Focus: ETS

Carolyn Staudt and **Chad Dorsey** ([@chaddorsey](https://twitter.com/chaddorsey); cdorsey@concord.org), The Concord Consortium, Concord, Mass. The Innovative Technology in Science Inquiry (ITSI) project prepares diverse students for careers by engaging them in exciting inquiry-based science projects that

use computational models and real-time data acquisition. Students use models and sensor activities to analyze and argue from evidence while engaging in doing real science as they plan and carry out investigations.

Beyond Traditional Graphing: Student-created Infographics to Visualize STEM Data and Ideas

(Grades 9–12)

W196a, McCormick Place

Science Focus: GEN, CCC, SEP4, SEP5, SEP8

Rob Lamb ([@lambchop1998](https://twitter.com/lambchop1998); rlamb@psdr3.org), Pattonville School District, Maryland Heights, Mo.

Joseph Polman ([@joepolman](https://twitter.com/joepolman); joseph.polman@colorado.edu), University of Colorado Boulder

Creating infographics incorporating both traditional graphs and other visualizations can help students increase skills of interpreting STEM data, and connect it to broader understandings.

DOROTHY K. CULBERT CHAPTER AND ASSOCIATED GROUPS ROUNDTABLE

Are you a Chapter or Associated Group leader with a proven track record of moving your organization forward?



Or do you struggle with issues like membership, board relations, and conference planning?

Join us for this networking opportunity to share your experience and learn from other leaders who are “in the trenches” just like you. NSTA’s Chapter Relations staff will be available to offer their expertise, and Chapters and Associated Groups celebrating special anniversaries will be recognized.

Refreshments provided.

Friday, March 13

3:30–4:30 PM

Hyatt Regency McCormick
Regency C

NSTA National
Science
Teachers
Association

12:30–1:30 PM Exhibitor Workshops

Exploring Motion in Middle School Science with Position and Velocity Games—MatchGraph!

(Grades 5–8)

W179b, McCormick Place

Sponsor: PASCO scientific

Eric Gardner (egardner@thebenjaminschool.com), The Benjamin School, Palm Beach Gardens, Fla.

Science Focus: PS2, SEP

Explore motion with our MatchGraph app in this hands-on workshop to see how technology can be integrated into your classroom. Also learn how to foster NGSS science and engineering practices through sensor-based labs for life, Earth, and physical science with SPARKvue software. One attendee will win a MatchGraph Motion Kit.

Sustaining an NGSS-focused/Project-based Program for Middle School and High School Science

(Grades 6–12)

W194b, McCormick Place

Science Focus: GEN, NGSS

Sponsor: It's About Time

Barbara Zahm, It's About Time, Mount Kisco, N.Y.

Arthur Eisenkraft, 2000–2001 NSTA President, and UMass Boston, Dorchester, Mass.

Are you interested in your teachers succeeding in implementing and sustaining a project-based NGSS-focused science program? If so, please join researchers and classroom teachers to discover how to use a research-based online system to provide 24/7 support. Learn how this comprehensive cyber PD system, which includes online courses, pedagogical and content resources, as well as instructional videos with master teachers and student classroom footage, helps teachers prepare to implement NGSS in their classrooms.

12:30–2:00 PM Hands-On Workshop

PDI McREL Pathway Session: Integrating Engineering and Science Using Space Science as a Pathway

(Grades 4–12)

W175a/b, McCormick Place

Science Focus: ESS, SEP

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

Learn how to identify important space science content from the core ideas in the NGSS and sequence learning goals into a progression that links science and engineering content and practices.

12:30–2:30 PM Hands-On Workshops

PDI BSCS Pathway Session: The Practices of Science in the Elementary Classroom

(Grades K–5)

W176a, McCormick Place

Science Focus: GEN, NGSS

Connie Hvidsten (chvidsten@bscs.org) and **Paul Numedahl** (pnumedahl@bscs.org), BSCS, Colorado Springs, Colo.

We will explore what it looks, sounds, and feels like when elementary students are deeply engaged in the practices of science described in the *Next Generation Science Standards*. Participants will experience activities appropriate for upper and lower elementary grades and analyze classroom videos demonstrating effective strategies that support student thinking in making sense of science concepts.

PDI AMNH Pathway Session: Using a Tool and NGSS Performance Expectation Specifications to Develop Assessment Tasks

(Grades 6–12)

W178b, McCormick Place

Science Focus: GEN, NGSS

Kathy DiRanna (kdirann@wested.org), K–12 Alliance/WestEd, Huntington Beach, CA

Participants will use a tool to engage in a process to create assessments aligned to performance expectations based on task specifications.

NSTA NATIONAL CONFERENCE ON SCIENCE EDUCATION

OVER **1,200**
SESSIONS

NETWORK
WITH OVER
10,000
EDUCATORS

350+
EXHIBITORS WITH
CUTTING-EDGE
RESOURCES

BE PART OF EDUCATION'S
**PREMIER
EVENT!**

SAVE THE DATE

NASHVILLE

MARCH 31 - APRIL 3
2016

(PDI's)
PROFESSIONAL
DEVELOPMENT
INSTITUTES

GRADUATE
CREDIT
FOR SESSIONS

MUCH MORE!

SCIENCE: EMPOWERING PERFORMANCE

**Setting
the Stage:**
Scientific
Literacy

Building the Band:
Involving
Community
Stakeholders

**Harmonizing
Concepts:**
Integrating
Instruction

**Stringing It
All Together:**
Three-Dimensional
Learning

FOR INFORMATION AND UPDATES, VISIT,
www.nsta.org/nashville

NSTA National
Science
Teachers
Association

1:00–1:30 PM Presentations

Improve Student Argumentation and Engagement with Socio-Scientific Inquiry (SSI)

(Grades 8–College) *Adler A/B, Hyatt*
Science Focus: ETS2, LS1.C, LS2.A, LS2.B, LS3.A, LS3.B, SEP4, SEP7, SEP8

John Gensic (@bioonthego); *john.gensic@gmail.com*), Penn High School, Mishawaka, Ind.

Struggling to improve your students' engagement and critical-thinking skills? Connecting societal issues with scientific concepts is at the heart of SSI. Hear about SSI units and Web 2.0 tools that have been developed and field-tested with high school biology students.

You Thought You Were THE Science Teacher: Wrong! We Are All Teachers of Reading and Writing

(Grades 6–9) *Dusable C, Hyatt*
Science Focus: GEN, NGSS

Anna Dipinto, National-Louis University and Alfred Nobel Elementary School, Wheeling, Ill.

Vito Dipinto (*vdipinto@nl.edu*), National-Louis University, Wheeling, Ill.

Come experience a variety of ideas for science teachers to become teachers of reading and writing.

You CAN Have It All: Positive Gains in Nature Appreciation, Health, and Academic Achievement!

(Grades P–5) *S504d, McCormick Place*
Science Focus: INF

David Owens (*dco2a@mtmail.mtsu.edu*), Middle Tennessee State University, Murfreesboro

In-school activities can enhance student appreciation for nature, active lifestyles, and healthy eating habits without detracting from their academic performance.

Exploring Chemotaxis with *C. elegans*

(Grades 9–12) *W187c, McCormick Place*
Science Focus: LS

Ellen Wright, Pittsburgh Perry Traditional Academy, Pittsburgh, Pa.

Explore using *C. elegans* to study chemotaxis as a model inquiry lab with high school students. The independent variables are limitless while the postlab analysis allows for more in-depth thinking.



1:00–1:30 PM Exhibitor Workshop

Earth as a System

(Grades 5–College) *Booth #1267, Exhibit Hall*
Science Focus: ESS

Sponsor: Science First®/STARLAB®

Helmut Albrecht, Science First/STARLAB, Yulee, Fla.

In this in-dome workshop, you will learn how to use one of the lessons from *The Layered Earth Small Dome* software to teach about Earth as a dynamic planet that is made out of five interrelated natural systems.

1:00–2:00 PM Exhibitor Workshop

Zombie Apocalypse!

(Grades 6–12) *W193b, McCormick Place*
Science Focus: GEN, INF

Sponsor: Texas Instruments

Presenter to be announced

Become part of a zombie apocalypse as brains will be served (*while supplies last*). Learn about disease spread modeling using simulations and fun storylines about a zombie outbreak. Applicable for middle school and high school, this workshop is sure to scare you and your little zombies into learning how exciting Hollywood themes can be used to teach science concepts.

1:00–2:30 PM Exhibitor Workshops**The STEM Design Challenge***(Grades 4–8)**W184a, McCormick Place*

Science Focus: ETS

Sponsor: Fisher Science Education

Robert Marshall (*robert.marshall@thermofisher.com*), Fisher Science Education, Pittsburgh, Pa.

STEM is all about preparing the future workforce of America to think in a new age, where robot cars and autonomous rovers on Mars are no longer fiction. Use inquiry and scientific investigations to find answers to testable questions, and then solve an energy problem using realistic world processes.

How to Use Pop-Culture Science in Your Classes*(Grades 9–College)**W474a, McCormick Place*

Science Focus: GEN

Sponsor: Bio-Rad Laboratories

Sherri Andrews (*sherri_andrews@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Use popular science to engage high school and college students and increase integrated science literacy in your classroom. See how three popular movies connect to real-world discoveries and issues. Then learn how to use a fun hands-on lab to increase student involvement and understanding.

Biology Workshops

Flinn Favorite Biology Lab Activities and Games

Friday, March 13, 12:00 noon - 1:30 pm

McCormick Place West - Room W180

Advanced Inquiry Labs for AP Biology

Friday, March 13, 10:00 am - 11:30 am

McCormick Place West - Room W180

www.flinnsci.com/nsta2015

FLINN
SCIENTIFIC, INC.

“Flinn is Fantastic! Your workshops are the BEST!”

- Amy Mealing, Davidson Fine Arts Magnet School, Augusta, Ga



1:00–4:00 PM Exhibitor Workshop

Choose Your Own Adventure in the Explorer Room!

(Grades 9–College) *W474b, McCormick Place*

Science Focus: ETS

Sponsor: Bio-Rad Laboratories

Damon Tighe (*damon_tighe@bio-rad.com*), Bio-Rad Laboratories, Hercules, Calif.

Do you ever have time to just be curious anymore? Remember when you were able to just explore and be curious? Join us for as long as you wish, whether it be 15 minutes or the full three hours, to take advantage of this perfect opportunity to reignite your curiosity and get the inspiration you need for your middle school to college-level classroom. Let your curiosity guide you through integrated STEM activities—barcoding, cellulosic ethanol biofuel production with enzymes, experiment with things that glow, a pipetting accuracy contest, and science artwork—or visit with a team of master teachers who are ready to answer any questions you may have!

1:00–5:00 PM Short Courses

Integrating STEM and Art with Pretty Astronomy

Pictures (SC-9)

(Grades 6–College) *Salon 2, Palmer House*

Science Focus: ESS, LS, PS

Tickets Required; \$117

Sharon Schleigh (*sharons@yahoo.com; sharonpschleigh@gmail.com*), Purdue University Calumet, Hammond, Ind.

For description, see Volume 1, page 60.

“All Standards, All Students” Appendix D and Case Studies (SC-8)

(Grades 1–9) *Salon 3, Palmer House*

Science Focus: GEN, NGSS

Tickets Required; \$27

Rita Januszyk (*ritajanuszyk@gmail.com*), Retired Educator, Hinsdale, Ill.

Emily Miller (*emilycatherine329@gmail.com*), Madison (Wis.) Metropolitan School District

Bernadine Okoro (*bernadine.okoro@dc.gov*), Theodore Roosevelt Senior High School, Washington, D.C.

Elizabeth O’Day (*betsy.oday@gmail.com*), Hallsville Intermediate School, Hallsville, Mo.

For description, see Volume 1, page 60.

1:15–1:45 PM Presentations

Meet Me in the Middle Session: The Envelope Please...Science Projects That Pop!

(Grades 6–8)

S404bc, McCormick Place

Science Focus: GEN

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

Discover how a manila envelope, a pair of scissors, and five minutes can result in the perfect desktop format for your students’ next science project.

Meet Me in the Middle Session: Practical Lessons and Demonstrations on a Budget

(Grades 5–8)

S404d, McCormick Place

Science Focus: GEN, SEP

Kathleen Brooks, Retired/Educational Consultant, Guilford, Conn.

Ideas will be shared for demonstrating science concepts to middle-level students using everyday lab equipment and additional inexpensive materials.

Meet Me in the Middle Session: Merging Literacies in the Middle Grades

(Grades 5–7)

S405a, McCormick Place

Science Focus: GEN, SEP8

Christine Royce (*@caroyce; caroyce@aol.com*), Shippensburg University/PSTA, Shippensburg, PA

Integration of Literacy and Science Literacy is a natural connection. We will examine the research behind and recommendations for integrating the CCSS in the middle grades.

1:15–1:45 PM Hands-On Workshop

Meet Me in the Middle Session: Engineering Practice in Middle School Chemistry

(Grades 6–8)

S405b, McCormick Place

Science Focus: PS, SEP6

James Kessler, American Chemical Society, Washington, D.C.

Learn about and try some of the new engineering activities soon to be featured in the free resource *middleschoolchemistry.com*.

1:30–2:30 PM Networking Opportunity

NSTA Chapter and District Meet and Greet in Honor of Wendell Mohling, sponsored by GEICO

next to Lounge in Hall F2 (adjacent to Exhibit Hall Entrance)

Join us for complimentary hot dogs, chips, and lemonade while meeting and networking with colleagues and representatives from all of NSTA’s 18 Districts. Learn more about events, initiatives, and happenings in your district directly from your representatives in an informal setting. We hear that the GEICO gecko may also be making an appearance!



2:00–2:30 PM Presentations**Coaches' Corner: How Teachers Help Other Teachers Engage with the NGSS Science Teaching Practices**

(General) *Adler A/B, Hyatt*
Science Focus: GEN, NGSS

Deb Morrison (@educatordeb; *educator.deb@gmail.com*), TREE Educational Services, Boulder, Colo.

Christie Barchenger (*cbarchen@uw.edu*), University of Washington, Seattle

Hear how experienced and novice teachers team up in face-to-face and virtual spaces to improve science teaching practices.

NARST Session: Culturally Relevant Principles for Curricular Contextualization

(Grades 4–College) *Burnham C, Hyatt*
Science Focus: GEN, NGSS

Ingrid Sanchez Tapia (*ingridsa@uic.edu*), University of Illinois at Chicago

Joseph Krajcik (@krajcikjoe; *krajcik@msu.edu*), CREATE for STEM Institute, Michigan State University, East Lansing, Mich.

Emphasis will be placed on how to design culturally relevant science curricula and instruction that allow access to science education for ethnic minority students. The examples presented are part of the enactment of a grade 7 natural selection unit in an indigenous school in Mexico.

ASTE Session: Supporting New Science Teachers: What the Research Says About How to Support Them

(Grades 6–College) *Field C, Hyatt*
Science Focus: GEN

Julie Luft (*jaluft@uga.edu*), The University of Georgia, Athens

New teachers make up a majority of the teaching population. Join us for research-based suggestions for teacher leaders, administrators, and colleagues of new science teachers.

Matching Experiential Knowledge with Academic Language

(General) *Hyde Park B, Hyatt*
Science Focus: INF

Sheila Anne Webb (*sawebb@jsu.edu*), Jacksonville State University, Jacksonville, AL

Curricula building often follows a ladder (longitudinal) concept vs. a spatial design allowing for the inclusion of cultural experience. If science instruction began with assisting learners to make transitions between cultural practices and academic terminology and definitions, the learners would gain confidence in their ability to succeed in the sciences.

Microbes Are a BLAST

(Grades 8–12) *S402a, McCormick Place*
Science Focus: LS, CCC

Katie Lodes (*klodes@stjosephacademy.org*), St. Joseph's Academy, St. Louis, Mo.;

Robyn Ehrlich (*robyn.ehrlich@gmail.com*), Kihei Charter School, Kihei, Hawaii

Find out how one lesson developed at the 2013 E.A.R.T.H. workshop addresses the curricular goals of classification, microbe diversity, phylogenetic trees, and applying DNA sequencing.

The Good, the Bad and the Ugly: Creating a Toolkit to Help Educators Communicate About Invasive Species in the Mid-Atlantic

(Grades 6–12) *S403b, McCormick Place*

Sarah Haines (*shaines@towson.edu*), Towson University, Towson, MD

Science Focus: LS

Hear how the Maryland Department of Natural Resources is developing a set of educational resources focusing on the problems and solutions regarding primarily aquatic invasive species. Correlations to the CCSS, NGSS, and STEM included.

Integrating Field Experts and Experiential Learning into Environmental Studies Courses

(Grades 9–12) *S404bc, McCormick Place*

Adam Hallihan (@MrHallihan; *ahalliha@hinsdale86.org*), Hinsdale District 86, Darien, IL

Science Focus: ESS3.A, ESS3.C

Bring field experts to your classroom to teach and inspire your students to ecologically improve their schools!

**Project-based Explorations of the Kentucky River Watershed**

(Grades 5–8) *W187a, McCormick Place*

Science Focus: ESS2.C, ESS3.A, CCC1, CCC7, SEP4, SEP6

Rebecca Krall (*rebecca.krall@uky.edu*), University of Kentucky, Lexington

This teacher institute is designed to model project-based investigations on watershed issues and to support middle school teachers in the development of project-based investigations on their own local watersheds. Outcomes and next steps of the project will be discussed.

2:00–3:00 PM Meeting
NSTA/GLBT Annual Meeting

Dusable A/B, Hyatt

This is the annual meeting for the Gay, Lesbian, Bisexual, Transgender Science Teachers organization. You do not have to be a current member to attend. Any questions? E-mail glbtnta@gmail.com.

2:00–3:00 PM American Geophysical Union (AGU) Lecture

Abrupt Climate Change—Past, Present, and Future

(General)

Skyline W375b, McCormick Place

Science Focus: ESS

Speaker sponsored by American Geophysical Union



Jim White (james.white@colorado.edu), Director, Institute of Arctic and Alpine Research, University of Colorado Boulder

Climate, along with many parts of our environment, are changing as humans put more and more greenhouse gases into the atmosphere. With CO₂ levels today around 400 ppm and rising—

levels which last occurred during much warmer times millions of years ago—it is clear that we are committed to even more climate change in the future, not only in our lifetimes, but well beyond our children's and grandchildren's lifetimes as well. A key question is how changes will occur. Abrupt climate changes are those that exceed our expectations, preparedness, and ability to adapt. Such changes challenge us economically, physically, and socially. This talk will draw upon results from ice core research over the past 20 years, as well as a new NRC report on abrupt climate change in order to address abrupt change, as seen in the past in ice cores, as seen today in key environmental systems upon which humans depend, and what may be coming in the future.

Climatologist Jim White is the director of the Institute of Arctic and Alpine Research, a professor in the Department of Geological Sciences, and is also instrumental in the Environmental Studies Program at the University of Colorado (CU). He operates a laboratory for the analysis of stable isotope ratios of carbon, hydrogen, nitrogen, oxygen, and sulfur. As a past director of Environmental Studies Program at CU, Jim helped to establish and grow this program during its first decade and was a past chairperson of the Polar Research Board of the National Academy of Sciences.

2:00–3:00 PM Presentations

Safety Advisory Board Roundtable: Listening/Addressing Your Safety Issues!

(General)

Burnham A/B, Hyatt

Science Focus: GEN, INF, SEP

Kenneth Roy (@drroyssafersci; royk@glastonburyus.org), Glastonbury (Conn.) Public Schools

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

Bring your science safety concerns to this roundtable discussion. NSTA Safety Advisory Board (SAB) members will be on hand to offer guidance and answer questions. Information from the participants will be used to help the SAB refine its priorities for the coming year.

State Your Claim: The Fusion of Literacy and Science Through Standard-driven, Performance-based Summative Assessments

(Grades 5–12)

Clark A/B, Hyatt

Science Focus: GEN, CCC, SEP7, SEP8

Andrew Wintner (@aswintner; awintner@newdesignmiddle.org), **Catherine Calogero** (cacalogero@gmail.com), and **Carolyn Berg** (cberg@newdesignmiddle.org), New Design Middle School, New York, N.Y.

With the new *Common Core State Standards*, transcendental education through content is imperative and literacy strategies must manifest themselves in rigorous science classrooms to promote mastery.

NGSS: Developing and Implementing a Vertically Aligned Curriculum, Grades 6–12

(Grades 6–12)

Dusable C, Hyatt

Science Focus: GEN, NGSS

Dean Barr (dbarr@d125.org) and **Steve Wood** (@SteveWood1968; swood@d125.org), Adlai E. Stevenson High School, Lincolnshire, Ill.

Join us for an overview of how our Professional Learning Community analyzed and implemented the NGSS across several schools and districts. Processes, artifacts, and tools for writing curriculum will be shared.

Our Experiences Starting a Science Research Course*(Grades 8–12)**Erie, Hyatt*

Science Focus: GEN, CCC1, CCC2, SEP

Lisa Neesemann (lisa.neesemann@gmail.com) and **Natasha Hazell** (nhazell@bayridgeprep.org), Bay Ridge Preparatory School, Brooklyn, N.Y.

We recently began a new elective course called “Science Research and Design.” Come hear our experiences, successes, challenges, and suggestions for starting your own program in your grades 8–12 classrooms.

NSELA Session: Supporting Novice AND Experienced Teachers Through Mentoring and Leadership*(General)**Field A/B, Hyatt*

Science Focus: GEN

Joan Gilbert (joan.gilbert@tusd1.org), and **Sara Torres** (sstorres71@gmail.com), Arizona Science Teachers Association, Phoenix

The Teacher Leadership Program created by the Arizona Science Teachers Association provides a structured approach

to retain novice teachers and build leadership and mentoring skills in experienced teachers. Learn how to plan, prepare, conduct, and assess such a program in your region.

Climate Science Academies: Integrating Content, Pedagogy, Technology, and Access to Climate Experts*(Grades 5–9, College)**Grant Park A, Hyatt*

Science Focus: ESS, INF, CCC, SEP

Christopher Petrone (@seaPetrone; petrone@udel.edu), Delaware Sea Grant Marine Advisory Service, Lewes Professional Learning Communities are formed to embed climate change in Maryland and Delaware schools. Summer and school-year professional development includes content, pedagogy, technology, and interaction with climate experts.

ATTENTION ILLINOIS TEACHERS:

GET PD HOURS FOR THE NSTA CHICAGO NATIONAL CONFERENCE!



Visit the Illinois Science Teachers Association Booth near Registration in Exhibit Hall F2 or go to www.ista-il.org to learn about the ONLY way to get Illinois State Board of Education–approved professional development credit through ISTA.

Walk away from NSTA Chicago with your PD clock hour credits!



Students Investigate Precipitation Data Through Partnership with CoCoRaHS

(Grades 6–College)

Hyde Park A, Hyatt

Science Focus: ESS

Stephen Hale, University of New Hampshire, Durham
Katie Parent (kpparent@lin-wood.org) and **Rebecca Steeves**, Lin-Wood Public School, Lincoln, N.H.

CoCoRaHS stands for Community Collaborative Rain, Hail, and Snow Network. Have your students measure, graph, and analyze precipitation data with this freely accessible network. Join us to learn more.

Top 10 Science Checks for Understanding

(Grades 3–12)

Jackson Park A, Hyatt

Josh Koo (jkoo@glenbrook225.org) and **Jeff Rylander** (jrylander@glenbrook225.org), Glenbrook South High School, Glenview, Ill.

Science Focus: GEN

Explore and experience 10 formative assessment strategies that can be used in the science classroom to know what your students know.

Discover the NGSS: NSTA's New Interactive E-Book

(General)

Jackson Park D, Hyatt

Science Focus: GEN, NGSS

Leisa Clark (lclark@nsta.org), Director/Producer, e-Products, NSTA, Arlington, Va.

Come learn how to put the pieces of the NGSS together with help from NSTA's first-ever interactive e-book on the standards, *Discover the NGSS: Primer and Unit Planner*. The first 75 attendees receive a free copy of this enhanced e-book.

Science Education Fellowship Program: Supporting District Cohorts of Science Teacher Leaders

(General)

Prairie A, Hyatt

Science Focus: GEN, SEP

Arthur Eisenkraft (eisenkraft@att.net), 2000–2001 NSTA President, and UMass Boston, Dorchester, Mass.

Discussion centers on strategies for teacher leader cohort development through collaborative professional learning communities and individual growth plans, as well as cross-district partnerships. We will share our model of teacher leadership while teachers remain in the classroom.



NSTA Press® Session: Introducing the NGSS to Teachers and Administrators

(General)

S401bc, McCormick Place

Science Focus: GEN, NGSS

Kevin Niemi, Institute for Biology Education, Madison, Wis.

Eric Brunsell ([@Brunsell](https://twitter.com/Brunsell); brunselc@uwosh.edu), University of Wisconsin Oshkosh

Join us as we share activities and resources that can be used for introducing teachers, teacher leaders, and administrators to the NGSS.

Use NASA Airborne Science Missions to Bring Real-Time Science to Your Classroom

(Grades 6–12)

S403a, McCormick Place

Science Focus: ESS3.B, ESS3.C, ESS3.D, LS2, PS2, PS3

Julie Bookman ([jbookman76](https://twitter.com/jbookman76); jbookman@avhds.org), Palmdale High School, Palmdale, CA

Use NASA Airborne Science Missions to create your own lessons. Connect to pilots and scientists on aircraft or in mission control during science flights.

Knowledge Building in the 21st Century: Yager Scholar Presentation

(Grades 9–12)

S404d, McCormick Place

Science Focus: GEN, SEP1, SEP2, SEP4, SEP5, SEP6, SEP7, SEP8

Glenn Wagner ([@PETLpusher](https://twitter.com/PETLpusher); glenn.wagner@ugdsb.on.ca), Centre Wellington District High School, Fergus, Ont., Canada

Do student-generated questions matter in today's classroom? Emphasis will be placed on learning outcomes when students are given the opportunity to work in knowledge-building communities that blend technology and collaboration surrounding scientific questions and the problems they generate.

INF Climate Smart and Energy Wise: The Literacy Imperative of the 21st Century

(General)

S405a, McCormick Place

Science Focus: ESS

Mark McCaffrey ([@McCaffreyMark](https://twitter.com/McCaffreyMark); mccaffrey@ncse.com), National Center for Science Education, Oakland, CA
Climate change is too important a topic to be treated as an afterthought in science education. Join the author of *Climate Smart & Energy Wise* as he shares key strategies and resources to help provide your students with climate and energy knowledge and know-how for the 21st century.

Having Your Chemistry Classroom Support the NGSS*(Grades 6–12)**S501a, McCormick Place*

Science Focus: PS

Jill Lisius (jlisius@d125.org), **Christine Pfaffinger** (cpfaffinger@d125.org), **Molly Fitzgibbons** (mfitzgibbons@d125.org), and **Jin Kyung Hwang** (jhwang@d125.org), Adlai E. Stevenson High School, Lincolnshire, Ill.

See how we reworked our chemistry course to support the NGSS. We will share the process we followed to develop student learning goals and classroom activities.

Instructional Strategies Designed with Your Diverse Students in Mind*(Grades 6–12)**S501d, McCormick Place*

Science Focus: GEN, SEP8

Nate' Hall ([@ItsHallAboutSci](https://twitter.com/ItsHallAboutSci); nate_hall@hcps.org), Howard County Public School System, Ellicott City, Md.

“All Standards, All Students” is one of the key ideas of the NGSS. Engage in the role of a student as you explore second

language acquisition and strategies that can make science accessible to English language learners and other diverse student populations.

Filling the Gap: How to Better Prepare Teachers for a Diverse Classroom*(Grades P–2)**S504bc, McCormick Place*

Science Focus: GEN, NGSS

Sandra Osorio (sosorio@ilstu.edu), Illinois State University, Normal

Hear how a partnership between a local university and bilingual classroom has cultivated a space in which teachers are able to develop a culturally responsive pedagogy in order to better serve a diverse classroom. We will share hands-on activities in support of the NGSS in this interactive session.



*Celebrate Einstein's Birthday ...
with a Tribute to the Blues Brothers!*

Saturday, March 14, 8:00–10:00 PM

Regency Ballroom, Hyatt Regency McCormick Place

President Juliana Texley is inviting you to join her for an evening of dancing and celebration on Saturday, March 14, from 8:00 to 10:00 PM.

Professor Einstein will be joining us in celebration of his birthday. Additional evening entertainment will include a tribute to the Blues Brothers!

Cash bar. No registration or cost required.

www.nsta.org/chicago

NSTA National
Science
Teachers
Association

STEM Project—From Planning to Implementation

(Grades 5–8) *S504d, McCormick Place*

Science Focus: GEN, NGSS

Robert Bruns (@RBrunsWest; rbruns@columbia.k12.mo.us), West Junior High School, Columbia, Mo.

Meera Sood (@smssciteacher, msood@columbia.k12.mo.us), Smithton Middle School, Columbia, Mo.

Feeling anxious about where to start in designing a STEM project? Join us to find out where NGSS meets STEM through a design challenge.

Spark a Future! Inspire Girls in STEM by Engaging Role Models in Your Classroom

(Grades 4–9) *S505a, McCormick Place*

Science Focus: GEN

Rita Karl (rkarl@tpt.org), Twin Cities Public Television, St. Paul, MN

Want to motivate and inspire more girls in your class to consider careers in science? Discover how to effectively use role models in your classroom.

Engaging Young Children with Everyday Science and Nurturing Their Curiosity—Observing, Questioning, Investigating, Thinking, and Talking About Science

(Grades P–3) *S505b, McCormick Place*

Science Focus: GEN, NGSS

Donna Knoell (dknoell@sbcglobal.net), Educational Consultant, Overland Park, KS

Discover how to use everyday examples of science that comprise the young child's world to create rich, engaging instruction and to motivate students.



Reviewers Needed! Join an NSTA Journal Manuscript Review Panel

(General)

W176b, McCormick Place

Science Focus: GEN

Ken Roberts (ken_r@nsta.org), Assistant Executive Director, Journals, NSTA, Arlington, Va.

Meet with NSTA journal editors to learn how you can apply to serve on a manuscript review panel and find out what the job entails.



NGSS Science and Engineering Practices: Combining Science Learning and Language Development for ELLs

(Grades 4–12)

W187b, McCormick Place

Science Focus: GEN, SEP2, SEP6

Rita MacDonald (rkmacdonald@wisc.edu), Wisconsin Center for Education Research, Madison

Melissa Braaten (@mbraaten; mbraaten@wisc.edu), University of Wisconsin–Madison

Hear how to engage English language learners in two key NGSS science and engineering practices: modeling and explanation. We will share tools to support meaningful participation by ELLs at all levels of English proficiency.

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

(General)

W187c, McCormick Place

Science Focus: GEN

Flavio Mendez (flavio_m@nsta.org), Senior Director, Learning Center/SciLinks, NSTA, Arlington, Va.

Lost when it comes to finding online professional development resources to enhance your content knowledge and skills? With more than 11,000 resources (25% of which are free) and quality PD opportunities to assist educators with core subject content, the Learning Center has the answers! Get free resources and ICE CREAM!



Transitioning Curriculum, Instruction, and Assessments to Meet the NGSS

(Grades K–12)

W190b, McCormick Place

Science Focus: GEN, NGSS

Carol Baker (@keenebaker; carolkeenebaker@gmail.com), Community High School District 218, Oak Lawn, Ill.

President: Cathi Cox-Boniol (ccox@lincolnschools.org), Lincoln Parish School Board, Ruston, La.

Join Carol K. Baker, member of NGSS writing team, as she shares ideas and experiences for transitioning curriculum, instruction, and assessments to meet the *Next Generation Science Standards*.

JOIN US AT THE NSTA EXPO #967



GIVEAWAYS

SOCIAL MEDIA HUB

FREE HANDOUTS

- Find out what's new with NGSS@NSTA and connect with NGSS curators
- Hear about and sign up for upcoming webinars based around critical topics in science education
- Learn more about NSTA professional programs and how they benefit you
- Learn all about our special benefits for members, and why joining NSTA is a smart career choice



WE CAN'T WAIT TO MEET YOU!

NSTA National
Science
Teachers
Association

Integrating STEM and Culturally Relevant Teaching (CRT) into Teacher Preparation Programs to Educate ELLs and ELLs with Disabilities

(Grades 1–12) *W192a, McCormick Place*

Science Focus: GEN, SEP1, SEP8

Steve Showalter (steve.showalter@nau.edu) and **Patricia Peterson** (patricia.peterson@nau.edu), Northern Arizona University, Flagstaff

Gerry Madrazo (gerrymadrazo@gmail.com), 1993–1994 NSTA President, and Educational Consultant/Clinical Professor of Science Education, Elon, N.C.

Hear how best practices in STEM instruction for English language learners, including those with disabilities, are integrated into teacher education programs. Discussion centers on preparing culturally responsive general and special educators to collaborate and incorporate science and technology into their teaching.

Make Learning Fun: Engaging Students Through Making

(Grades 1–12)

W196c, McCormick Place

Science Focus: ETS, CCC4, SEP1, SEP2, SEP3, SEP6

Michael Matthews (@thescienceguru; michaeltharms@gmail.com) and **Marilyn Schaumburg** (marilyn@kds.org), Katherine Delmar Burke School, San Francisco, Calif.

From diving submarines to renaissance inventions, discover how to design lessons and learning environments that foster rigorous hands-on science through prototyping, engineering, and tinkering.

2:00–3:00 PM Hands-On Workshops

Moving Genes

(Grades 9–College)

Grant Park B, Hyatt

Science Focus: LS1.A, LS3.A, LS3.B, INF, CCC1, SEP1, SEP2, SEP8

Pamela Snyder (psnyder5396@gmail.com), Columbus (Ohio) City Schools

Do you need strategies to make complicated biotechnology techniques more understandable to high school students? Engage in activities that help explain the concepts behind genetic engineering. These materials are part of a grant project funded by the Ohio Soybean Council. Free materials.

The Power of Data: Using Science Data as a Tool to Teach Real-World Issues

(Grades 9–College)

Grant Park C, Hyatt

Margie Turrin (mkt@ldeo.columbia.edu), Lamont-Doherty Earth Observatory of Columbia University, Palisades, NY
Science Focus: GEN, CCC, SEP4, SEP6, SEP7

Teaching students to use data and helping them to frame the important questions needed to query data are essential skills that we should be teaching.

Geek Out Your PD: Effective Use of Technology for Planning, Executing, and Evaluating Professional Development Events

(Grades 7–College)

Grant Park D, Hyatt

Science Focus: GEN

Lisa Bohn (@lisa_bohn; lbohn@astate.edu), Arkansas State University, Jonesboro

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

Pat Shane (pshane@unc.edu), 2009–2010 NSTA President, and Educational Consultant, Chapel Hill, N.C.

Bring your own device (if possible) and join us as we show you how to use technology to provide outstanding professional development opportunities that can be used directly in the classroom.

Science Inquiry, ELLs, and Meeting the NGSS for All Grade Levels

(Grades K–12)

Jackson Park B, Hyatt

Science Focus: GEN, NGSS

Veronica Ramirez (vramirez_1@hotmail.com) and **Agnes Kovacs** (agnes.kovacs@czs.org), Chicago Zoological Society, Brookfield, Ill.

Emphasis will be placed on giving teachers a greater grasp and confidence in science inquiry, the NGSS, and in their ability to reach diverse language learners.

Next Generation Science Standards for Administrators
(Grades 6–12) *Jackson Park C, Hyatt*

Science Focus: GEN, NGSS

Robert Lang, Glenbard District 87, Glen Ellyn, Ill.

Sydney Schuler (*schulersy@dist102.k12.il.us*), Park Junior High School, La Grange Park, Ill.

Many administrators are leading the redesign of science programs with little knowledge of the NRC *Framework* and NGSS. After reviewing both, this workshop includes having administrators develop a PD plan to bring back to their science teachers.

CSSS Session: A Vision for Science Education: The Integration of Engineering into Classroom Instruction Through the NGSS Practices

(Grades P–12)

Regency A, Hyatt

Science Focus: GEN, SEP1, SEP6

Peter McLaren (@PeterJMcLaren; *peter.mclaren@ride.ri.gov*), Rhode Island Dept. of Education, Providence

Attention will be paid to the importance of the science and engineering practices in developing student knowledge of

science and engineering. Discover meaningful and effective instructional strategies using these practices to help students understand how scientific knowledge is developed.

DuPont Presents: Food Safety: Stop the Growth

(Grades 9–12)

Regency E, Hyatt

Science Focus: LS

Shelia Schenk (@SchenkFFA; *sschenk@huntley.k12.mt.us*), Huntley Project Schools, Worden, Mont.

Angela Daly (@akdaly2001; *akdaly2001@yahoo.com*), Hi-Plains Junior/Senior High School, Seibert, Colo.

Come learn how to bring food safety to a new level for your students. This inquiry-based workshop will focus on increasing the awareness and understanding of inhibiting microbial growth in our food supply, thus reducing the risk of food-borne illnesses.

Big Event. PASCO Presents the 13th Annual

More Than Just Physics

An evening of dynamic demos for chemistry and physics.

Friday, 5:00–7:00pm – Skyline Ballroom W375A

Presenters

Bill Deese
Professor of Chemistry at Louisiana Tech University

Bill Deese is the T. W. Ray Johnson Professor of Chemistry at Louisiana Tech University and the 2010 Helen M. Free award-winner.

Mike Randall
Wonders of Physics Program at University of Wisconsin–Madison

Since 1984 the University of Wisconsin's Wonders of Physics program has thrilled students with its fast-paced presentation of physics demonstrations chosen to be entertaining and educational.

Come for the FREE food, free shirt and free science fun!
(free shirt and food for the first 300 attendees)

Think **Big.** Think **Science.**

PASCO

 **NSTA Press® Session: Cracking the Case: Decoding Engineering Principles Using Case Studies**

(Grades 6–12) *S401a, McCormick Place*

Science Focus: ETS, INF, SEP4, SEP6, SEP8

M. Gail Jones, Rebecca Hite (@sciencebecca; *rlhite@ncsu.edu*), and **Gina Childers**, North Carolina State University, Raleigh

Integrate engineering into your science teaching through a case study approach. Explore the unique properties of memory metal, gecko feet, and self-folding materials. Links to NGSS discussed. Handouts and sample materials.

Revealing Student Thinking: Teacher Tools for Assessing Student Understanding in the NGSS Classroom

(Grades 6–12) *S401d, McCormick Place*

Science Focus: GEN, NGSS

Sara Dozier, Integrated Middle School Science Partnership, Hayward, Calif.

Find out how to measure your students' progress toward multidimensional mastery of the NGSS. You will receive examples and tools to create your own assessments.

Lab Activities and Questioning Strategies That Unite Biology Concepts

(Grades 9–12) *S404a, McCormick Place*

Holly Hauck (@hauckbio; *holly.e.hauck@gmail.com*), New Prairie High School, New Carlisle, Ind.

John Gensic (@bioonthego; *john.gensic@gmail.com*), Penn High School, Mishawaka, Ind.

Science Focus: LS, SEP

Turn your students into biologists who collaborate to discover and communicate connections between topics often addressed separately, including cell structure and DNA sequence.

Assessing Middle School Students' Argumentation About Physical Behavior of Matter

(Grades 7–10) *S501bc, McCormick Place*

Science Focus: GEN, SEP7

Jonathan Osborne (*osbornej@stanford.edu*) and **Anna MacPherson** (*annamac@stanford.edu*), Stanford Graduate School of Education, Stanford, Calif.

Explore an assessment of students' ability to construct and critique scientific arguments. Discussion centers on using student responses to inform instruction.

Whose Fault Is It? An Earthquake-locating Game

(Grades 5–College) *S502a, McCormick Place*

Science Focus: ESS, SEP1, SEP4, SEP5, SEP7, SEP8

Eric Muller (*emuller@exploratorium.edu*), Exploratorium, San Francisco, Calif.

Learn how the epicenter of an earthquake is located by playing a hands-on game. Find out how seismic wave speed is used to triangulate the source of a seismic event.

Engineering the K–6 Curriculum

(Grades K–6) *S502b, McCormick Place*

Science Focus: GEN, SEP

Mijana Lockard, Lincoln Avenue Academy, Lakeland, Fla. Find out how to develop a cohesive, standards-based curriculum using the engineering design process as an integrating concept. Engage in a hands-on experience implementing the engineering design process that supports the NGSS, as well as learn how to develop rigorous STEM units.

STEM Road Map: Using Problem-Based Learning to Integrate STEM in Elementary Grades

(Grades K–5) *S503a, McCormick Place*

Science Focus: GEN, NGSS

Catherine Koehler (*sissianne@aol.com*), Southern Connecticut State University, New Haven

Join us to discuss a new curriculum project, STEM Roadmap, which integrates K–12 STEM Problem-Based Learning with the NGSS and CCSS. We will focus around a problem or a project that is developmentally appropriate for grades K–5. Handouts.

Using M&M'S® to Teach Elementary Students Life Science and Math!

(Grades K–5) *S503b, McCormick Place*

Science Focus: LS2.C, LS3.A, LS3.B, LS4.B, LS4.C, CCC1

Jesse Wilcox (*jwilcox.23@gmail.com*), Iowa State University, Polk City

Lori Ihrig (@drlmihrig; *lori-ihrig@uiowa.edu*), The Belin-Blank Center, Iowa City, Iowa

Jerrid Kruse (@jerridkruse; *jerridkruse@gmail.com*), Drake University, Des Moines, Iowa

Engage your students in thinking about natural selection, ecology, mathematical operations, and data analysis using M&M'S! Handouts.

Teaching for Lifelong Learning: Improving the Metacognitive Skills in Students Through the Use of Formative Assessments

(Grades 3–5) *S504a, McCormick Place*
 Science Focus: GEN

Ericka Lawton (*esll@rice.edu*), Rice University, Houston, Tex.

Pick up strategies on how to integrate self-assessment tools into the formative assessment process to improve metacognitive skills. Walk away with ideas that can get students “thinking about thinking.”

NESTA Session: Harnessing the Power of Earth System Science for Developing Science Practices and Crosscutting Concepts

(Grades 6–12) *Skyline W375e, McCormick Place*
 Science Focus: ESS, CCC, SEP

Roberta Johnson Killeen (*rmjohnsn@nestanet.org*), National Earth Science Teachers Association, Boulder, Colo.

Margaret Holzer (*mholzer@monmouth.com*), Chatham High School, Chatham, N.J.

Michael Passow (*michael@earth2class.org*), Dwight Morrow High School, Englewood, N.J.

This NESTA hands-on workshop highlights lessons and strategies using NGSS crosscutting concepts to unite core ideas and science practices for classroom Earth system science.

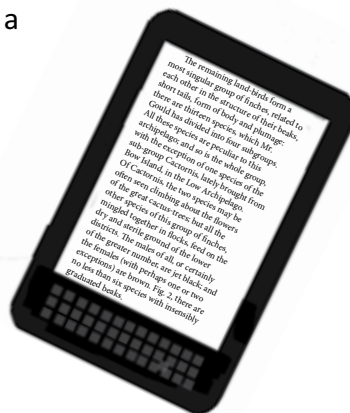
Help us with your feedback...and get a chance for a free Kindle Fire HDX 7"

We're giving you one more reason to evaluate conference sessions.

When you log on to www.nsta.org/chicagobrowser and fill out an evaluation by clicking on the “evaluate session” button below the session you attended, you get entered into a drawing for a chance to win a Kindle Fire HDX 7" *courtesy of the NSTA Conference Department.*

Your feedback helps us in creating the best conference experience for you and other attendees.

- WE'RE GIVING AWAY TWO KINDLE FIRES HDX 7", 16 GB**



• CONFERENCE APP



- Scan QR code below to access our NSTA Conference App.



 **NGSS@NSTA Forum Session: Curriculum Planning the NGSS Way**

(Grades K–12)

W183a/b, McCormick Place

Science Focus: GEN, NGSS

Stephen Pruitt, Achieve, Inc., Washington, D.C.

Part of a six-session series known as the NGSS@NSTA Forum, this presentation will provide insight from national experts on implementation of the *Next Generation Science Standards (NGSS)*. In addition, the forum will offer guidance on how teachers everywhere can improve student learning using the methods described in the *Framework for K–12 Science Education*.



Integrating Computing Principles to Enhance Science Classes

(Grades 5–12)

W186c, McCormick Place

Science Focus: ETS, CCC4, CCC6, SEP2, SEP5

Nigamanth Sridhar (@csedohio; n.sridhar1@csuohio.edu)

and **Debbie Jackson** (d.jackson1@csuohio.edu), Cleveland State University, Cleveland, Ohio

Experience how to include computer science principles as modules in science classes, and see how such integration can enhance student understanding of science concepts.

CESI Session: Strong Science! Using a “Strengths-based” Approach to Teaching Elementary Science

(Grades K–5)

W192c, McCormick Place

Science Focus: GEN, NGSS

Sami Kahn (skahn@collegiateschool.org), Collegiate School, New York, N.Y.

Model strategies for identifying and promoting young learners’ talents while addressing their individual needs in order to unlock every student’s scientific potential!

Build a Bridge...and Get Over It!

(Grades 7–12)

W196a, McCormick Place

Science Focus: ETS, PS2.A, PS2.C, CCC3, CCC4, CCC6, SEP1, SEP2, SEP3, SEP4, SEP5, SEP6, SEP8

Elizabeth Wenk, West Boca Raton Community High School, Boca Raton, Fla.

Discover how to facilitate bridge-building competitions that incorporate STEM. We will share adaptable guidelines and rubrics to implement in the classroom. Leave with a completed truss.

From Aragog to Gillyweed: Authentic Assessments of Biodiversity with Harry Potter

(Grades 3–8)

W196b, McCormick Place

Science Focus: LS2.A, LS2.C, CCC4, SEP2

Kelly Shepard, Illinois Institute of Technology, Chicago

The ecosystems of Harry Potter are rich with unique creatures and vegetation. Join us as we explore the use of authentic assessments to monitor student learning of biodiversity. Wands optional.

2:00–3:00 PM Exhibitor Workshops

Project-based Activities for Gas Laws and Stoichiometry Chemistry Standards

(Grades 9–12)

W179b, McCormick Place

Sponsor: PASCO scientific

Amanda Zullo (zulloama@slcs.org), Saranac Lake High School, Saranac Lake, NY

Science Focus: SEP1, CCC3, CCC1, PS1.B, SEP4, SEP3

Incorporate science and engineering practices as students develop an understanding of gases and stoichiometric calculations with PASCO’s SPARKvue software and Advanced Chemistry Sensor. The project-based STEM activities integrate chemistry concepts that can aid in the design, testing, and evaluation of student-built airbags. One attendee will win an Advanced Chemistry Sensor!

EarthComm®, a Project-based High School Earth Science Curriculum, Developed by the American Geosciences Institute, That Uses an Authentic NGSS Approach

(Grades 9–12)

W194b, McCormick Place

Science Focus: ESS, CCC, SEP

Sponsor: It’s About Time

Amanda Wilson, University of Florida, Gainesville

Become familiar with the newest edition of *EarthComm* and experience how its systems approach incorporates the NGSS science and engineering practices, crosscutting concepts, and disciplinary core ideas into its instructional model. Discover how this Project Based Learning approach, which has the engineering design cycle embedded, can help you fully implement the NGSS into your classroom. Learn why school districts coast to coast use *EarthComm* to engage students, help them develop meaning, and succeed in Earth science.

2:00–3:30 PM Exhibitor Workshops**Magnify Your Mind!—with The Private Eye®***(General) W178a, McCormick Place*

Science Focus: ESS2.A, ESS2.D, ETS1, ETS2.A, LS1.A, LS1.B, LS2.A, LS2.B, LS2.C, LS3, LS4.A, LS4.C, PS1.A, PS1.B

Sponsor: Educational Innovations, Inc.

Kerry Ruef, The Private Eye Project, Lyle, Wash.

Give students a wallop of wonder and mystery—using a jeweler’s loupe, everyday objects, and a powerful inquiry process. Students investigate science topics with fresh perspective and surprise themselves as they write, draw, and theorize at sophisticated levels. Habits of close observation bloom as *NGSS/CCSS* come to life. Take away this hands-on method—and magnify minds! Free starter kit.

Teaching About Climate in a Climate of Controversy: With the NGSS, the Battle Has Begun*(Grades 1–12) W179a, McCormick Place*

Science Focus: ESS

Sponsor: Pearson

Michael Wyession, Washington University in St. Louis, Mo.

With the release of the *NGSS*, the controversy around climate change has not become any less controversial. In this workshop, Michael Wyession, Pearson author and *NGSS* writing team member, will show how you can deal with it successfully, and identify a series of resources to respond to challenges faced when teaching about climate change.

Advanced Inquiry Labs for AP Chemistry from Flinn Scientific*(Grades 9–College) W180, McCormick Place*

Science Focus: PS

Sponsor: Flinn Scientific, Inc.

Mike Marvel (mmarvel@flinnsci.com) and **Mike Frazier** (mfrazier@flinnsci.com), Flinn Scientific, Inc., Batavia, Ill.

This hands-on workshop can help you implement the revised laboratory investigations and curriculum framework for AP Chemistry! Join Flinn Scientific for two new guided inquiry chemistry experiments that support the integrated learning objectives and science practice skills your students will need for success. Pre-lab preparation and preliminary activities for each investigation have been optimized to effectively guide students. Handouts!

Autopsy: Forensic Dissection Featuring Carolina’s Perfect Solution® Pigs*(Grades 9–12)**W181a, McCormick Place*

Science Focus: LS

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 dissect a Carolina’s Perfect Solution pig by modeling the protocols of a forensic pathologist. Free materials and door prizes.

A Progression of Learning Through the NGSS K–8*(Grades K–8)**W181b, McCormick Place*

Science Focus: PS, INF, CCC, SEP

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Engage in disciplinary core ideas from the *Next Generation Science Standards* and learn how to incorporate the science and engineering practices and crosscutting concepts. Experience lessons that demonstrate the learning progression through forces and motion.



Evolving Enzymes: Bioinformatics, Enzymes, and Inquiry

(Grades 9–College)

W181c, McCormick Place

Science Focus: LS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Looking for inquiry activities for AP Biology? Enrich your students' experience with unique solutions from Carolina designed to meet the College Board curriculum. Go hands on with our new enzymes activity. It combines multiple big ideas and science practices into one unique lesson. Free handouts and door prizes.

Biodiversity in the Age of Humans

(Grades 9–12)

W183c, McCormick Place

Science Focus: ESS3, LS2

Sponsor: HHMI BioInteractive

Mark Nielsen, Howard Hughes Medical Institute, Chevy Chase, Md.

David Hong, Diamond Bar High School, Diamond Bar, Calif.

Amy Fassler, Marshfield High School, Marshfield, Wis.

Humans are changing Earth in unprecedented ways. Many of the impacts result in threats to biodiversity through habitat destruction and climate change. Join us to explore multimedia classroom resources that investigate factors that threaten biodiversity on land and in the sea.

CPO's Link™ Learning Chemistry Models Module: Fun with Atom Building Games and the Periodic Table

(Grades 6–12)

W184bc, McCormick Place

Science Focus: PS

Sponsor: CPO Science/School Specialty Science

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

CPO's new Link Chemistry Models module is a STEM- and NGSS-based approach that lets students experience innovative activities to learn atomic structure and the periodic table. Students work in a real-time tablet-based learning environment with hands-on equipment to study bonding, isotopes, subatomic particles, ions, balancing equations, and periodicity.

Assessment: The Bridge Between Teaching and Learning

(Grades 1–6)

W184d, McCormick Place

Science Focus: GEN

Sponsor: Delta Education/School Specialty Science–FOSS

Kathy Long, The Lawrence Hall of Science, University of California, Berkeley

Join a panel of experienced FOSS users to discuss the benefits and challenges of using the FOSS Assessment System. Strategies discussed include making frequent formative assessment quick and easy for teachers, and how to engage students in self-assessment activities. Preview new technology tools developed to streamline assessment record keeping.

Spectroscopy with Vernier

(Grades 9–College)

W185a, McCormick Place

Science Focus: LS, PS, SEP4

Sponsor: Vernier Software & Technology

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

In this engaging hands-on workshop, you will conduct a variety of biology and chemistry experiments using Vernier spectrometers with a LabQuest 2 or computer. Learn how to generate absorbance spectra, investigate kinetics, and explore Beer's law with our SpectroVis Plus Spectrophotometer and Vernier UV-VIS Spectrophotometer.

iPad and Wireless Sensors with Vernier

(Grades 3–College)

W185d, McCormick Place

Science Focus: GEN, SEP4

Sponsor: Vernier Software & Technology

Verle Walters (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

In this hands-on workshop, you will conduct a variety of experiments using Vernier sensors, including Go Wireless Temp and Go Wireless pH. You will collect and analyze data using Graphical Analysis for iPad. See how Vernier has been incorporating principles of the NGSS science and engineering practices for 34 years!

Investigating the Genome with DNA Sequencing Technology

(Grades 8–College)

W186a, McCormick Place

Science Focus: LS, INF

Sponsor: Edvotek, Inc.

Brian Ell (info@edvotek.com) and **Maria Dayton** (info@edvotek.com), Edvotek Inc., Washington, D.C.

DNA sequencing technology unlocked the secrets coded in our DNA. For example, the sequence of the human genome has allowed researchers to identify specific variations in the

DNA sequence that can be used as markers for disease predisposition. We will explore DNA sequencing by running electrophoresis and analyzing real autoradiograms. Free flash drive/T-shirt drawing entry.

Exploring How Machines Work with the LEGO® Education Simple and Motorized Mechanisms Set

(Grades 5–8) *W186b, McCormick Place*

Science Focus: ETS

Sponsor: LEGO Education

Laura Jackson, Retired Teacher/LEGO Education Trainer, Greenwood, Mo.

Cindy Howard, Retired Teacher/LEGO Education Trainer, Kansas City, Mo.

With the LEGO Education Simple and Motorized Mechanisms Set, your upper elementary students gain an in-depth understanding of the mechanical principles built into everyday machines. Through building, designing, and testing solutions, learners work as scientists and engineers, all while honing design technology, science, and math skills.

CTE: Biology Techniques for AgSci Applications

(Grades 5–12) *W192b, McCormick Place*

Science Focus: ESS, LS

Sponsor: Ward's Science

Michelle Pagani, VWR Education, Rochester, N.Y.

Learn how to engage and prepare students with in-demand skills for real-world AgSci careers. Discuss topics included in a Career and Technical Education (CTE) Agricultural Science curriculum, including soil analysis, microbiology, biotech, and plant biology using station-based activities. Leave with techniques and tools used in this field and immediate applications for your classroom.

Telling Molecular Stories with David Goodsell's Cellular Landscapes

(Grades 9–College) *W193a, McCormick Place*

Science Focus: LS1.A, LS1.D, LS4.D, CCC1, CCC2, CCC3, CCC4, CCC6, SEP1, SEP2

Sponsor: 3D Molecular Designs

Tim Herman (herman@msoe.edu) and **Margaret Franzen** (franzen@msoe.edu), MSOE Center for BioMolecular Modeling, Milwaukee, Wis.

These amazing landscapes allow you to tell molecular stories. In “Your Flu Shot in Action” story, students trace the expression of an antibody gene from the nucleus to the endoplasmic reticulum where docked ribosomes synthesize it. Then the antibody continues to the cell surface via the Golgi and secretory vesicles.

A Revolutionary Way to Address All Your Standards with National Geographic

(Grades 1–5) *W194a, McCormick Place*

Science Focus: GEN, NGSS

Sponsor: National Geographic Learning

Tom Hinojosa, National Geographic Learning, Littleton, Colo.

Learn inspiring ways to address STEM, standards, and literacy concerns relating to the CCSS—all within engaging themes of science! A STEM approach using National Geographic Emerging Explorers will be featured. See how your elementary science program infused with engaging, streamlined, standards-based science materials can provide access and understanding for all your students!

Using Climate Proxies to Learn About Earth's Climate History

(Grades 9–12) *W195, McCormick Place*

Science Focus: ESS2.D

Sponsor: LAB-AIDS®, Inc.

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

How can scientists tell what Earth's climate was like thousands of years before human measurements? This activity from EDC Earth Science simulates use of fossil ocean foraminifera. Analyze and graph samples of replicas of these organisms and use this information to determine relative warm and cold periods in the past 200,000 years.

The Secrets to PBL Success for STEM

(General) *W470a, McCormick Place*

Science Focus: GEN, SEP

Sponsor: Accelerate Learning

Terry Talley (ttalley@acceleratelearning.com), Accelerate Learning, Houston, Tex.

Project Based Learning can be challenging the first time you implement it. Come experience an engaging hands-on PBL that reveals the strategies for seamless facilitation. Allow your students the autonomy to solve problems that interest them and see high levels of engagement that lead to high levels of learning.



Evolving Curiosity in the Animal Kingdom

(Grades 5–10)

W470b, McCormick Place

Science Focus: LS

Sponsor: Shape of Life

Denise Ryan, Ryan+forest.Hayes, Soquel, Calif.

Natasha Fraley, Sea Studios Foundation, Monterey, Calif.

Kevin Goff, Virginia Institute of Marine Science, Gloucester Point

Join Nancy Burnett, Shape of Life and Monterey Bay Aquarium founder, on an exploration of how the animal kingdom evolved on planet Earth through exquisite FREE classroom media. Nancy will feature real classroom applications and lesson plans that adapt to your teaching environment.

Feeding the World: The Science of Soil

(Grades 7–12)

W471a, McCormick Place

Science Focus: ESS2, ESS3, LS1, LS2

Sponsor: Nutrients for Life Foundation

Sue Meggers (smeggers@i-35.k12.ia.us), Interstate 35 Secondary School, Truro, Iowa

Get fully equipped for your soil science unit! Learn new hands-on soil activities, plus come away with an armload of free lessons, posters, and more from the Nutrients for Life Foundation. Plant the seeds of success with these inquiry-based lessons on the properties of soil and how soil affects plant growth.

Read, Write, and Think SCIENCE!

(Grades K–12)

W471b, McCormick Place

Science Focus: GEN

Sponsor: Discovery Education

Mike Bryant (educationpartnerships@discovery.com), Discovery Education, Silver Spring, Md.

Developing literacy and critical-thinking skills is key to quality science instruction. Discovery Education Science Techbook has a plethora of resources and strategies for developing key literacy skills, scientific literacy, and critical-thinking skills in every student.

Getting the Most from Your Low-Cost Water Monitoring Kit

(Grades 5–9)

W475a, McCormick Place

Sponsor: LaMotte Co.

Kurt Moser, Earth Force, Denver, Colo.

Science Focus: ESS, SEP3, SEP4, SEP6, SEP7, SEP8

Learn how to use water quality testing kits to measure critical factors that indicate the health of a water resource. Data collected will be used to illustrate use of the Earth Force Process, a service-learning instructional model that combines action civics and STEM concepts as a pedagogical strategy.

Material Science: The Chemistry of Solids

(Grades 9–College)

W476, McCormick Place

Science Focus: ESS3, ETS, LS, PS1.A, PS1.B, PS2, INF, CCC, SEP

Sponsor: Energy Concepts Inc.

Merrill Rudes, Energy Concepts, Inc., Mundelein, IL

Explore through demonstrations and experiments why and how the development and use of materials will be a primary driver of careers in the 21st century. Join ECI as they provide an engaging glimpse into the properties and characteristics of materials.

2:00–4:00 PM Presentation**Meet Me in the Middle Session: Middle Level Share-a-Thon***(Grades 5–9)**Vista/S406a, McCormick Place*

Science Focus: GEN

Organizer: **Todd Hoover** (*thoove2@bloomu.edu*), Bloomsburg University of Pennsylvania, Bloomsburg

Calling all middle school science teachers! Join more than 100 presenters to obtain numerous lesson plans and activities for use in your classroom tomorrow! Visit *bit.ly/1GelrPS* for a complete list of participants

2:00–4:00 PM Hands-On Workshop**Special Pathway Session: Get Grounded—Experience the NGSS in Practice***(General)**W175c, McCormick Place*

Science Focus: ESS2.A, INF, CCC4, SEP2, SEP4

Staceylyn Machi (*@StaceylynM*; *@MSS_WestEd*; *smachi@wested.org*), Making Sense of SCIENCE/WestEd, San Francisco, Calif.

Ellen Thompson (*ellen.thompson@uah.edu*), AMSTI-UAH, Huntsville, AL

Wondering how to put the NGSS into action in your classroom? Dig through soil samples to discuss how core NGSS ideas, practices, and crosscutting concepts can be explored as part of the geosphere.

2:20–2:40 PM Presentation**SCST Session: Understanding by Design (UbD) in Science Professional Development Programs: Success Depends upon Scientific Content, Creativity, and Applicability***(Grades 6–College)**Clark C, Hyatt*

Science Focus: GEN

Renee Clary (*rclary@geosci.msstate.edu*), Mississippi State University, Mississippi State, Miss.

When teachers investigated UbD and co-taught peers, they disliked the process! Learn how UbD can be successfully incorporated—and enjoyed—in science PD programs.

2:30–3:00 PM Presentations**Astronomy and Geology Vocabulary, i.e. “NASA Words” in Native American Languages***(Grades 5–12)**Hyde Park B, Hyatt*

Science Focus: ESS, INF

Melba Martin (*drcmuloc@aol.com*), Solar System Ambassador, Chinle, Ariz.

Hear about the Rosetta Project, a program in selected American Indian communities in which contemporary STEM vocabulary is taught alongside indigenous languages.

New Terrain: Working Together at All Levels to Incorporate Science Practices*(General)**Adler A/B, Hyatt*

Science Focus: GEN, NGSS

Bonnie Maur (*bmaur1@aol.com*), Sacred Heart University, Fairfield, Conn.

Hear how K–16 educators collaborated to develop a deeper understanding of and facility with the NRC *Framework* and NGSS, as well as understanding linkages to the CCSS.

ASTE Session: Bridging Policy and Practice—Science Teacher Education for the Next Generation*(General)**Field C, Hyatt*

Science Focus: GEN, NGSS

Lisa Martin-Hansen (*@lmartinhansen*; *l.martinhansen@csulb.edu*), California State University, Long Beach

Deborah Hanuscin (*hanuscind@missouri.edu*), University of Missouri, Columbia

Julie Luft (*jaluft@uga.edu*), The University of Georgia, Athens

John Tillotson (*@johnwtillotson*; *jwtillot@syr.edu*), Syracuse University, Syracuse, N.Y.

Join recipients of the Outstanding Science Educator of the Year award as they share ways in which they are responding to the NGSS in teacher preparation.

Reebops Revisited: Using Hands-On Activities as Summative Assessment Tools

(Grades 6–12) *S402a, McCormick Place*
Science Focus: LS

Thomas Owen (*thomas.owen@alumni.brown.edu*), Brewster Academy, Wolfeboro, N.H.


We will describe the details of the classic Reebop activity, followed by our experiences using this activity as a mode of summative assessment in our grade 10 biology class's unit on Mendelian genetics.

Portfolio Assessment for AP Environmental Science

(Grades 9–12) *S404bc, McCormick Place*
Science Focus: ESS

Presenter to be announced

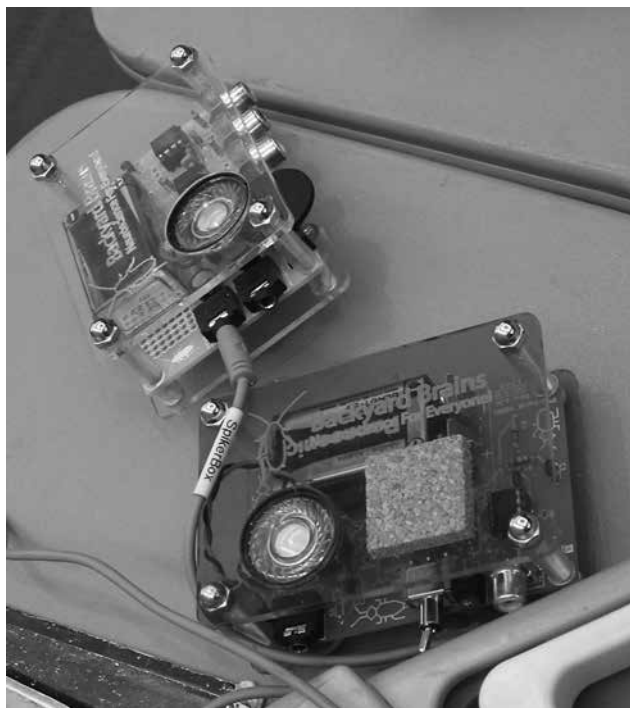
Students create portfolios with reflections of learning related to APES topics. You'll be surprised at the awesome results—and know that they learned more than what a test can measure!

 **Making STEM Meaningful with Sea Turtles**

(Grades 5–College) *W187a, McCormick Place*
Science Focus: LS, INF

Jessica MacManus, Mass Audubon's Wellfleet Bay Wildlife Sanctuary, Wellfleet, Mass.

Learn about a project by Mass Audubon and NOAA that integrates conservation biology, STEM learning, and NGSS practices. Students engage in authentic research to save sea turtles.



2:30–3:30 PM Exhibitor Workshop

Body of Evidence: A Forensic Science Mystery!

(Grades 6–College) *W193b, McCormick Place*

Science Focus: GEN, INF

Sponsor: Texas Instruments

Presenter to be announced

What can we learn from decomposing corpses? A lot! Join us for a hands-on lesson developed by Texas Instruments and the National Academy of Sciences with help from forensic anthropologist Diane France. Part of the STEM Behind Hollywood program, this lesson combines science, Hollywood, and STEM careers into one easy-to-follow lesson...and it's free at www.stemhollywood.com.

2:40–3:00 PM Presentation

SCST Session: A Community College/Audubon Society Partnership: Mutualism in Action

(Grades 10–College) *Clark C, Hyatt*

Science Focus: LS, INF

Antonios Pappantoniou (*apappantoniou@hcc.commnet.edu*), Housatonic Community College, Bridgeport, Conn.

Come learn about a partnership between Housatonic Community College and the Connecticut Audubon Society. Students collect real-world biological data that assists the Audubon Society in managing their sanctuary.

3:00–4:30 PM Exhibitor Workshop

STEM Careers in Chemistry

(Grades 7–12) *W184a, McCormick Place*

Science Focus: PS

Sponsor: Fisher Science Education

Robert Marshall (*robert.marshall@thermofisher.com*), Fisher Science Education, Pittsburgh, Pa.

Flip your classroom with innovative chemistry equipment that will put the power in your students' hands and excite them for a future career in related fields. Design an individualized research experiment given limited materials and then interpret the results to answer real-world scientific questions.

3:15–5:15 PM Meeting

Association for Multicultural Science Education (AMSE) Membership Meeting

Dusable A/B, Hyatt

3:30–4:00 PM Presentations**Transforming Assessment of Student Learning in a Multidiscipline Department**

(College) *Grant Park C, Hyatt*
Science Focus: GEN

Daniel Jordan (djordan@colum.edu), **Gerald Adams** (gadams@colum.edu), **Julie Minbirole** (jminbirole@colum.edu), **Christopher Shaw** (cshaw@colum.edu), and **Timothy McCaskey** (@timmccaskey; tmccaskey@colum.edu), Columbia College Chicago, Ill.

Hear how a department encompassing multiple science disciplines transformed assessment from a focus on disciplines and classes to a unified and authentic approach.

STEM Integration for District Leaders: Addressing the Needs of All Students

(General) *Hyde Park B, Hyatt*
Science Focus: GEN, SEP

Mia Dubosarsky (mdubosarsky@wpi.edu), The STEM Education Center, Worcester, Mass.

Emphasis will be placed on the need, structure, and products of a program for school and district leaders working to develop a strategic plan for STEM integration.

**NSTA Press® Session: *Beyond the Numbers: Making Sense of Statistics***

(Grades 6–College) *S401bc, McCormick Place*

Edwin Christmann (edwin.christmann@sru.edu), Slippery Rock University, Slippery Rock, PA

Science Focus: GEN

Add new learning to your classroom. Join us as we focus on the NSTA Press book *Beyond the Numbers: Making Sense of Statistics*.

Using Weather Data Collection and Analysis to Address the NGSS and CCSS

(Grade 9) *S404bc, McCormick Place*
Science Focus: ESS, CCC

Mark Powers, Vergennes Union High School, Vergennes, Vt. Find out how data from an electronic weather station and various commercial weather maps can be used to build a better understanding of the daily science of weather.

Exploring STEM Activities with High School Physics Students Through a Partnership Program

(Grades 9–12) *S501d, McCormick Place*
Science Focus: PS

Huseyin Colak (h-colak@neiu.edu), Northeastern Illinois University, Chicago

Join a science educator and a physics teacher as they share their experiences implementing two STEM activities with high school students as part of a university-high school partnership.

Density Columns: An NGSS Approach

(Grades 9–12) *W187c, McCormick Place*
Science Focus: PS

Elizabeth Potter-Nelson (@mrspotternelson; epotter@gmail.com) and **Colleen Buzby** (@buzbyrocks; colleen.buzby@gmail.com), Antioch Community High School, Antioch, Ill.

Find out how we took an existing unit and turned it into an NGSS unit using density columns!

3:30–4:30 PM Meeting**Youth Environmental Science Medal Presentation**

Burnham C, Hyatt

Youth Learning as Citizen Environmental Scientists presents the first Youth Environmental Science Medal to Barry Rock for establishing the citizen science aspects of GLOBE. For additional information, visit www.ylaces.org.

3:30–4:30 PM Networking Opportunity**NSTA Chapter and Associated Group Leader Roundtable and Reception**

Regency C, Hyatt

Are you a volunteer leader or staff of an NSTA chapter or associated group? Attend this networking session to learn more about what NSTA is doing to support your organization, share information, and network with other stakeholders. Refreshments provided.

3:30–4:30 PM Presentations

NGSS and Science Fairs—A Change Is Gonna Come!

(Grades 6–12) *Erie, Hyatt*

Science Focus: GEN, INF, NGSS, SEP

Amy Telford (atelford@sandoval501.org), Sandoval Junior-Senior High School, Sandoval, Ill.

Join us for a roundtable discussion on the pros and cons of students doing a science fair. Is it a “time-suck” or an “NGSS dream curriculum”?

NSELA Session: NGSS Engineering: How to Help Every Science Teacher Move from Panic to Plan

(Grades 7–12) *Field A/B, Hyatt*

Science Focus: ETS1

Ann Hammersly (ahammersly@susd.org), Chaparral High School, Scottsdale, Ariz.

Encounter examples and strategies for teacher leaders to incorporate engineering ideas into every science classroom. Professional development for all subject areas included.

Inquiry-based Approaches to Support the New AP Physics 1 and 2 Courses

(Grades 9–College) *Grant Park A, Hyatt*

Science Focus: PS

Martha Lietz (@lietzma; marlie@d219.org), Niles West High School, Skokie, Ill.

Elicit critical thinking through inquiry-based instructional design incorporating hands-on investigations, demos, simulations, and innovative assessments. Discussion includes strategies for modifying traditional labs to include inquiry as well as nonlaboratory-related inquiry-based strategies.

How We Flipped Our Classrooms and How You Can, Too

(General) *Grant Park B, Hyatt*

Elise Burns (eburns@pascack.k12.nj.us), Pascack Hills High School, Montvale, N.J.

Science Focus: GEN

Find out how two teachers have flipped (their classrooms). View sample lesson plans, videos, activities, and assessments, and then have an opportunity for Q&A.

Using Case Studies in the Science Classroom

(Grades 5–12) *Jackson Park A, Hyatt*

Science Focus: GEN, SEP1, SEP4, SEP6, SEP7, SEP8

Jason Artero, Central Michigan University, Mount Pleasant
Join us as we explore using case studies to connect students to science in relation to the world around them. Resource handouts included.

The Connected Educator: Joining the Global Conversation with Social Media Tools

(General) *Jackson Park D, Hyatt*

Science Focus: GEN

Matthew Brewer, Soap Lake Middle/High School, Soap Lake, Wash.

Emphasis is placed on developing your own “Personal Learning Network” using social media tools like Twitter. Getting connected has never been easier!

AMSE Session: Navigating Racial Differences Between Teachers and Students

(General) *Prairie A, Hyatt*

Science Focus: GEN

Melissa Campanella (melissa.rae.campanella@gmail.com), Noel Community Arts School, Denver, Colo.

Join us for a “crash course” in critical race theory. Participants will examine their own identities, white privilege, and structural/institutional racism.

Model It! Using the NGSS Practice of Developing and Using Models to Assess Student Learning

(Grades 9–12) *S401d, McCormick Place*

Science Focus: GEN, CCC, SEP2

Jaimie Foulk (jafoulk@mail.missouri.edu), University of Missouri, Columbia

Rachel Kenning (rachelkenning@yahoo.com), Parkview High School, Springfield, Mo.

There’s more to models than meets the eye. Come learn how model-based inquiry can reveal your students’ thinking and help you assess their learning!

The SeaPerch Experience: Using Competition to Spark Interest in STEM

(Grades 6–12) *S403a, McCormick Place*

Science Focus: GEN, INF, SEP

Bridgette Davis (bridgettedavis@lsu.edu), Louisiana State University, Baton Rouge

The SeaPerch Experience uses an ROV to emulate real-world aquatic events and uses competition to spark interest in STEM and enhances science literacy skills. Delve into starting a program at your school.

Students and Teachers Investigating Climate Change and Remote Sensing

(Grades 7–12) *S403b, McCormick Place*
 Science Focus: ESS2.D, ESS3.D, ESS3.C, CCC2, CCC3, CCC7, SEP1, SEP3, SEP5, SEP6

David Bydlowski (@iccars; bydlowd@resa.net) and **Paul Henry** (@ICCARS_AndyH; henrya@resa.net), Wayne RESA, Wayne, Mich.

Student projects require teachers to provide the best instructional materials, while students collect “real” data. This happens when students investigate climate change and remote sensing.

Effective Middle School PLCs

(Grades 6–8) *S404d, McCormick Place*
 Science Focus: GEN

Lori Khan (lori.khan@dpsnc.net), Middle College High School at DTCC, Durham, NC

Find out how effective professional learning communities at your school translate into increased scientific literacy and above-average state test scores, as well as build a science culture in your community.

Assisting Students with Disabilities, ELLs, and ESL Learners Access the NGSS Through the NOS Concepts

(Grades 6–8) *S405a, McCormick Place*
 Science Focus: GEN, INF, NGSS

Robin Keys (rmkeys57@yahoo.com), Greenbelt Middle School, Greenbelt, Md.

Emphasis will be placed on instructional practices to assist students from diverse populations, such as English language learners and English as a second language learners, gain an understanding of the nature of science through participating in contextualized and decontextualized classroom activities as well as learn to analyze and comprehend science vocabulary.

Actually Replace Lectures with Guided Inquiry

(Grades 7–12) *S501a, McCormick Place*
 Science Focus: PS, INF

Jason Neil, Greenville High School, Greenville, Mich. Chemistry and physics core ideas commonly taught by lecture can be more effectively taught with “paper-and-pencil” guided inquiry activities. Example lessons/handouts provided.

Translating Research into Practice: Framework and Philosophy of Integrating Engineering into Science

(Grades P–5) *S504bc, McCormick Place*
 Science Focus: ETS, CCC, SEP

Johannes Strobel and **Andrea Agree**, Texas A&M University, College Station

We have synthesized 10 years of research on students. Join us as we share what it means to practice engineering and science and introduce a framework for integrated STEM education.

Stellaluna: A Lesson in Understanding and Appreciating Differences

(Grades P–5) *S505a, McCormick Place*
 Science Focus: GEN

Eva Ogens (eogens@ramapo.edu), Ramapo College of New Jersey, Mahwah, NJ

Using the book *Stellaluna*, explore two creatures who are so alike yet so different while teaching about diversity and integrating science, social studies, health, and children’s literature.

Are You Using the “Write” Engineering Tools?... Connecting Engineering and Writing in the Elementary Science Classroom

(Grades P–5) *S505b, McCormick Place*
 Science Focus: GEN, NGSS

Marcia Segers (marcia.segers@trussvillecityschools.com) and **Angela Shorter** (angela.shorter@trussvillecityschools.com), Paine Primary School, Trussville, Ala.

Pressed for time? Why not combine science and writing? Find out what your students know about science through journaling, writing workshop, and graphic organizers!


Do You Need a New Science Lab?

(Grades 6–12) *W176b, McCormick Place*
 Science Focus: GEN

Ruth Ruud (ruth.ruud@yahoo.com), Cleveland State University, Cleveland, Ohio

Peggy Carlisle (pcarlisle@jackson.k12.ms.us), Pecan Park Elementary School, Jackson, Miss.

Come learn how to win a Shell Science Lab Makeover (\$20,000 value) for your school. You will have an opportunity to actually begin to complete the application and have your questions answered. The Shell Science Lab Challenge invites middle and high school science teachers (grades 6–12) in the United States and Canada (with special attention to urban and underrepresented groups) to illustrate replicable approaches to science lab instruction using limited school and laboratory resources.


 **Doing Service and Science in Your Local Forest Preserves**

(Grades 5–12) *W187a, McCormick Place*
Science Focus: ESS3.A, ESS3.C, LS2.A, LS2.C, SEP1, SEP3, SEP4

Kevin Connolly (*kmconnolly1@cps.edu*), John F. Kennedy High School, Chicago, Ill.

Evan Kardon (*evankardon@gmail.com*), Lincoln Park High School, Chicago, Ill.

Discover countless opportunities for student service and citizen science that are a short bus ride away in the nation's oldest and largest urban forest preserves.


 **Ready, Set, STEM!**

(Grades 6–8) *W187b, McCormick Place*
Science Focus: ETS1, ETS2.A, LS2.A, LS2.B, PS2.A, CCC3, CCC4, CCC5, CCC6, SEP2, SEP4, SEP5, SEP6

Adaliz Gonzalez (*agonzalez4@schools.nyc.gov*), New York City (N.Y.) Dept. of Education

Come see how a series of units that integrate math and science topics highly engages English language learners in various engineering design challenges and in the use of technology to solve problems.



 **Creating Assessments for Physical Science That Integrate the Three Dimensions of the NGSS**

(Grades K–12) *W190b, McCormick Place*
Science Focus: PS1.A, PS1.B, CCC1, CCC3, CCC5, SEP2, SEP4, SEP6, SEP7

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

Brian Gane (*bgane@uic.edu*), University of Illinois at Chicago

Christopher Harris (*christopher.harris@sri.com*), SRI International, Menlo Park, Calif.

Joseph Krajcik (*@krajcikjoe; krajcik@msu.edu*), CREATE for STEM Institute, Michigan State University, East Lansing
Find out how to develop and use classroom-based assessments that blend core disciplinary ideas, crosscutting concepts, and scientific practices to monitor students' progress.

CESI Session: Using Mobile Learning to Engage K–6 Students in Becoming Stewards of Their Environment

(Grades P–8) *W192c, McCormick Place*
Science Focus: ESS, LS, INF, CCC, SEP

Cynthia Deaton, Clemson University, Clemson, S.C.

Join us as we share environmental science lessons that integrate iPads, literacy, and/or mathematics to encourage students to investigate environmental issues and become stewards of their environment.

Don't Fear the Engineer! How to Incorporate NGSS Engineering Standards into Your Classroom

(Grades 7–12) *W196c, McCormick Place*
Science Focus: ETS.1, SEP7

Karen Bowers (*kbowers@guhds.net*), Monte Vista High School, Spring Valley, Calif.

Explore readily available resources that teach NGSS engineering. Help your students become better problem solvers and start to think for themselves.

3:30–4:30 PM Hands-On Workshops**Can You “See” It Now? Using Models, Manipulatives, and Other Visual Aids to Engage Science Students***(Grades 6–12)**Burnham A/B, Hyatt*

Science Focus: GEN, NGSS

Christina Hughes, Hazelwood School District, Florissant, Mo.

Create do-it-yourself visual aids to help students to “see” and explain abstract scientific processes.

ASTE Session: It’s Alarming! Using Engineering Design to Build Students’ Understanding of Simple Circuits*(Grades 3–5)**Grant Park D, Hyatt*

Science Focus: PS3.C, CCC4, SEP

Aaron Hamilton (akhamilton@tsc.k12.in.us) and **Colleen Cooper** (ccooper@tsc.k12.in.us), Wyandotte Elementary School, Lafayette, Ind.

By engaging in the engineering design process, participants will learn new ways to teach the science behind simple circuits.

Extreme Makeover: Meeting the Next Generation Science Standards*(Grades K–12)**Jackson Park B, Hyatt*

Science Focus: GEN, SEP1, SEP2, SEP6

Deanna Lankford (lankfordd@missouri.edu), University of Missouri, Columbia

Redesign investigations and activities in your classroom to support the NGSS and focus on critical thinking and problem solving. NSTA Missouri U Student Chapter members will host stations with active inquiry. Take home handouts with activities and learn they reflect the NGSS.

The Many Faces of Word Walls*(Grades 1–12)**Jackson Park C, Hyatt*

Science Focus: INF

Jennifer Hooper, The University of Texas at San Antonio
Using word walls, I will demonstrate how you can assess what your students know regarding vocabulary and content. Interactive lessons include basketball vocabulary, matching up, lining up, and stringing up linking words.**DuPont Presents: Tracking the Spread of Infectious Diseases—Human and Animal***(Grades 9–12)**Regency E, Hyatt*

Science Focus: LS2.D

Kurt VanDeWalle (@fcagteacher; kurt.vandewalle@fillmore-central.org), Fillmore Central High School, Geneva, Neb.**Christa Williamson** (@fcagteacher; cwilliamson@kms.k12.mn.us), KMS Junior/Senior High School, Kerkhoven, Minn. Help students understand the spread of diseases in a human or animal population by using this engaging hands-on lab. Model how health organizations trace a disease while teaching important concepts of disease transmission and exponential growth.**NSTA Press® Session: Pendulums and Porch Swings***(General)**S401a, McCormick Place*

Science Focus: ETS, SEP

Richard Konicek-Moran (rkonicek@gmail.com), Professor Emeritus, UMass Amherst, Mass.**Page Keeley** (@CTSKeeley; pagekeeley@gmail.com), 2008–2009 NSTA President, Fort Myers, Fla.**Joyce Tugel** (jtugel@gmail.com), Maine Mathematics and Science Alliance, AugustaLearn how to combine *Uncovering Student Ideas in Science* with *Every Day Science Mysteries* to engage students in the scientific and engineering practices. Experience an example that connects a scientific investigation to an engineering problem for classroom use or for use in professional development.**Math + Biology: It Adds Up!***(Grades 9–12)**S402b, McCormick Place***Sahid Rosado Lausell** (rosado.sahid@gmail.com), **Chandana Jasti**, and **Barbara Hug** (bhug@illinois.edu), University of Illinois at Urbana–Champaign

Science Focus: LS, SEP3, SEP4, SEP6, SEP7, SEP8

Explore student-driven activities that integrate key science and math practices identified in the NGSS and CCSS. Activities involve data collection and analysis, graphing, and scale concepts.

Come Be a Paleoclimatologist and Discover the Relationship Between Climate and the Biosphere*(Grades 7–12)**S404a, McCormick Place*

Science Focus: ESS2.D, CCC1, CCC7, SEP4

Dawn Chegwiddden (@ChegwiddendmNow; aisforeffort@aol.com), Lewisville High School, Lewisville, Tex.

Investigate how present and past can help us explain climate and weather. Use data and hands-on activities to demonstrate NGSS crosscutting concepts.

Exploring Organisms in Ecosystems with Vermicomposting

(Grades 6–9) *S405b, McCormick Place*

Science Focus: LS2.C, SEP1, SEP2, SEP8

Margaretann Connell (*connmar1@hawk.iit.edu*), Illinois Institute of Technology, Chicago

Recycle and beautify school grounds by vermicomposting and increase your middle school students' engagement in authentic science practices and understanding of nature of science. Materials provided.

It's a Matter of Attraction

(Grade 10) *S501bc, McCormick Place*

Science Focus: PS1.A

Benjamin Twietmeyer (*ben.twietmeyer@gmail.com*), CHSD 218, Palos Heights, Ill.

Modeling atomic structure can be Bohring! Learn how to use magnets to model electrostatic forces and periodic trends.

Bring the Solar System into Your Classroom!

(Grades 2–8) *S502a, McCormick Place*

Science Focus: ESS, CCC3, SEP2

Nancy Balter (*nancybalter@yahoo.com*), Educational Insights, Culver City, Calif.

Make a scale model of the solar system that shows the relative distances between the planets. Explore cross-curricular connections with math. Take away a model to use in class next week. Plus solar system music, handouts, and fantastic door prizes!

CCSS Close Reading and the 5E Instructional Model in K–5 Science: The Roles of Vocabulary, Text Complexity, and Inquiry

(Grades K–5) *S503a, McCormick Place*

Science Focus: GEN, SEP3, SEP7, SEP8

Marie Donovan and **Carla Shortino** (*cshortin@depaul.edu*), DePaul University, Chicago, Ill.

Explore the complex nature of science vocabulary and text structures. Learn to apply the 5E (Engage, Explore, Explain, Elaborate, and Evaluate) model in which all students read as scientists do—through inquiry.

What's the Attraction? Magnetic Forces and Their Interactions

(Grade 3) *S503b, McCormick Place*

Science Focus: PS2.B, CCC2, SEP1, SEP2, SEP3, SEP6, SEP8

Karen Umeda, Hawaii State Dept. of Education, Honolulu
Explore magnetism through a model grade 3 STEM unit that addresses the NGSS performance expectations across all three dimensions. Instructional materials include directions for inquiry investigation stations and an engaging engineering design challenge.

Math/Science Integration for Earth's Sake

(Grades 3–5) *S504a, McCormick Place*

Science Focus: ESS3.A, ESS3.C, ESS3.D, LS2.A, LS4.D, CCC1, CCC2, CCC3, CCC4, CCC5, CCC7, SEP

Carol Bliese (*@PopulationEd; cbliese@populationconnection.org*), Population Connection, Washington, D.C.

Combine your math and science lessons with these engaging hands-on activities that build computational and measurement skills while teaching about ecosystems and our ecological footprints.

PD McREL Pathway Session: Ed Tech in Elementary STEM Lessons

(Grades 1–6) *W175a/b, McCormick Place*

Science Focus: GEN, INF, NGSS

Laura Arndt (*larndt@mrel.org*), McREL International, Denver, Colo.

Understand how to incorporate computer-based inquiry learning tools such as virtual manipulatives, animations, simulations, and technology-based tools to collect and report data as part of high-quality elementary STEM instruction.



Engineering Design Inspired by Nature

(Grades 6–8) *W186c, McCormick Place*

Science Focus: ETS, LS4, CCC, SEP

Karen Saur (*@Karen_Saur; ksaur@nysci.org*), New York Hall of Science, Queens

Christine DeMauro (*@WCSEducation; cdemauro@wcs.org*), New York Aquarium, Brooklyn

Draw inspiration from marine animals as you begin the process of designing a submersible. By taking a close look at marine animals' body structures and the functions they perform, qualitative observational data can be collected on how an organism's body shape affects rate of movement. We'll cover hydrodynamics, biomimcry, and animal adaptation.

Deepen Visual and Spatial Thinking in STEM

(Grades 3–8)

W192a, McCormick Place

Science Focus: GEN

Lucinda Presley (lucinda.presley@gmail.com), ICEE Success Foundation, Palestine, Tex.

Jessica Lavalley (jessicareynolds@me.com), Whately Elementary School, Whately, Mass.

Deepen your students’ abilities to understand and analyze scientific images, charts, diagrams, and phenomena using visual thinking skills. Excellent for classrooms, labs, and test-taking.

STEM Road Map: Using Problem-Based Learning to Integrate STEM at the High School Level

(Grades 9–12)

W196a, McCormick Place

Science Focus: GEN, NGSS

Erin Peters-Burton (epeters1@gmu.edu), George Mason University, Fairfax, VA

Test-drive the STEM Road Map, a new curriculum that integrates K–12 STEM Problem-Based Learning.

Scaffolding for Asking Testable Questions

(Grades 2–8)

W196b, McCormick Place

Science Focus: GEN, NGSS

Lynn Gatto (lynngatto@rochester.rr.com), University of Rochester, N.Y.

Experience investigations that demonstrate how teachers can scaffold for students the skill of asking testable questions. In each of these experiences, models are offered for framing testable questions for students. Take home a CD of detailed lesson plans.

“Don’t simply retire from something; have something to retire to.” —Harry Emerson Fosdick

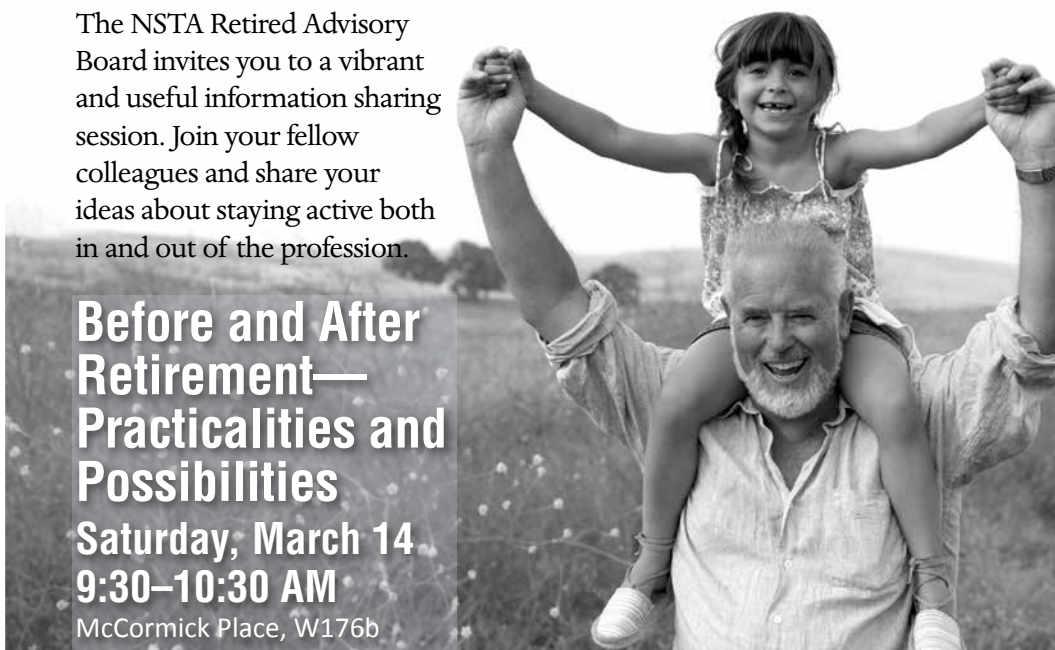
The NSTA Retired Advisory Board invites you to a vibrant and useful information sharing session. Join your fellow colleagues and share your ideas about staying active both in and out of the profession.

Before and After Retirement—Practicalities and Possibilities

**Saturday, March 14
9:30–10:30 AM**

McCormick Place, W176b

For more information on the Retired Members Advisory Board, contact Joyce Gleason, chair, at joycegle@earthlink.net.



3:30–4:30 PM Exhibitor Workshops

The Physics of Sound Waves

(Grades 9–12) *W179b, McCormick Place*
Science Focus: ETS1, ETS2.A, PS4.A, SEP1, SEP2, SEP3, SEP4, SEP6, SEP7, SEP8

Sponsor: PASCO scientific

Eric Gardner (*egardner@thebenjaminschool.com*), The Benjamin School, Palm Beach Gardens, Fla.

Connect the science of sound waves to music to explain the concepts of wavelength, frequency, and amplitude. Incorporate science and engineering practices as you explore sound with our resonance air column and PASCO sensors and Capstone software. You'll also make-and-take your own speaker to explore further wave mechanics.

Investigating Astronomy: A Project-based Astronomy Program Written Specifically for High School Students!

(Grades 9–12) *W194b, McCormick Place*

Science Focus: ESS

Sponsor: It's About Time

Margaret Holzer, Chatham High School, Chatham, N.J.

Are you looking for an astronomy program designed for high school students that reflects the *Framework* and *NGSS*? If so, *Investigating Astronomy*, developed by the education experts at TERC, is your answer. The project-based units, which can be used as either drop-in units or to form a full-year course, actively engage students with real data using technology similar to that which astronomers use. Please join Missy Holzer, former president of National Earth Science Teachers Association and *Investigating Astronomy* classroom teacher, for this hands-on exploration!

3:30–5:00 PM Meeting

SCST Business Meeting

Clark C, Hyatt

3:30–5:00 PM Hands-On Workshop

NGSS@NSTA Forum Session: Implementing NGSS: Stories from the Front Lines

(Grades K–12) *W183a/b, McCormick Place*

Science Focus: GEN, NGSS

Panel Moderator: **David Evans**, NSTA Executive Director, Arlington, Va.

Part of a six-session series known as the NGSS@NSTA Forum, this presentation will provide insight from national experts on implementation of the *Next Generation Science Standards (NGSS)*. In addition, the forum will offer guidance on how teachers everywhere can improve student learning using the methods described in the *Framework for K–12 Science Education*.

3:30–5:30 PM Meeting

APAST Business Meeting and Social

(By Invitation Only) *Regency D, Hyatt*

Enjoy snacks and catch up with old friends. Share your PA adventure with the rest of us. Check out APAST opportunities for you. Current PA's only.

3:30–5:30 PM Presentation

CSSS Session: 3-D Instruction: Mapping Instruction for Three-Dimensional Performance Expectations

(General) *Field C, Hyatt*

Science Focus: GEN, NGSS

Samuel Shaw (*@ScienceEDU*; *sam.shaw@state.sd.us*), South Dakota Dept. Education, Pierre

How do you design instruction to meet the three dimensions of the new performance expectations? How do you create professional learning that motivates educators to adapt to new shifts in science education? Join us as we showcase how two states collaborated to develop strategies, tools, and virtual professional learning modules to address these questions. Handouts.

3:30–5:30 PM Hands-On Workshop

BSCS Pathway Session: Engaging Students in Explanations and Argumentation—Practices 6 and 7

(Grades 6–12) *W176a, McCormick Place*

Science Focus: GEN

Betty Stennett (*bstennett@bscs.org*) and **April Gardner** (*agardner@bscs.org*), BSCS, Colorado Springs, Colo.

Engaging students with scientific phenomena so they are motivated to find an explanation is tricky. Participants will develop an explanation from evidence of a scientific phenomenon, and will also engage in argument from evidence as they work to develop stronger explanations. Video analysis will also be a highlight of the session as participants get a glimpse of student thinking about similar science content. Participants will learn about many free online resources they can use in their classrooms or PLCs at their schools and districts.

4:00–4:30 PM Presentations**An Approach to Teaching Scientific Inquiry***(Grades 6–12)**Dusable C, Hyatt*

Science Focus: GEN, SEP1, SEP3, SEP4, SEP5, SEP6, SEP7, SEP8

Sowmya Anjur (*sanjur@imsa.edu*) and **Joseph Traina** (*jtraina@imsa.edu*), Illinois Mathematics and Science Academy, Aurora

Students gain a better understanding of the process and nature of science by designing and performing their own experiment and successfully communicating their results.

INF Addressing Barriers to Learning STEM Education for “Priority Engagement” Youth*(General)**Hyde Park B, Hyatt*

Science Focus: GEN

Tiah McKinney (*@TMF21org; tem@mckinneyfoundation.org*), George Mason University, Fairfax, Va.

Review findings of critical risk health factors most closely related to addressing barriers in learning STEM education for “priority engagement” youth.

Redesigning the Water Rocket*(Grades 7–9)**S501d, McCormick Place*

Science Focus: PS, SEP

Allison Antink-Meyer, Illinois State University, Normal
Explore an engineering design cycle for integrating science and engineering practices and nature of science learning. We describe a series of activities involving physical science concepts appropriate for grades 7–8 classrooms in the context of a multi-phase engineering water rocket design challenge.**Hook Your Chemistry Students***(Grades 9–12)**W187c, McCormick Place*

Science Focus: PS

Elizabeth Lomeli, Cavitt Junior High School, Granite Bay, Calif.

Grab your students’ attention at the beginning of each unit and pique their curiosity about chemistry. We’ll cover video clips, stories, riddles, games, and websites.

4:00–5:00 PM Exhibitor Workshop**Chelcie’s Story: STEM Careers and the Science Classroom***(Grades 6–College)**W193b, McCormick Place*

Science Focus: LS

Sponsor: Texas Instruments

Presenter to be announced

Come learn about Chelcie’s story with a lesson dedicated to the understanding of STEM careers in a medical setting through the story of a young lady diagnosed with type 1 diabetes. Created by Texas Instruments and Sanford Health, this interactive lesson on the mechanism, treatment, and diagnosis of type 1 diabetes is appropriate for middle school and high school.

4:00–5:00 PM Meeting**NSTA Recommends Meeting***Ontario, Hyatt***4:00–5:30 PM Meeting****NMLSTA Board Meeting***Huron, Hyatt*Visit *www.nmlsta.org* for more information.**4:00–5:30 PM Exhibitor Workshops****Elementary Teacher Survival Kit***(Grades K–6)**W178a, McCormick Place*

Sponsor: Educational Innovations, Inc.

Science Focus: PS1.B, PS2.A, PS2.B, PS3.D, PS4.B

Ken Byrne and **Cathy Byrne**, Educational Innovations, Inc., Bethel, Conn.

This hands-on workshop—chock-full of easy-to-do science inquiry lessons—enables new and veteran teachers to expand their bag of tricks. Using discrepant events, these activities give students a sense of mystery and awe. Topics include energy, air pressure, scientific method, data collection, and graphing. Door prizes and giveaways!

The Best Test Prep Book Ever for AP Chemistry*(Grades 9–12)**W179a, McCormick Place*

Science Focus: PS

Sponsor: Pearson

Ed Waterman, Retired Educator, Fort Collins, Colo.

It concisely summarizes all the important content in the 6 Big Ideas and 117 Learning Objectives, and is greatly revised and expanded to include photoelectron spectroscopy (PES), mass spectrometry, and chromatography. It also contains hundreds of new and revised practice questions focusing on graphical and tabular data analysis and atomic-molecular representations.

New AP Physics 1 Advanced Inquiry Investigations from Flinn Scientific

(Grades 9–12)

W180, McCormick Place

Science Focus: PS

Sponsor: Flinn Scientific, Inc.

Mike Marvel (mmarvel@flinnsci.com) and **Janet Hoekenga**

(jhoekenga@flinnsci.com), Flinn Scientific, Inc., Batavia, Ill.

This is the first school year of the new AP Physics 1 course.

Join Flinn Scientific as we share experiments that are correlated to the new curriculum. We will present two of our 16 new guided inquiry physics kit experiments that support the new integrated learning objectives and applied science practice skills. Each experiment features prelab preparation and activities. Handouts.

Hands-On Science with Classroom Critters

(Grades K–12)

W181a, McCormick Place

Science Focus: LS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Add action and excitement to your science class with live organisms! Discover fun, simple hands-on activities you can use in your labs with pill/sow bugs, termites, bess bugs, and butterflies. Learn about care and handling, as well as easy ways to introduce inquiry. Free product samples and literature.

Engineer Excitement in Your Classroom with a Carolina STEM Challenge®

(Grades 6–12)

W181c, McCormick Place

Science Focus: ETS

Sponsor: Carolina Biological Supply Co.

Carolina Teaching Partner

Catapult, float, and race your way into hands-on activities that will engage your middle school and high school students while fostering both critical-thinking and creative problem-solving skills! Join us and experience how Carolina makes it easy to incorporate STEM into your classroom. Free handouts and door prizes.

Math and Statistics in Biology Classrooms

(Grades 9–College)

W183c, McCormick Place

Science Focus: LS, SEP4, SEP5

Sponsor: HHMI BioInteractive

Satoshi Amagai, HHMI BioInteractive, Chevy Chase, Md.

Ann Brokaw, Rocky River High School, Rocky River, Ohio

Paul Strode, Fairview High School, Boulder, Colo.

HHMI's BioInteractive presents free classroom-ready resources for incorporating math and statistics into biology classrooms. In this workshop, we will cover statistical and mathematical

methods and concepts used in biological research, such as the nature of data, distribution, sampling, and standard statistical tests. Analysis data will be drawn from real scientific research.

CPO's Link™ Wind Turbine Learning Module: A STEM Approach to Engineering and Design

(Grades 6–12)

W184bc, McCormick Place

Science Focus: ETS

Sponsor: CPO Science/School Specialty Science

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

CPO's new Link™ Wind Turbine learning module lets students learn in a tablet-based learning environment and engineer a wind turbine. Students build, test, and revise their designs. Link uses STEM activities and an NGSS approach, giving students an understanding of how to apply the engineering cycle in science class.

Science Practices: What Does Argumentation Look Like in a FOSS Elementary Classroom?

(Grades 1–5)

W184d, McCormick Place

Sponsor: Delta Education/School Specialty Science–FOSS

Brian T. Campbell, The Lawrence Hall of Science, University of California, Berkeley

Science Focus: GEN, NGSS

Join FOSS Next Generation Program developers to learn about the science practices within the context of the student investigations. Experience analyzing and interpreting data, constructing explanations, and engaging in argumentation from evidence as tools to deepen student learning within FOSS lessons. Find out about transitioning to FOSS Next Generation.

Biology with Vernier

(Grades 9–College)

W185a, McCormick Place

Science Focus: LS, SEP4

Sponsor: Vernier Software & Technology

Colleen McDaniel (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

Use Vernier sensors to conduct a variety of biology experiments from our popular lab books in this engaging hands-on workshop. Experience data collection using LabQuest 2, Logger Pro computer software, and mobile devices. See how Vernier has been incorporating principles of the NGSS science and engineering practices for 34 years!

STEM/Engineering Activities Using Vernier Sensors with Arduino

(Grades 6–12) *W185d, McCormick Place*

Science Focus: ETS1, SEP3, SEP4

Sponsor: Vernier Software & Technology

David Vernier (info@vernier.com), Vernier Software & Technology, Beaverton, Ore.

Attend this engaging hands-on workshop to explore how easy it is to use Vernier sensors with the inexpensive, easy-to-program Arduino microcontroller. Topics include an introduction to Arduino programming, calibrating sensors, and controlling outputs based on sensor readings. Learn how you can use Arduino for great STEM and engineering projects.

Biotechnology Basics

(Grades 6–College) *W186a, McCormick Place*

Science Focus: LS, INF

Sponsor: Edvotek, Inc.

Brian Ell (info@edvotek.com) and **Maria Dayton** (info@edvotek.com), Edvotek Inc., Washington, D.C.

Would you like to learn more about technologies used in today's laboratories? If so, join us for this hands-on workshop exploring three commonly used biotechnology techniques (DNA isolation, PCR, and electrophoresis). These experiments can help your students understand how techniques like genetic engineering work in a real-world context. Free flash drive/T-shirt drawing entry.

Exploring Forces, Motion, and Engineering Design with LEGO® Education Simple Machines

(Grades 1–3) *W186b, McCormick Place*

Science Focus: ETS

Sponsor: LEGO Education

Laura Jackson, Retired Teacher/LEGO Education Trainer, Greenwood, Mo.

Cindy Howard, Retired Teacher/LEGO Education Trainer, Kansas City, Mo.

Develop first- through third-graders' understanding of science, engineering, and mathematics concepts using the LEGO Education Simple Machines Set. In this hands-on workshop, you will learn how to meet elementary engineering design standards with LEGO-based activities that encourage exploration of forces and motion, development of 21st-century skills, and more.

Coaching Science Olympiad with Confidence and Connecting to the Classroom: Elastic-launched Glider

(Grades 6–12)

W192b, McCormick Place

Science Focus: ETS, INF

Sponsor: Ward's Science

Joe Simmons, Ward's Science, Naperville, IL

In this make-and-take workshop designed for both Science Olympiad and non-Science Olympiad members, you'll learn how to get the most out of your coaching experience with time-saving kits to match official events. Incorporate engineering and problem-solving principles while designing, constructing, and flying an elastic-launched glider using a Ward's Science Olympiad Kit.

Physics as a Second Language

(General)

W193a, McCormick Place

Science Focus: PS

Sponsor: Kemtec

Roxane Ohl (roh1@aquaphoenixsci.com), AquaPhoenix Scientific Inc., Hanover, Pa.

Physics not your field of expertise? Trouble connecting with students who are less scientifically inclined? Jump-starting an after-school STEM program? Inspire the gifted without losing the basics using turn-key Kemtec kits designed with you in mind. Come experience hands-on examples from electromagnets to bridge building to DC circuits.

Slip and Slides: Making Preps and Using Digital Technology in Your Science Classroom

(Grades 6–12)

W194a, McCormick Place

Science Focus: GEN, INF, NGSS

Sponsor: Ken-A-Vision Mfg., Inc.

Emily Meyer (emeyer@ken-a-vision.com), Ken-A-Vision Manufacturing Co., Inc., Kansas City, Mo.

You should know the basics before diving deep into the world of microscopy. In this workshop, you will learn how to make different preps and be introduced to Ken-A-Vision's amazing digital microscopes and cameras along with their software and EduCam app to support your 21st-century science classroom.

Prospecting for Mineral Ore

(Grades 9–12)

W195, McCormick Place

Science Focus: ESS2.A

Sponsor: LAB-AIDS®, Inc.

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

How do geologists look for mineral ore? In this activity from EDC Earth Science, we will search for a layer of rock that contains a valuable mineral called molybdenum by testing sediments collected in strategic spots along river systems, gathering data to decide where the deposit is located.

Bringing Real Neuroscience (Spiking Neurons!) into Your Classroom

(Grades 4–College)

W470a, McCormick Place

Science Focus: LS

Sponsor: Backyard Brains, Inc.

Timothy Marzullo (tim@backyardbrains.com), Backyard Brains, Inc., Ann Arbor, Mich.

Want to show your students the real electrical activity of neurons and muscles? Curious how remote-control cockroaches work and the physiology of muscles during arm wrestling? Come learn, via live demos, how to bring neuroscience into your classroom.

Push the Envelope and Unfold the Possibilities with Foldables®

(General)

W470b, McCormick Place

Science Focus: GEN

Sponsor: Dinah-Might Adventures

Robert Stremme, Dinah Zike Academy, San Antonio, TX
In this fast-paced, interactive session, discover how to transform basic classroom materials and manila envelopes into 3-D graphic organizers, also known as Foldables. See the possibilities unFOLD before you and depart with ideas ready to use on Monday that are evidence based, kinesthetic, and integrative.

Leap into the Future with Hands-On Science Teaching

(Grades 5–College)

W471a, McCormick Place

Science Focus: LS

Sponsor: Animalearn

Nicole Green (ngreen@animalearn.org), Animalearn, Jenkintown, PA

Join us as we examine the use of animals to teach anatomy and explore how we can conserve resources, eliminate harmful chemicals, and promote habitat protection by using other options. Participants will try the latest alternatives involving iPad apps, anatomy and clay, and more! One participant will win a subscription to Froguts—a \$400 value!

Engineering Design in the Middle School Science Classroom

(Grades 6–9)

W475a, McCormick Place

Science Focus: ETS, SEP

Sponsor: eCYBERMISSION

Matthew Hartman, eCYBERMISSION Content Manager, NSTA, Arlington, Va.

Would you like to bring engineering into your science class but aren't sure how to do it? Join us for ways to do so and engaging activities involving engineering and the engineering design process. Also, hear about eCYBERMISSION, a free online STEM competition and learn how you and your students can participate.

Blending the CCSS and NGSS in Your K–5 Science Classroom

(Grades P–5)

W476, McCormick Place

Science Focus: GEN

Sponsor: Activate Learning

Marilyn Schmidt, Activate Learning, Aurora, Colo.

Lynn Weber, Activate Learning, Union, Mo.

By using Activate Learning's K–5 curriculum, see how you can integrate both the CCSS and NGSS into your elementary classroom. Engage in activities and leave with pedagogies and practices to take back to the classroom.



4:30–5:30 PM Exhibitor Workshop**Discovery Education 3M Young Scientist Challenge Reception***(Grades K–12)**W471b, McCormick Place*

Science Focus: GEN

Sponsor: Discovery Education

Kyle Schutt (*educationpartnerships@discovery.com*), Discovery Education, Silver Spring, Md.

Meet other passionate science educators, get your questions about the Young Scientist Challenge answered by Discovery Education staff, and create a video message to encourage your students to join this hands-on learning challenge. Join us to celebrate the beginning of this yearly science competition and share free resources. We'll have food, drinks, prizes, and a whole lot of fun—so register early at *www.YSCNSTA2015.eventbrite.com*.

5:00–5:30 PM Presentations**How Do You Know When Your Students “Get It”?***(Grades K–12)**Adler A/B, Hyatt***Mary Loesing** (*mloesing@ccsdl.org*), Connetquot Central School District, Bohemia, N.Y.

Science Focus: GEN, NGSS

Attention will be paid to formative assessment strategies that science teachers can use to determine if their students really understand the content of lessons and laboratories.

Engaging NGSS Crosscutting Concepts and CCSS Literacy Strategies via Desktop Aquariums*(Grades 4–8)**S504d, McCormick Place*

Science Focus: ESS, CCC4, CCC5, CCC7

Chris Miller, University of Illinois at Chicago

Discussion centers on the assembly of inexpensive desktop aquariums and how their use supports student and teacher learning of ecology-based themes of the NGSS.

5:00–5:45 PM Networking Opportunity**Shell Reception***(By Invitation Only)**State Ballroom, Palmer House***5:00–6:00 PM Presentations****Fact or Fiction? Applying Critical Pedagogy Skills in the Science Classroom and Beyond—Results of a Pilot Program***(Grades 6–College)**Clark A/B, Hyatt*

Science Focus: GEN, INF

Lauren Rentfro (*rentfrla@lewisu.edu*), Lewis University, Romeoville, Ill.

People encounter media reports involving scientific findings or claims daily. Critical pedagogy skills can be applied to help us become more savvy media consumers of these reports.

Social Art and Science: A Symbiotic Relationship*(Grades 6–12)**Dusable C, Hyatt*

Science Focus: GEN, INF, NGSS

Andrew Krakowka (*@ajkrakowka; ajkrakowka@gmail.com*), Highland Falls Intermediate School, Highland Falls, N.Y.

Social artists and scientists share a common goal of organizing to creatively affect social change for a better community. Join us to learn about a progressive partnership for the science classroom.

Reach for the Stars! Bringing Computational Modeling into Your Curriculum*(Grades 7–12)**Erie, Hyatt*

Science Focus: GEN, SEP5

Michelle Paulsen (*@NU_GK12; m-paulsen@northwestern.edu*), Northwestern University, Evanston, Ill.**Katie Page** (*@katiecpage; @phsphysics; katie@davekatie.com*), Prospect High School, Mount Prospect, Ill.

This five-year NSF-funded program has been working with PhD candidates and Chicago-area teachers to develop curricular materials and resources that connect the cutting-edge research of Northwestern University with grades 7–12 math and science curricula. Leave with resources you can use immediately.

NSELA Session: Engaging in Argument from Evidence: CCSS and NGSS*(Grades 2–7)**Field A/B, Hyatt*

Science Focus: GEN, NGSS

Linda J. Morris (*linda_morris@dpsk12.org*), Denver (Colo.) Public Schools

Experience the elementary interdisciplinary units developed by Denver Public Schools that support implementation of the CCSS and NGSS as they cite evidence to support their argument (argument used as formative assessment).

Frontiers in Physiology Research Teacher Fellowship: How It Changed Our Teaching

(Grades 6–12)

Hyde Park B, Hyatt

Science Focus: GEN, SEP

Julie Smith (@smitly74; jsmith@greenhillsschool.org), Greenhills School, Ann Arbor, Mich.

Kyle Duhon (kyleduhon@gmail.com), Lake Elementary School, St. Amant, La.

Hear from two former Frontiers in Physiology Research Teacher Fellows as they discuss the fellowship opportunity at the American Physiological Society, their research, and how the Fellowship changed their classroom practices.

Find the Fund\$ for STEM: Grant Writing 101

(Grades P–12)

Jackson Park D, Hyatt

Science Focus: GEN

June Teisan, Einstein Fellow, NOAA, Washington, D.C. Do you have Cartier dreams for your students but a Wal-Mart budget? Learn tips and tricks for grant writing that can help you craft proposals to fund robust science learning!

Changing Instruction and Assessment to Meet the NGSS

(Grades 9–12)

S401d, McCormick Place

Science Focus: GEN, NGSS

Jennifer Baxter (@jenbaxter0823; jbaxter@jths.org) and **Joy Otry** (@joy_Otry; jotry@jths.org), Joliet West High School, Joliet, IL

Tim Connelly (@JTHSConnelly; tconnelly@jths.org), Joliet Township High School District 204, Joliet, Ill.

Hear how Joliet Township High School rewrote curriculum, innovated instructional techniques, and shifted toward performance-based assessments in order to meet the NGSS.

Zombie Science

(Grades 6–12)

S402a, McCormick Place

Science Focus: LS

Kathy Agee (ageek@gvsu.edu), Regional Math Science Center, Allendale, Mich.

Enliven your students' enthusiasm for biology by studying characteristics of zombies. We'll cover human physiology and neurology, ecology, bacteriology, immunology, and epidemiology.

More than Mud! From the Arctic to Backyard Ponds, the Climate Story of Sediment

(Grades 6–College)

S403a, McCormick Place

Science Focus: ESS2.A, ESS2.C, ESS2.D, ESS2.E, ESS3.C, ESS3.D, ETS1.A, ETS1.B, ETS2.A, LS2.B, LS2.C, CCC2, CCC4, CCC7, SEP1, SEP2, SEP3, SEP4, SEP6, SEP7, SEP8

Tim Martin, Greensboro Day School, Greensboro, N.C.

Laura Schofield (lschofield@ipsk12.net), Ipswich Middle School, Ipswich, Mass.

Using sediment cores, teachers, researchers, and students investigate climate change and develop literacy skills through inquiry activities that model cutting-edge paleoclimatological research.

Promoting Science Practices Through Computer Modeling in Ecology and Evolution

(Grades 9–12)

S403b, McCormick Place

Science Focus: LS, CCC4, CCC7, SEP

Karen Wolfe and **Mitchell Melton** (@meltonbiology; mmelton@maine207.org), Maine East High School, Park Ridge, Ill.

Howard Knodle (hknodle@maine207.org), Maine South High School, Park Ridge, Ill.

Katahdin Cook Whitt (kate.cook@wright.edu), Dayton Regional STEM School, Kettering, Ohio

Engage students in science practices in ecology and evolution. Learn about computer-modeling units that help students visualize scientific principles and dig into crosscutting concepts.

Environmental Superheroes: Engaging Students with Stewardship Projects

(Grades 5–12)

S404bc, McCormick Place

Science Focus: LS2.A, LS2.C, LS2.D, CCC2, CCC7, SEP1, SEP3, SEP4, SEP6, SEP7, SEP8

Alexandra Owens (alexandra.owens14@gmail.com), Hanahan Middle School, Hanahan, SC

Susan Tate (@susantate22; susantate@whitehallschools.net), Whitehall Middle School, Whitehall, MI

Emphasis will be placed on strategies to create environmental projects in your community, state, and beyond that include project ideas, networking tips, and social media tools to successfully spread your message.

Building a School Science Community*(Grades 6–8)* S404d, McCormick Place**Lori Khan** (*lori.khan@dpsnc.net*), Middle College High School at DTCC, Durham, NC

Science Focus: GEN

Want to build scientific literacy throughout your school? Learn effective techniques implemented in creating a science community at a middle school.

Learning About Scale, Proportion, and Computational Thinking Through Forced Perspective Photography and Animation*(Grades 6–8)* S405a, McCormick Place

Science Focus: GEN, CCC, SEP

Gina Tesoriero (*@STEMSUCSESSEDU*; *ginatesoriero@gmail.com*), Simon Baruch MS104, New York, N.Y.**Tara Chudoba** (*tchudoba@nysci.org*) and **Douglas Moore** (*@dnielsenmoore*; *dmoore@nysci.org*), New York Hall of Science, Queens

Discover how to help students form deep connections to scale, proportion, and geometry as they use mobile tools to create forced perspective photography and animations.

Using Hawaiian Culture to Teach College Prep Chemistry to a Diverse Group of Learners*(Grades 9–12)* S501a, McCormick Place

Science Focus: PS

Joel Truesdell (*jotruesd@ksbe.edu*), Kamehameha Schools Hawaii, Keaau

Join us as we highlight a method for using Hawaiian or modern culture to establish relevance and engagement in an inquiry and project-based curriculum. Come taste a Hawaiian snack, too.

Inherently Differentiated Problem-Based Learning: Engaging Diverse Learners in Secondary Science*(Grades 6–12)* S501d, McCormick Place

Science Focus: GEN, NGSS

Malaika Jordan (*malaikajordan56@gmail.com*), Carver Health Science & Research, Atlanta, Ga.**Yolanda McKee** (*ycmckee@atlanta.k12.ga.us*), Carver Early College, Atlanta, Ga.**Candice Henry** (*cahenry@atlanta.k12.ga.us*), Atlanta (Ga.) Public Schools

Join us as we explore PBL, a differentiated instructional strategy designed to engage students, develop critical thinking/problem-solving skills, and increase student achievement for diverse learners.

Engineering in the Early Elementary Classroom*(Grades P–3)*

S504bc, McCormick Place

Science Focus: ETS

Valerie Patel (*valerie_m_patel@mcpsmd.org*) and **Amy Fletcher** (*amy_k_fletcher@mcpsmd.org*), William B. Gibbs Elementary School, Germantown, Md.

Hear how to effectively engage early elementary students in problem solving and collaboration through the engineering design process.

Integrating Science, Technology, and Engineering in PreK: STE-P Up Your Practice!*(Preschool)*

S505a, McCormick Place

Science Focus: ETS

Betty Zan, University of Northern Iowa, Cedar Falls

Find out how to transform common “good start” preschool activities into intellectually rigorous, developmentally appropriate STE experiences that engage children and deepen their STE understanding.

PDI McREL Pathway Session: Fostering Self-Assessment (Metacognition) to Support Positive Environments*(General)*

W175a/b, McCormick Place

Science Focus: GEN, INF, NGSS

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

Believing all students can learn is the first step to creating a positive learning environment in the classroom. Along with this key understanding, empowering students to think metacognitively and assess their own ideas and progress promotes positive attitudes and motivation.

Citizen Science: FrogWatch USA*(Grades 4–College)*

W176b, McCormick Place

Science Focus: LS, INF

Sharon Morrell (*smorrell@aquaticsciences.org*), Center for Aquatic Sciences, Camden, N.J.

Learn about the American Zoo and Aquarium Association’s citizen science program, FrogWatch USA, and take back activities to teach your students about amphibians and their importance in the ecosystem.



Stormwater Literacy Project

(Grades 6–8)

W187a, McCormick Place

Science Focus: ESS, INF, SEP

Jaclyn Austin (@jaclyn_austin; jaclyn_austin@hcpss.org), Howard County Public School System, Elliott City, Md.

Emily Perry (perry.emily@gmail.com), Thomas Viaduct Middle School, Hanover, Md.

Learn ways to partner with schools, bridging the gap between singular and sustained learning experiences, promoting depth and application of knowledge around the issue of stormwater. The Stormwater Literacy Project engages students in authentic and relevant issues-based investigations incorporating multiple content areas focusing on the issue of stormwater, its effect on the local watershed environment, solutions for its management within their community, and how students can impact change.



Aprendamos Juntos! (Let's Learn Together): Embracing Native Languages in Non-bilingual Classrooms to

INF

Build Intermediate Science Literacy in English

(Grades 6–8)

W187b, McCormick Place

Science Focus: GEN, INF, SEP

Candyce Johnson (candycejohnson@bbg.org), Brooklyn Botanic Garden, Brooklyn, N.Y.

Learn how embracing the home languages of English language learners along with informal learning experiences can build literacy skills that satisfy the NGSS and CCSS.



The Flipped Classroom: Now There's Time for More Meaningful Assessments

(Grades 6–College)

W190b, McCormick Place

Science Focus: GEN, NGSS

James Schreiner (@biologyteacher; jschreiner@bbchs.org), Bradley-Bourbonnais Community High School, Bradley, Ill.

Learn new assessment techniques such as the use of manipulatives that accurately assess learning, not behavior. Having flipped for four years, we'll share our findings.

Simulate STEM Online Through Virtual Clinical Trials

(Grades 8–College)

W196c, McCormick Place

Science Focus: ETS, INF,

Kristi Bowling (@RiceCTTL; kristi.green0@gmail.com), Rice University Center for Technology in Teaching and Learning, Houston, Tex.

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

Expose high school students to scientific and biomedical engineering practices using free online simulations that engage students in technology while designing authentic neuroscience-based clinical trials. Includes built-in assessment notebook.

5:00–6:00 PM Hands-On Workshops

The Ultimate Review Game: Stimulating Retention and Success

(Grades 7–12)

Burnham A/B, Hyatt

Science Focus: GEN

Wayne Snyder, Cal Poly Pomona

Reviewing content, important in every classroom, seldom reaches its potential. We will define characteristics of effective review and model them playing The Ultimate Review Game.

Highlighting Nature of Science Within the Dimensions of the NGSS

(Grades 6–12)

Grant Park A, Hyatt

Science Focus: LS, PS

Norman Lederman (ledermann@iit.edu) and **Judith Lederman** (ledermanj@iit.edu), Illinois Institute of Technology, Chicago

Experience a variety of activities that highlight nature of science across the STEM fields and illustrate the vision of the NGSS.

Building Teen Empowerment Through a School-Museum Partnership

(Grades 6–12)

Grant Park B, Hyatt

Science Focus: ETS1, INF, SEP

Jennifer Bundy (@jenbundy; jbundy17@gmail.com), Adler Planetarium, Chicago, Ill.

Steven Clayton (claytonsteveng@gmail.com), Air Force Academy High School, Chicago, Ill.

Want more than just a field trip? Museum-school partnerships can benefit students, teachers, and the museums. Take away resources for implementing a successful partnership model.

A Framework for Supporting Students in the Practice of Scientific Modeling

(Grades 8–12)

Grant Park C, Hyatt

Science Focus: PS1, PS2, CCC2, SEP2

Kristin Mayer (@mskmayer; mayerkri@msu.edu), Michigan State University, East Lansing

Joseph Krajcik (@krajcijkoe; krajcik@msu.edu), CREATE for STEM Institute, Michigan State University, East Lansing
Support your students in the challenging scientific practice of developing, revising, and using models to explain phenomena and design solutions to problems. Join us for a supportive framework, see examples of how it has been used, and practice using it to develop your own models.

Using a Predict-Observe-Explain Sequence to Promote Student Discourse: A Model Lesson Using Liquid Nitrogen

(Grades K–12)

Grant Park D, Hyatt

Science Focus: PS, SEP7

Andrew West (andrew.west@wku.edu), Western Kentucky University, Bowling Green

Join us for a model lesson using liquid nitrogen demonstrations, in which we highlight a Predict-Observe-Explain sequence that promotes scientific thinking and classroom discourse.

Interactive Notebooks and the Flipped Classroom: Supporting Inquiry and Literacy

(Grades 6–12)

Jackson Park C, Hyatt

Science Focus: GEN, SEP1, SEP7, SEP8

Maryellen Felter, East Irondequoit Middle School, Rochester, N.Y.

Experience hands-on learning by building an interactive notebook to support inquiry and literacy (*Common Core*) as a means to strengthen the flipped classroom model.

DuPont Presents: Fuel, Exercise, and the Classroom: How to Make Sure Your Students Are Ready to Learn

(Grades 1–12)

Regency E, Hyatt

Science Focus: LS

Nancy Anderson (@sciteach142; nlanderson@comcast.net), Mannington Township School, Salem, N.J.

President: Marguerite Vavalla, DuPont, Wilmington, Del.
With the Fuel Up to Play 60 (NFL and the National Dairy Council) program, we are learning how to integrate nutrition and exercise into all areas of science education.



NSTA Press® Session: Earth Science Puzzles—Making Meaning from Data

(Grades 8–College)

S401a, McCormick Place

Science Focus: ESS, SEP4, SEP5, SEP6, SEP7

Margie Turrin (mkt@ldeo.columbia.edu), Lamont-Doherty Earth Observatory of Columbia University, Palisades, N.Y.
Empower your students to learn science the way scientists do—from collected evidence! Infuse Data Puzzles into your Earth and environmental science curricula.

Round Holes and Square Pegs: How Do Traditional Biology Activities Fit into the NGSS?

(Grades 9–12)

S402b, McCormick Place

Science Focus: LS1.A, CCC6, SEP3

Jennifer Carden (jcarden@hudsonalpha.org), HudsonAlpha Institute for Biotechnology, Huntsville, Ala.

Join us as we explore an expanded DNA extraction lab as a model for evaluating traditional biology activities in light of the NGSS. We'll cover modifying existing activities to support the NGSS. At what point, do we say, this doesn't fit—I need a new peg?

Using NASA Kepler Mission Data to Enhance Graphing Skills

(Grades 8–12)

S404a, McCormick Place

Science Focus: ESS1, ESS4, CCC1, CCC2, SEP4, SEP7

Edna DeVore (edevore@seti.org) and **Gary Nakagiri** (gnakagiri@seti.org), SETI Institute, Mountain View, Calif.

Learn how to use graphing software and NASA's Kepler Mission data to enhance students' understanding of graphs, models, and Kepler's Laws. NASA resource materials provided.

Improve Student Reading Comprehension and Science Writing Using the Old and the New!

(Grades 6–9)

S405b, McCormick Place

Science Focus: GEN, CCC, SEP

Victoria Gorman (@GormanV; vgorman@medford.k12.nj.us), Medford Memorial Middle School, Medford, N.J.

Find out how students can use written SQ3R (survey, question, read, recite, and review) techniques for comprehension of nonfiction text, and then communicate the knowledge gained by writing meaningful online discussion posts.

Creative Lessons Using Crosscutting Concepts That Help Eliminate Misconceptions About Force and Motion

(Grades 8–10) *S501bc, McCormick Place*
Science Focus: PS, CCC

Robert Johnson (*mrjchemtch@aol.com*), Westhill High School, Stamford, Conn.

Join us as we explore how good lesson planning is an essential component to the implementation of the NGSS. Find out how NGSS can be incorporated into the middle school or high school classroom by simply modifying established science lessons.

Harnessing Student Energy in Your Assessments

(Grades 1–8) *S502b, McCormick Place*
Science Focus: PS, CCC5

Emily Hawbaker (*@NEED_Project*), The NEED Project, Manassas, Va.

Join us for interesting and exciting energy-related assessment tools that get students moving while showing what they're learning.

Astronomy Activities to Increase Both Your Knowledge and Your Students'

(Grades 1–8) *S503a, McCormick Place*
Science Focus: ESS, CCC1, CCC4, SEP

Donald Powers (*dt-powers@wiu.edu*), Western Illinois University, Macomb

Peer into the solar system in your elementary and middle school classroom. We'll cover motion of the Sun, Earth, and Moon, the constellations, and planets of the solar system.

Old Stuff Is Cool! How to Bring Archaeology into PreK–8 Classrooms

(Grades P–8) *S503b, McCormick Place*
Science Focus: GEN, INF

Kerrie Rovito (*karovito@cps.edu*), Hamilton Elementary School, Chicago, Ill.

Expose your students to ancient worlds. Learn how to use primary resources found in a real dig site in Ashkelon, Israel.

Shake It! An NGSS, Engineering, and Nature of Science Look at Earthquakes

(Grades 4–9) *S504a, McCormick Place*
Science Focus: ESS2.A, ESS2.B, ESS3.B, ESS3.C, ETS, PS1.A, PS2.A, PS2.C, PS3.A, PS3.B, PS3.C, PS4.A, CCC, SEP

Alice (Jill) Black (*ablack@missouristate.edu*), Missouri State University, Springfield

Participate in engineering, NGSS, and NOS-related earthquake activities. Join us as we design resistant structures, use real-time data, and make seismograph, earthquake and Richter scale models.

Write Like a Scientist!

(Grades 2–8) *W178b, McCormick Place*
Science Focus: GEN, SEP4

Joey Lehnhard (*@joeyelle; jlehnhard@mbayaq.org*), Monterey Bay Aquarium, Monterey, Calif.

Explore the biodiversity of California's rocky shores and use your data and observations to motivate students to write authentically about science. Then, plan a biodiversity project at your school site! Led by education staff of the Monterey Bay Aquarium.



Bioengineering Challenges and Middle School Life Science

(Grades 6–9) *W186c, McCormick Place*
Science Focus: ETS1.B, ETS1.C, ETS2, LS1.A, CCC6, SEP2, SEP3, SEP4, SEP6, SEP7

John Howarth (*john_howarth@berkeley.edu*), The Lawrence Hall of Science, University of California, Berkeley

Learn how to integrate engineering practices into middle school life science through bioengineering a prototype "heart" valve using inexpensive and easily available materials.

STEM Is EASY with PLT GreenSchools

(Grades 1–12) *W192a, McCormick Place*
Science Focus: ESS3, ETS1, PS3, INF, CCC2, CCC3, CCC7, SEP1, SEP4, SEP6

Jaclyn Stallard (*jstallard@plt.org*) and **Sarah Livesay** (*s.livesay@comcast.net*), Project Learning Tree, Washington, D.C.

GreenSchools! connects Project Learning Tree's hands-on activities, STEM subjects, and service-learning. Come learn more about the program and get free access to GreenSchools! resources and materials.

Pipes and Precipitation = Embodied Great Lakes Watershed Project for Students and Teachers

(Grades 3–8) *W192c, McCormick Place*
Science Focus: ESS, INF, SEP1, SEP2, SEP4

Katie Larson (@katiejoy23; @a4gl; klarson@greatlakes.org), Alliance for the Great Lakes, Chicago, Ill.

Join this hands-on workshop to learn about a community-driven project, and participate in a Movement Model, based on a *Great Lakes in My World* lesson.

Constructing ROVs, Collaborating with Researchers, and Getting Your Students Involved in Engineering, Problem Solving, and Field Work

(Grades 6–12) *W196a, McCormick Place*
Science Focus: ETS1, ETS2.A, INF, LS4.C, CCC7, SEP6

Paula Dell (paula.dell@gmail.com), Lindblom Math & Science Academy, Chicago, Ill.

Rachel Patten (@SheddLearning; rpatten@sheddaquarium.org), Shedd Aquarium, Chicago, Ill.

Join us for a multifaceted workshop on ways to get teachers and students involved with field researchers and local museums. Explore how to build a simple functional Remotely Operated Vehicle (ROV).

Fun-ative Assessments

(Grades K–8) *W196b, McCormick Place*

Carrie Holloway (carrie.holloway@outlook.com), **Reeda Hart** (hartr@nku.edu), and **Lila Brindley** (brindleyl1@nku.edu), Northern Kentucky University, Highland Heights
Science Focus: GEN, SEP

Join us for fun engaging formative assessment techniques to see what students know and to guide instruction using tri-fold boards, voting paddles, and more! Take home CD.

5:00–7:00 PM Exhibitor Workshop

More Than Just Physics

(General) *Skyline W375a, McCormick Place*

Science Focus: PS

Sponsor: PASCO scientific

Mike Randall (randall@physics.wisc.edu), University of Wisconsin–Madison

Bill Deese (wcdese@coes.latech.edu), Louisiana Tech University, Ruston

Join us for PASCO's 13th event celebrating science—this time featuring both chemistry and physics demonstrations! We'll take care of the food and the entertainment, and you'll walk away with ideas to wow your students and a free T-shirt to commemorate the event (for the first 300 attendees).

5:30–6:00 PM Presentation

Using Video Clubs to Reflect on Scientific Practices During Real-Time Enactment

(Grades 5–12) *Jackson Park A, Hyatt*

Science Focus: GEN, NGSS

Heather J. Johnson (heather.j.johnson@vanderbilt.edu), Vanderbilt University's Peabody College, Nashville, Tenn.

Explore how video clubs can support teachers in developing their knowledge and skills in implementing the NGSS science practices.



Friday, 6:00–8:45 PM

6:00–8:45 PM NSTA Teacher Awards Gala

(Ticket Required: \$80) M-3 Red Lacquer Blrm., Palmer House
Come enjoy a fabulous evening celebrating with this year's teacher award recipients! ALL of the teacher awards will be presented in one grand evening. Join your colleagues in recognition of this year's winners. Evening attire is requested to honor our teacher award recipients. A limited number of tickets are available for this social event.

Tickets, if still available, must be purchased at the Registration Area before 3:00 PM on Thursday.

6:30–8:00 PM Networking Opportunity National Earth Science Teachers Association Friends of Earth Science Reception

Regency C/D, Hyatt

Join us for a nice Earth and space science networking opportunity. Visit with old friends, make new ones! Awards, appetizers, and liquid refreshments, too! For further information, visit www.nestanet.org.

7:00–9:00 PM Networking Opportunity SCST Dessert Social and Poster Session

Prairie B, Hyatt

9:00 PM–12 Midnight President's Mixer

State Ballroom, Palmer House

DJ and Cash Bar

Meetings and Social Functions Index

Please note that the Hyatt referenced below is the Hyatt Regency McCormick Place.

Friday, March 13

- High School Breakfast (M-2)
(Tickets Required: \$50)
Regency D, Hyatt..... 7:30–9:00 AM
- AMSE Alice J. Moses Breakfast
By Invitation Only
Regency B, Hyatt 7:30–9:30 AM
- Welcome to NSTA and DuPont Breakfast
By Invitation Only
Regency D/E, Hyatt 7:45–9:00 AM
- Aerospace Programs Advisory Board Meeting
Boardroom 2, Hyatt 8:30–10:00 AM
- NMLSTA Board Meeting
Huron, Hyatt..... 8:30–10:00 AM
- NSTA Reports Advisory Board Meeting
Boardroom 3, Hyatt 9:00–10:30 AM
- First-Timers, Preservice Teachers, and New Teachers Lounge
Hall F2, McCormick Place 9:00 AM–5:00 PM
- NSTA International Lounge
Michigan, Hyatt 9:00 AM–5:00 PM
- Development Advisory Board Meeting
By Invitation Only
Boardroom 1, Hyatt..... 9:30–10:30 AM
- Urban Science Education Advisory Board Meeting
Boardroom 2, Hyatt 10:30 AM–12 Noon
- Illinois Science Teachers Association Annual Meeting
(Visit ISTA website for more information)
Regency A, Hyatt..... 12 Noon–1:00 PM
- NSELA/ASTE Luncheon
(Tickets Required: \$25 through NSELA website)
Regency B, Hyatt 12 Noon–2:00 PM
- NSTA Chapter and District Director Social in Honor of Wendell Mohling (sponsored by GEICO)
Hall F2, McCormick Place 1:30–2:30 PM
- NSTA/GLBT Science Teachers Annual Meeting
Dusable A/B, Hyatt 2:00–3:00 PM
- Association for Multicultural Science Education (AMSE) Membership Meeting
Dusable A/B, Hyatt..... 3:15–5:15 PM
- NSTA Chapter and Associated Group Leader Roundtable and Reception
Regency C, Hyatt..... 3:30–4:30 PM
- SCST Business Meeting
Clark C, Hyatt 3:30–5:00 PM
- Youth Environmental Science Medal Presentation
Burnham C, Hyatt 3:30–5:00 PM
- APAST Business Meeting and Social
Regency D, Hyatt 3:30–5:30 PM
- NMLSTA Board Meeting
(Visit NMLSTA website for details)
Huron, Hyatt..... 4:00–5:30 PM
- Shell Reception
By Invitation Only
State Blrm., Palmer House 5:00–5:45 PM
- NSTA Teacher Awards Gala (M-3)
(Tickets Required: \$80)
Red Lacquer Ballroom, Palmer House 6:00–8:45 PM
- NESTA Friends of Earth Science Reception
Regency C/D, Hyatt 6:30–8:00 PM
- SCST Dessert Social and Poster Session
Regency C/D, Hyatt..... 7:00–9:00 PM
- President's Mixer
State Ballroom, Palmer House 9:00 PM–12 Mid.



—Photo courtesy of Anne Evans/Chicago Architecture Foundation

State of Illinois Building

Index of Exhibitor Workshops

3D Molecular Designs (Booth #1833)

Friday, March 13	2:00–3:30 PM	W193a, McCormick Place	Telling Molecular Stories with David Goodsell’s Cellular Landscapes (p. 99)
------------------	--------------	------------------------	---

Accelerate Learning (Booth #1056)

Friday, March 13	12 Noon–1:30 PM	W470a, McCormick Place	The Value of Inquiry and Scientific Explanations (p. 69)
Friday, March 13	2:00–3:30 PM	W470a, McCormick Place	The Secrets to PBL Success for STEM (p. 99)

Activate Learning (Booth #1353)

Friday, March 13	4:00–5:30 PM	W476, McCormick Place	Blending the CCSS and NGSS in Your K–5 Science Classroom (p.114)
------------------	--------------	-----------------------	--

American Nuclear Society (Booth #645)

Friday, March 13	8:00–9:30 AM	W194a, McCormick Place	Detecting Radiation in Our Radioactive World (p. 33)
------------------	--------------	------------------------	--

Amplify (Booth #1140)

Friday, March 13	12 Noon–1:30 PM	W194a, McCormick Place	Experience Amplify Science: Immerse Students into the World of Scientists and Engineers with the Newest Curriculum from The Lawrence Hall of Science (p. 69)
------------------	-----------------	------------------------	--

Animalearn (Booth #978)

Friday, March 13	4:00–5:30 PM	W471a, McCormick Place	Leap into the Future with Hands-On Science Teaching (p.114)
------------------	--------------	------------------------	---

Arbor Scientific (Booth #1754)

Friday, March 13	8:00–9:30 AM	W470a, McCormick Place	Cool Tools for Electricity and Magnetism (p. 34)
------------------	--------------	------------------------	--

Backyard Brains (Booth #471)

Friday, March 13	4:00–5:30 PM	W470a, McCormick Place	Bringing Real Neuroscience (Spiking Neurons!) into Your Classroom (p. 114)
------------------	--------------	------------------------	--

Bio–Rad Laboratories (Booth #847)

Friday, March 13	8:00–9:30 AM	W474b, McCormick Place	Identify Patient Zero of a Zombie Apocalypse (p. 35)
Friday, March 13	8:00–9:30 AM	W474a, McCormick Place	Struggling with How to Integrate Inquiry into Your AP Biology Course? (AP Big Idea 3) (p. 34)
Friday, March 13	10:00–11:30 AM	W474b, McCormick Place	Are Worms Smarter Than Your Students? (AP Big Ideas 1, 2, 3, 4) (p. 54)
Friday, March 13	10:00–11:30 AM	W474a, McCormick Place	Communicating Science Through Lab Notebooking (p. 54)
Friday, March 13	1:00–2:30 PM	W474a, McCormick Place	How to Use Pop-Culture Science in Your Classes (p. 83)
Friday, March 13	1:00–4:00 PM	W474b, McCormick Place	Choose Your Own Adventure in the Explorer Room! (p. 84)

BIOZONE International (Booth #876)

Friday, March 13	8:00–9:30 AM	W470b, McCormick Place	Biology for NGSS: A New Approach for a New Program (Grades 9–12) (p. 34)
------------------	--------------	------------------------	--

Carolina Biological Supply (Booth #1131)

Friday, March 13	8:00–9:30 AM	W181a, McCormick Place	Comparative Vertebrate Anatomy with Carolina’s Perfect Solution® Specimens (p. 30)
Friday, March 13	8:00–9:30 AM	W181c, McCormick Place	Flipping Out Over Chemistry! (p. 30)
Friday, March 13	8:00–9:30 AM	W181b, McCormick Place	Making Waves in Middle School (p. 30)
Friday, March 13	10:00–11:30 AM	W181a, McCormick Place	Hands–On Activities to Model Habitat Preference and Population Sampling (p. 51)
Friday, March 13	10:00–11:30 AM	W181c, McCormick Place	Building Inquiry in AP Chemistry Labs (p. 51)

Index of Exhibitor Workshops

Carolina Biological Supply, continued

Friday, March 13	10:00–11:30 AM	W181b, McCormick Place	Building Models to Explain the Changing Earth: Grades 4–5 (p. 51)
Friday, March 13	12 Noon–1:30 PM	W181c, McCormick Place	They Come in Pairs: Using Socks to Identify and Address Student Misconceptions About Chromosomes (p. 68)
Friday, March 13	12 Noon–1:30 PM	W181b, McCormick Place	Science Notebooks to Address the NGSS and CCSS (p. 67)
Friday, March 13	12 Noon–1:30 PM	W181a, McCormick Place	Introduction to Wisconsin Fast Plants® (p. 67)
Friday, March 13	2:00–3:30 PM	W181c, McCormick Place	Evolving Enzymes: Bioinformatics, Enzymes, and Inquiry (p. 98)
Friday, March 13	2:00–3:30 PM	W181b, McCormick Place	A Progression of Learning Through the NGSS K–8 (p. 97)
Friday, March 13	2:00–3:30 PM	W181a, McCormick Place	Autopsy: Forensic Dissection Featuring Carolina’s Perfect Solution® Pigs (p. 97)
Friday, March 13	4:00–5:30 PM	W181a, McCormick Place	Hands–On Science with Classroom Critters (p. 112)
Friday, March 13	4:00–5:30 PM	W181c, McCormick Place	Engineer Excitement in Your Classroom with a Carolina STEM Challenge® (p. 112)

CPO Science/School Specialty Science (Booth #1030)

Friday, March 13	8:00–9:30 AM	W184bc, McCormick Place	CPO Science’s Link™ Learning Module: A STEM Approach to Optics, Light, and Color (p. 30)
Friday, March 13	12 Noon–1:30 PM	W184bc, McCormick Place	Genetics: Crazy Traits and CPO’s Link Learning Module (p. 68)
Friday, March 13	2:00–3:30 PM	W184bc, McCormick Place	CPO’s Link™ Learning Chemistry Models Module: Fun with Atom Building Games and the Periodic Table (p. 98)
Friday, March 13	4:00–5:30 PM	W184bc, McCormick Place	CPO’s Link™ Wind Turbine Learning Module: A STEM Approach to Engineering and Design (p. 112)

Delta Education/School Specialty Science–FOSS (Booth #1031)

Friday, March 13	8:00–9:30 AM	W184d, McCormick Place	Predicting Pollinators with FOSS Diversity of Life for Middle School (p. 32)
Friday, March 13	10:00–11:30 AM	W184d, McCormick Place	Floods, Heat Waves, and Hurricanes: Analyzing Evidence for a Changing Climate Using FOSS (p. 52)
Friday, March 13	12 Noon–1:30 PM	W184d, McCormick Place	Crosscutting Concepts: What Do They Look Like in a FOSS Elementary Classroom? (p. 68)
Friday, March 13	2:00–3:30 PM	W184d, McCormick Place	Assessment: The Bridge Between Teaching and Learning (p. 98)
Friday, March 13	4:00–5:30 PM	W184d, McCormick Place	Science Practices: What Does Argumentation Look Like in a FOSS Elementary Classroom? (p. 112)

Dinah–Might Adventures (Booth #1172)

Friday, March 13	4:00–5:30 PM	W470b, McCormick Place	Push the Envelope and Unfold the Possibilities with Foldables (p. 114)
------------------	--------------	------------------------	--

Discovery Education (Booth #1845)

Friday, March 13	8:00–9:30 AM	W471b, McCormick Place	Bringing the NGSS to the Classroom with Discovery Education (p. 34)
Friday, March 13	10:00–11:30 AM	W471b, McCormick Place	20 Creative Ways to Using Discovery Education Streaming in the Science Classroom (p. 54)
Friday, March 13	12 Noon–1:30 PM	W471b, McCormick Place	STEM: Discover, Collaborate, Innovate (p. 70)
Friday, March 13	2:00–3:30 PM	471b, McCormick Place	Read, Write, and Think SCIENCE! (p. 100)
Friday, March 13	4:30–5:30 PM	W471b, McCormick Place	Discovery Education 3M Young Scientist Challenge Reception (p. 115)

eCYBERMISSION (Booth #1181)

Friday, March 13	4:00–5:30 PM	W475a, McCormick Place	Engineering Design in the Middle School Science Classroom (p. 114)
------------------	--------------	------------------------	--

Index of Exhibitor Workshops

Educational Innovations, Inc. (Booths #1067/#1167)

Friday, March 13	8:00–9:30 AM	W178a, McCormick Place	What the Heck Happened?! (p. 29)
Friday, March 13	10:00–11:30 AM	W178a, McCormick Place	Fantastical Chemistry Demos for All Classrooms (p. 51)
Friday, March 13	12 Noon–1:30 PM	W178a, McCormick Place	Cool! Can We Do That Again?! (p. 67)
Friday, March 13	2:00–3:30 PM	W178a, McCormick Place	Magnify Your Mind!—with The Private Eye® (p. 97)
Friday, March 13	4:00–5:30 PM	W178a, McCormick Place	Elementary Teacher Survival Kit (p. 111)

Edvotek, Inc. (Booth #683)

Friday, March 13	8:00–9:30 AM	W186a, McCormick Place	Transformation Tips and Tricks (p. 32)
Friday, March 13	10:00–11:30 AM	W186a, McCormick Place	Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR (p. 53)
Friday, March 13	12 Noon–1:30 PM	W186a, McCormick Place	Diagnosing the Flu (p. 68)
Friday, March 13	2:00–3:30 PM	W186a, McCormick Place	Investigating the Genome with DNA Sequencing Technology (p. 98)
Friday, March 13	4:00–5:30 PM	W186a, McCormick Place	Biotechnology Basics (p. 113)

Energy Concepts Inc. (ECI) (Booth #577)

Friday, March 13	2:00–3:30 PM	W476, McCormick Place	Material Science: The Chemistry of Solids (p. 100)
------------------	--------------	-----------------------	--

Fisher Science Education (Booth #1258)

Friday, March 13	8:00–9:30 AM	W184a, McCormick Place	Teaching Astronomy During the Day and Beyond the Classroom (p. 30)
Friday, March 13	10:00–11:30 AM	W184a, McCormick Place	Environmental Technology: A Real-World Investigation (p. 52)
Friday, March 13	1:00–2:30 PM	W184a, McCormick Place	The STEM Design Challenge (p. 83)
Friday, March 13	3:00–4:30 PM	W184a, McCormick Place	STEM Careers in Chemistry (p. 102)

Flinn Scientific, Inc. (Booth #631)

Friday, March 13	8:00–9:30 AM	W180, McCormick Place	Fantastic Physical Science Demonstrations from Flinn Scientific (p. 30)
Friday, March 13	10:00–11:30 AM	Skyline W375a, McCormick Place	Flinn Scientific's Morning of Chemistry: The Best of ChemWest (p. 51)
Friday, March 13	10:00–11:30 AM	W180, McCormick Place	Advanced Inquiry Labs for AP Biology from Flinn Scientific (p. 51)
Friday, March 13	12 Noon–1:30 PM	W180, McCormick Place	Flinn Favorite Biology Lab Activities and Games (p. 67)
Friday, March 13	2:00–3:30 PM	W180, McCormick Place	Advanced Inquiry Labs for AP Chemistry from Flinn Scientific (p. 97)
Friday, March 13	4:00–5:30 PM	W180, McCormick Place	New AP Physics 1 Advanced Inquiry Investigations from Flinn Scientific (p. 112)

FOTODYNE Incorporated (Booth #1747)

Friday, March 13	12 Noon–1:30 PM	W476, McCormick Place	Smoking and Lung Cancer Microarray (p. 70)
------------------	-----------------	-----------------------	--

Frey Scientific/School Specialty Science (Booth #931)

Friday, March 13	10:00–11:30 AM	W184bc, McCormick Place	Solving the Mystery of STEM Using Forensic Science (p. 52)
------------------	----------------	-------------------------	--

G–Biosciences (Booth #456)

Friday, March 13	8:00–9:30 AM	W476, McCormick Place	Biotechnologies: Protein Assays in STEM Education (p. 35)
------------------	--------------	-----------------------	---

Index of Exhibitor Workshops

HHMI BioInteractive (Booth #1532)

Friday, March 13	8:00–9:30 AM	W183c, McCormick Place	Great Transitions: Meet the Birds' Inner Dino (p. 30)
Friday, March 13	10:00–11:30 AM	W183c, McCormick Place	The Origins of Humans and Recent Adaptations (p. 52)
Friday, March 13	12 Noon–1:30 PM	W183c, McCormick Place	Domestication: Plant and Animal Evolution in a Human World (p. 68)
Friday, March 13	2:00–3:30 PM	W183c, McCormick Place	Biodiversity in the Age of Humans (p. 98)
Friday, March 13	4:00–5:30 PM	W183c, McCormick Place	Math and Statistics in Biology Classrooms (p. 112)

It's About Time (Booth #1538)

Friday, March 13	8:00–9:00 AM	W194b, McCormick Place	<i>Project-Based Inquiry Science</i> [™] (PBIS): Creating “Coherence and Science Storylines” for Middle School Science—Grades 6–8 (p. 28)
Friday, March 13	9:30–10:30 AM	W194b, McCormick Place	Active Chemistry: A Leading Project-based High School Chemistry Program Capturing the Essence of the NGSS and STEM Plus New Support Resources (p. 49)
Friday, March 13	11:00 AM–12 Noon	W194b, McCormick Place	Engineering in the NGSS—Grades 9-12 (p. 65)
Friday, March 13	12:30–1:30 PM	W194b, McCormick Place	Sustaining an NGSS-focused/Project-based Program for Middle School and High School Science (p. 80)
Friday, March 13	2:00–3:00 PM	W194b, McCormick Place	<i>EarthComm</i> [®] , a Project-based High School Earth Science Curriculum, Developed by the American Geosciences Institute, that Uses an Authentic NGSS Approach (p. 96)
Friday, March 13	3:30–4:30 PM	W194b, McCormick Place	Investigating Astronomy: Project-based Astronomy Program Written Specifically for High School Students! (p. 110)

Kemtec (Booth #768)

Friday, March 13	4:00–5:30 PM	W193a, McCormick Place	Physics as a Second Language (p. 113)
------------------	--------------	------------------------	---------------------------------------

Ken-A-Vision Mfg., Inc. (Booth #1646)

Friday, March 13	4:00–5:30 PM	W194a, McCormick Place	Slip and Slides: Making Preps and Using Digital Technology in Your Science Classroom (p. 113)
------------------	--------------	------------------------	---

LAB-AIDS[®], Inc. (Booth #1629)

Friday, March 13	8:00–9:30 AM	W195, McCormick Place	Reclaiming the Metal (p. 34)
Friday, March 13	10:00–11:30 AM	W195, McCormick Place	The Rock Cycle Game (p. 53)
Friday, March 13	12 Noon–1:30 PM	W195, McCormick Place	Calling All Carbons (p. 69)
Friday, March 13	2:00–3:30 PM	W195, McCormick Place	Using Climate Proxies to Learn about Earth's Climate History (p. 99)
Friday, March 13	4:00–5:30 PM	W195, McCormick Place	Prospecting for Mineral Ore (p. 114)

LaMotte Co. (Booth #1650)

Friday, March 13	2:00–3:30 PM	W475a, McCormick Place	Getting the Most from Your Low-Cost Water Monitoring Kit (p. 100)
------------------	--------------	------------------------	---

LEGO Education (Booth #956)

Friday, March 13	8:00–9:30 AM	W186b, McCormick Place	MINDSTORMS [®] EV3 Robotics in the Middle School Classroom: Getting Started (p. 32)
Friday, March 13	10:00–11:30 AM	W186b, McCormick Place	MINDSTORMS [®] EV3 Robotics in the Middle School Classroom: Getting Started (p. 53)
Friday, March 13	12 Noon–1:30 PM	W186b, McCormick Place	Multiple Subjects, One Platform: Tackle STEM Learning with LEGO Education WeDo! (p. 69)
Friday, March 13	2:00–3:30 PM	W186b, McCormick Place	Exploring How Machines Work with the LEGO [®] Education Simple and Motorized Mechanisms Set (p. 99)
Friday, March 13	4:00–5:30 PM	W186b, McCormick Place	Exploring Forces, Motion, and Engineering Design with LEGO [®] Education Simple Machines (p. 113)

Index of Exhibitor Workshops

MSOE Center for BioMolecular Modeling (Booth #1835)

Friday, March 13	12 Noon–1:30 PM	W193a, McCormick Place	Genes, Genomes, and the New World of Personalized Medicine (p. 69)
------------------	-----------------	------------------------	--

National Geographic Learning (Booth #1546)

Friday, March 13	2:00–3:30 PM	W194a, McCormick Place	A Revolutionary Way to Address All Your Standards with National Geographic (p. 99)
------------------	--------------	------------------------	--

National Oceanic and Atmospheric Administration (Booth #1358)

Friday, March 13	10:00–11:30 AM	W470a, McCormick Place	Data Is Not a Four Letter Word! Use NOAA Resources to Build Student Proficiency in Data Analysis (p. 53)
------------------	----------------	------------------------	--

NewPath Learning (Booth #1545)

Friday, March 13	8:00–9:30 AM	W475a, McCormick Place	Integrating Online Learning into the Science Classroom (p. 35)
------------------	--------------	------------------------	--

Nutrients for Life Foundation (Booth #1044)

Friday, March 13	2:00–3:30 PM	W471a, McCormick Place	Feeding the World: The Science of Soil (p. 100)
------------------	--------------	------------------------	---

Ocean Classrooms (Booth #1625)

Friday, March 13	10:00–11:30 AM	W470b, McCormick Place	Access and Analyze LIVE Ocean Data in the Classroom (p. 54)
------------------	----------------	------------------------	---

PASCO scientific (Booth #1522)

Friday, March 13	8:00–9:00 AM	W179b, McCormick Place	Supporting NGSS Requirements for Data Collection on Chromebooks (p. 28)
Friday, March 13	9:30–10:30 AM	W179b, McCormick Place	Spectrometry: Investigate Light Emission, Colored Solutions, Plant Pigments, Solution Concentration, and Reaction Kinetics! (p. 49)
Friday, March 13	11:00 AM–12 Noon	W179b, McCormick Place	Adapting Traditional Biology Labs to Sensor Technology (p. 65)
Friday, March 13	12:30–1:30 PM	W179b, McCormick Place	Exploring Motion in Middle School Science with Position and Velocity Games—MatchGraph! (p. 80)
Friday, March 13	2:00–3:00 PM	W179b, McCormick Place	Project-based Activities for Gas Laws and Stoichiometry Chemistry Standards (p. 96)
Friday, March 13	3:30–4:30 PM	W179b, McCormick Place	The Physics of Sound Waves (p. 110)
Friday, March 13	5:00–7:00 PM	Skyline W375a, McCormick Place	More than Just Physics (p. 121)

Pearson (Booth #630)

Friday, March 13	8:00–9:30 AM	W179a, McCormick Place	College Readiness in Science: What's Ideal—and What's Real? (p. 29)
Friday, March 13	10:00–11:30 AM	W179a, McCormick Place	The <i>Next Generation Science Standards</i> : What They Mean for Earth and Space Science (p. 51)
Friday, March 13	12 Noon–1:30 PM	W179a, McCormick Place	New Tools, New Insights, and New Ways of Understanding Science with Miller and Levine <i>Biology</i> (p. 67)
Friday, March 13	2:00–3:30 PM	W179a, McCormick Place	Teaching about Climate in a Climate of Controversy: With the NGSS, the Battle Has Begun (p. 97)
Friday, March 13	4:00–5:30 PM	W179a, McCormick Place	The Best Test Prep Book Ever for AP Chemistry (p. 111)

Perimeter Institute (Booth #767)

Friday, March 13	12 Noon–1:30 PM	W471a, McCormick Place	How Do Scientists Think? (p. 70)
------------------	-----------------	------------------------	----------------------------------

Index of Exhibitor Workshops

Plotly (Booth #1724)

Friday, March 13	12 Noon–1:30 PM	W470b, McCormick Place	Plotly: Graphing, Statistics, and Data Analysis for the Modern Science Classroom (p. 70)
------------------	-----------------	------------------------	--

Science First®/STARLAB® (Booths #1266/ #1267)

Friday, March 13	1:00–1:30 PM	Booth #1267, Exhibit Hall	The Earth as a System (p. 82)
------------------	--------------	---------------------------	-------------------------------

Shape of Life (Booth #1445)

Friday, March 13	2:00–3:30 PM	W470b, McCormick Place	Evolving Curiosity in the Animal Kingdom (p. 100)
------------------	--------------	------------------------	---

Simulation Curriculum Corp (Booth #777)

Friday, March 13	8:00–9:30 AM	W471a, McCormick Place	Stellar Life Cycles Made Easy (p. 34)
Friday, March 13	10:00–11:30 AM	W471a, McCormick Place	Plate Tectonics: Continents on the Move (p. 54)

SparkFun Electronics (Booth #552)

Friday, March 13	8:00–9:30 AM	W193a, McCormick Place	Breaking the Rules: Hacking the Science Classroom with Arduino and Open–source Electronics (p. 33)
Friday, March 13	10:00–11:30 AM	W193a, McCormick Place	Bringing Science Home: Integrating the Science Classroom with the Internet of Things (p. 53)

SPIE, the international society for optics and photonics (Booth #883)

Friday, March 13	12 Noon–1:30 PM	W475a, McCormick Place	It's Elementary—Light and Optics for Kids (p. 70)
------------------	-----------------	------------------------	---

TCI (Booth #1552)

Friday, March 13	10:00–11:30 AM	W194a, McCormick Place	Ignite the NGSS with Today's Cutting–edge Technology (p. 53)
------------------	----------------	------------------------	--

Texas Instruments (Booth #1252)

Friday, March 13	8:30–9:30 AM	W193b, McCormick Place	Zombie Apocalypse! (p. 38)
Friday, March 13	10:00–11:00 AM	W193b, McCormick Place	Body of Evidence: A Forensic Science Mystery! (p. 50)
Friday, March 13	11:30 AM–12:30 PM	W193b, McCormick Place	Chelcie's Story: STEM Careers and the Science Classroom (p. 67)
Friday, March 13	1:00–2:00 PM	W193b, McCormick Place	Zombie Apocalypse! (p. 82)
Friday, March 13	2:30–3:30 PM	W193b, McCormick Place	Body of Evidence: A Forensic Science Mystery! (p. 102)
Friday, March 13	4:00–5:00 PM	W193b, McCormick Place	Chelcie's Story: STEM Careers and the Science Classroom (p. 111)

Vernier Software & Technology (Booth #1244)

Friday, March 13	8:00–9:30 AM	W185d, McCormick Place	Physics with Vernier (p. 32)
Friday, March 13	8:00–9:30 AM	W185a, McCormick Place	Chemistry with Vernier (p. 32)
Friday, March 13	10:00–11:30 AM	W185a, McCormick Place	Environmental Science with Vernier (p. 52)
Friday, March 13	10:00–11:30 AM	W185d, McCormick Place	Explore Motion with Vernier Video Physics for iOS (p. 52)
Friday, March 13	12 Noon–1:30 PM	W185a, McCormick Place	Water Quality with Vernier (p. 68)
Friday, March 13	12 Noon–1:30 PM	W185d, McCormick Place	Advanced Physics with Vernier (p. 68)
Friday, March 13	2:00–3:30 PM	W185a, McCormick Place	Spectroscopy with Vernier (p. 98)
Friday, March 13	2:00–3:30 PM	W185d, McCormick Place	iPad and Wireless Sensors with Vernier (p. 98)
Friday, March 13	4:00–5:30 PM	W185d, McCormick Place	STEM/Engineering Activities Using Vernier Sensors with Arduino (p. 113)
Friday, March 13	4:00–5:30 PM	W185a, McCormick Place	Biology with Vernier (p. 112)

Index of Exhibitor Workshops

Ward's Science (Booth #830)

Friday, March 13	8:00–9:30 AM	W192b, McCormick Place	Maximize Your Biotech Budget and Simplify Your Prep (p. 32)
Friday, March 13	10:00–11:30 AM	W192b, McCormick Place	Grant Writing: Designing for Dollars (p. 53)
Friday, March 13	12 Noon–1:30 PM	W192b, McCormick Place	STEM on Wheels: Rubber Band Racer Engineering (p. 69)
Friday, March 13	2:00–3:30 PM	W192b, McCormick Place	CTE: Biology Techniques for AgSci Applications (p. 99)
Friday, March 13	4:00–5:30 PM	W192b, McCormick Place	Coaching Science Olympiad with Confidence and Connecting to the Classroom: Elastic Launched Glider (p. 113)

Wavefunction, Inc (Booth #476)

Friday, March 13	10:00–11:30 AM	W476, McCormick Place	The NGSS and AP Chemistry: Promoting Conceptual Understanding with Molecular Level Visualization (p. 54)
------------------	----------------	-----------------------	--

WhiteBox Learning (Booth #753)

Friday, March 13	10:00–11:30 AM	W475a, McCormick Place	The “E” in STEM: 3-D STEM Engineering (p. 54)
------------------	----------------	------------------------	---

Schedule at a Glance Earth and Space Science

Earth and Space Science

8:00–8:20 AM	C	Clark C, Hyatt	SCST Session: Using Instrumentation in Undergraduate Science Classes: Doppler on Wheels, Dropsondes, Circuits, and More! (p. 18)
8:00–9:00 AM	6–C	Jackson Park A, Hyatt	Authentic Research for Your Students Using Mastodons and the NGSS (p. 20)
8:00–9:00 AM	2–6,C	Grant Park A, Hyatt	Teach Astronomy to Third–Graders? Our Solar System: A Collaborative Project (p. 19)
8:00–9:00 AM	6–C	W176b, McCormick Place	Everyone Can Be a Research Astronomer (p. 22)
8:00–9:00 AM	6–12	Dusable ab, Hyatt	NARST Session: Critical Thinking in Earth Science: Using the Model-Evidence Link Diagram (p. 24)
8:00–9:00 AM	7–12	S404a, McCormick Place	NASA’s Supernova Mathematics (p. 24)
8:00–9:00 AM	K–12	S404bc, McCormick Place	Explore Volcanoes! (p. 26)
8:00–9:00 AM	1–6	S503b, McCormick Place	Astronomy for Elementary Children: Modeling Evidence Circles and Formative Assessment (p. 26)
8:00–9:00 AM	6–12	Skyline W375e, McCormick Place	NESTA Session: Earth Science Rocks! Using Earth Science Activities to Engage Students as Scientists (p. 27)
8:00–9:00 AM	6–8	W194b, McCormick Place	Project-Based Inquiry Science (PBIS): Creating “Coherence and Science Storylines” for Middle School Science (p. 28)
8:00–9:30 AM	6–C	W183c, McCormick Place	Great Transitions: Meet the Birds’ Inner Dino (p. 30)
8:00–9:30 AM	6–C	W184a, McCormick Place	Teaching Astronomy During the Day and Beyond the Classroom (p. 30)
8:00–9:30 AM	6–12	W471a, McCormick Place	Stellar Life Cycles Made Easy (p. 34)
8:30–9:00 AM	1–C	Hyde Park A, Hyatt	Planting a Seed of Passion in Our Students to Protect and Sustain Our Resources (p. 38)
9:30–10:00 AM	7–C	S403a, McCormick Place	Graphing the Rocks: A Stratigraphy Project for Data Interpretation (p. 40)
9:30–10:30 AM	1–12	Skyline W375e, McCormick Place	NESTA Session: NESTA Geology Share-a-Thon (p. 48)
9:30–10:30 AM	1–12	S504a, McCormick Place	Catching the Wind Together: A Successful Formal/Nonformal Partnership Focused on Wind Energy (p. 48)
9:30–10:30 AM	6–12	S403b, McCormick Place	Understanding the Gravity of the Situation: Honoring the CCSS Through the NGSS (p. 46)
9:30–10:30 AM	8–12	S404a, McCormick Place	NASA’s Space Forensics: Integrating Storytelling into STEM Education (p. 46)
9:30–10:30 AM	6–C	S501bc, McCormick Place	Some Like It Hot! (p. 48)
10:00–11:30 AM	6–C	W470b, McCormick Place	Access and Analyze LIVE Ocean Data in the Classroom (p. 54)
10:00–11:30 AM	6–12	W470a, McCormick Place	Data Is Not a Four Letter Word! Use NOAA Resources to Build Student Proficiency in Data Analysis (p. 53)
10:00–11:30 AM	6–8	W195, McCormick Place	The Rock Cycle Game (p. 53)
10:00–11:30 AM	7–C	W185a, McCormick Place	Environmental Science with Vernier (p. 52)
10:00–11:30 AM	6–8	W184d, McCormick Place	Floods, Heat Waves, and Hurricanes: Analyzing Evidence for a Changing Climate Using FOSS (p. 52)
10:00–11:30 AM	7–12	W184a, McCormick Place	Environmental Technology: A Real–World Investigation (p. 52)
10:00–11:30 AM	6–12	W179a, McCormick Place	The <i>Next Generation Science Standards</i> : What They Mean for Earth and Space Science (p. 51)
10:00–11:30 AM	4–5	W181b, McCormick Place	Building Models to Explain the Changing Earth: Grades 4–5 (p. 51)
10:00–11:30 AM	6–12	W471a, McCormick Place	Plate Tectonics: Continents on the Move (p. 54)
10:15–10:45 AM	4–8	S404d, McCormick Place	Meet Me in the Middle Session: The Dead Zone (p. 56)
11:00–11:30 AM	6–9	S404d, McCormick Place	Meet Me in the Middle Session: Around the World with Eratosthenes (p. 57)
11:00–11:30 AM	9–C	Grant Park A, Hyatt	How Far the Moon? Measuring the Instantaneous Distance by Triangulation (p. 57)
11:00–11:30 AM	4–12	S403a, McCormick Place	AK to NSTA: Highlights of a Climate Change Course in Alaska for Local and Global Teaching (p. 57)
11:00–12 Noon	6–12	W186b, McCormick Place	Eco-Structure and Function: Analyzing River Health with Engineering Practices in a Problem-based Situation (p. 64)
11:00–12 Noon	1–12	Skyline W375e, McCormick Place	NESTA Session: NESTA Climate, Ocean, and Atmosphere Share-a-Thon (p. 64)

Schedule at a Glance Earth and Space Science

11:00–12 Noon	P–C	W185 b/c, McCormick Place	Featured Presentation: Beasts at Bedtime: Revealing the Embedded Environmental Curriculum in Classic Children’s Literature (p. 58)
11:00–12 Noon	6–12	Jackson Park C, Hyatt	“I Have a Theory:” Teaching About the Nature of Scientific Theories (p. 62)
11:00–12 Noon	K–12	Jackson Park B, Hyatt	Keeping Your Head Above Water! (p. 62)
11:00–12 Noon	6–12	W192a, McCormick Place	Quantifying Earth Systems for Strengthening Mathematics Skills (p. 61)
11:00–12 Noon	K–12	W187a, McCormick Place	NASA and GLOBE Connect K–12 Students to NGSS with Big-Data Applications (p. 61)
11:00–12 Noon	6–12	S404a, McCormick Place	Inquiry-based Instruction Using Astrobiology Across the Curriculum (p. 63)
11:30–12 Noon	K–12	S403a, McCormick Place	Local Parks as Partners: Outdoor Science in Your Community (p. 66)
11:30–12 Noon	10–C	Grant Park A, Hyatt	Using WorldWide Telescope to Bring Astronomical Data into the Classroom (p. 66)
12 Noon–1:30 PM	7–C	W185a, McCormick Place	Water Quality with Vernier (p. 68)
12 Noon–1:30 PM	9–12	W195, McCormick Place	Calling All Carbons (p. 69)
12 Noon–1:30 PM	12	W187c, McCormick Place	Nutritional Biochemistry: A Fun High School Science Elective for College-bound Seniors (p. 72)
12:30–1:30 PM	1–12	Skyline W375e, McCormick Place	NESTA Session: NESTA Earth System Science Share-a-Thon (p. 78)
12:30–1:30 PM	6–8	S404a, McCormick Place	Using Hand Samples, Geologic Maps, and Google Earth to Teach the Geology of Hawaiian Shield Volcanoes (p. 77)
12:30–1:30 PM	8–C	Jackson Park A, Hyatt	Severe Weather (and Paradigm) Shifts: How Climate Change Dialogue Has Changed Using Scientist Interviews (p. 74)
12:30–1:30 PM	9–C	Grant Park A, Hyatt	Building, Evaluating, and Applying Systems Models (p. 73)
12:30–1:30 PM	6–12	S403b, McCormick Place	Connecting the Dots: Using Particles and Gas Laws to Scaffold Student Understanding of Weather (p. 75)
12:30–1:30 PM	6–12	W196c, McCormick Place	Engineer This! Getting Students to Design, Build, Test, and Modify (p. 76)
12:30–1:30 PM	2–6	S502b, McCormick Place	Elementary Cloud Science (p. 77)
12:30–1:30 PM	10–12	Burnham C, Hyatt	NARST Session: Teaching Global Climate Change and Assessing Student Understanding (p. 73)
12:30–2:00 PM	4–12	W175 a/b, McCormick Place	McREL Pathway Session: Integrating Engineering and Science Using Space Science as a Pathway (p. 80)
1:00–1:30 PM	5–C	Booth #1267, Exhibit Hall	The Earth as a System (p. 82)
2:00–2:30 PM	9–12	S404bc, McCormick Place	Integrating Field Experts and Experiential Learning into Environmental Studies Courses (p. 85)
2:00–2:30 PM	5–8	W187a, McCormick Place	Project-based Explorations of the Kentucky River Watershed (p. 85)
2:00–3:00 PM	9–12	W194b, McCormick Place	EarthComm®, a Project-based High School Earth Science Curriculum, Developed by the American Geosciences Institute, that Uses an Authentic NGSS Approach (p. 96)
2:00–3:00 PM	6–12	Skyline W375e, McCormick Place	NESTA Session: Harnessing the Power of Earth System Science for Developing Science Practices and Crosscutting Concepts (p. 95)
2:00–3:00 PM	K–C	S405a, McCormick Place	Climate Smart and Energy Wise: The Literacy Imperative of the 21st Century (p. 88)
2:00–3:00 PM	5–C	S502a, McCormick Place	Whose Fault Is It? An Earthquake-locating Game (p. 94)
2:00–3:00 PM	6–C	Hyde Park A, Hyatt	Students Investigate Precipitation Data Through Partnership with CoCoRaHS (p. 88)
2:00–3:00 PM	P–C	Skyline W375b, McCormick Place	American Geophysical Union (AGU) Lecture: Abrupt Climate Change—Past, Present, and Future (p. 86)
2:00–3:00 PM	6–12	S403a, McCormick Place	Use NASA Airborne Science Missions to Bring Real-Time Science to Your Classroom (p. 88)
2:00–3:30 PM	5–9	W475a, McCormick Place	Getting the Most from Your Low-Cost Water Monitoring Kit (p. 100)
2:00–3:30 PM	9–12	W195, McCormick Place	Using Climate Proxies to Learn about Earth’s Climate History (p.99)
2:00–3:30 PM	5–12	W192b, McCormick Place	CTE: Biology Techniques for AgSci Applications (p. 99)
2:00–3:30 PM	9–12	W183c, McCormick Place	Biodiversity in the Age of Humans (p. 98)
2:00–3:30 PM	G	W178a, McCormick Place	Magnify Your Mind!—with The Private Eye® (p. 97)
2:00–3:30 PM	1–12	W179a, McCormick Place	Teaching about Climate in a Climate of Controversy: With the NGSS, the Battle Has Begun (p. 97)
2:00–3:30 PM	7–12	W471a, McCormick Place	Feeding the World: The Science of Soil (p. 100)

Schedule at a Glance Earth and Space Science

2:00–4:00 PM	K–C	W175c, McCormick Place	Special Pathway Session: Get Grounded—Experience the NGSS in Practice (p. 101)
2:30–3:00 PM	5–12	Hyde Park B, Hyatt	Astronomy and Geology Vocabulary, i.e. “NASA Words” in Native American Languages (p. 101)
2:30–3:00 PM	6–12	S402a, McCormick Place	Reebops Revisited: Using Hands–On Activities as Summative Assessment Tools (p. 102)
2:30–3:00 PM	9–12	S404bc, McCormick Place	Portfolio Assessment for AP Environmental Science (p. 102)
3:30–4:00 PM	9	S404bc, McCormick Place	Using Weather Data Collection and Analysis to Address the NGSS and CCSS (p. 103)
3:30–4:30 PM	9–12	W194b, McCormick Place	Investigating Astronomy: Project–based Astronomy Program Written Specifically for High School Students! (p. 110)
3:30–4:30 PM	7–12	S403b, McCormick Place	Students and Teachers Investigating Climate Change and Remote Sensing (p. 105)
3:30–4:30 PM	P–8	W192c, McCormick Place	CESI Session: Using Mobile Learning to Engage K–6 Students in Becoming Stewards of Their Environment (p. 106)
3:30–4:30 PM	5–12	W187a, McCormick Place	Doing Service and Science in Your Local Forest Preserves (p. 106)
3:30–4:30 PM	7–12	S404a, McCormick Place	Come Be a Paleoclimatologist and Discover the Relationship Between Climate and the Biosphere (p. 107)
3:30–4:30 PM	2–8	S502a, McCormick Place	Bring the Solar System into Your Classroom! (p. 108)
3:30–4:30 PM	3–5	S504a, McCormick Place	Math/Science Integration for Earth’s Sake (p. 108)
4:00–5:30 PM	9–12	W195, McCormick Place	Prospecting for Mineral Ore (p. 114)
5:00–5:30 PM	4–8	S504d, McCormick Place	Engaging NGSS Crosscutting Concepts and CCSS Literacy Strategies via Desktop Aquariums (p. 115)
5:00–6:00 PM	6–8	W187a, McCormick Place	Stormwater Literacy Project (p. 118)
5:00–6:00 PM	8–12	S404a, McCormick Place	Using NASA Kepler Mission Data to Enhance Graphing Skills (p. 119)
5:00–6:00 PM	4–9	S504a, McCormick Place	Shake It! An NGSS, Engineering, and Nature of Science Look at Earthquakes (p. 120)
5:00–6:00 PM	1–8	S503a, McCormick Place	Astronomy Activities to Increase Both Your Knowledge and Your Students’ (p. 120)
5:00–6:00 PM	6–C	S403a, McCormick Place	More than Mud! From the Arctic to Backyard Ponds, the Climate Story of Sediment (p. 116)
5:00–6:00 PM	3–8	W192c, McCormick Place	Pipes and Precipitation = Embodied Great Lakes Watershed Project for Students and Teachers (p. 121)
5:00–6:00 PM	1–12	W192a, McCormick Place	STEM Is EASY with PLT GreenSchools (p. 120)

Engineering, Technology, and the Application of Science

8:00–8:30 AM	K–6	S504bc, McCormick Place	Meeting the Needs of Gifted and Talented Elementary Students in the STEM Fields (p. 18)
8:00–8:30 AM	6–8	W186c, McCormick Place	The Maker Movement (p. 18)
8:00–9:00 AM	1–12	W196a, McCormick Place	Help Us Start the Revolution (p. 28)
8:00–9:00 AM	4–8	S505a, McCormick Place	Urban Planning as an Engineering and Design Challenge (p. 22)
8:00–9:00 AM	2–5	S502b, McCormick Place	Using Wind-Up Puzzles for Engineering Design and Assessment of Engineering Practices (p. 26)
8:00–9:30 AM	7–C	W175 a/b, McCormick Place	McREL Pathway Session: Incorporating Emerging Science and Engineering Content to Meet the Expectations of the NGSS (p. 29)
8:30–9:00 AM	6–8	W186c, McCormick Place	Helping Middle School Students “Discover Engineering” (p. 38)
8:00–9:30 AM	6–9	W186b, McCormick Place	MINDSTORMS® EV3 Robotics in the Middle School Classroom: Getting Started (p. 32)
9:30–10:00 AM	9–12	W196c, McCormick Place	Addressing NGSS Engineering Practices in a “Sustainable Energy” Module (p. 40)
9:30–10:30 AM	1–12	S504a, McCormick Place	Catching the Wind Together: A Successful Formal/Nonformal Partnership Focused on Wind Energy (p. 48)
9:30–10:30 AM	K–5	S503a, McCormick Place	Just Build It! (p. 48)

Schedule at a Glance Engineering, Technology, and the Application of Science

9:30–10:30 AM	3–11	S401d, McCormick Place	It's Not Complete 'til You Rinse and Repeat (p. 46)
9:30–10:30 AM	7–12	Regency E, Hyatt	DuPont Presents: Driving Science (p. 46)
9:30–10:30 AM	6–9	Grant Park A, Hyatt	Construction of Mathematical and Scientific Thinking: A Must for STEM Success (p. 45)
9:30–10:30 AM	6–12	W186c, McCormick Place	Facilitating Interdisciplinary STEM Learning Through Biomechanics (p. 49)
9:30–10:30 AM	1–5	S505a, McCormick Place	Building Community Relationships Through STEM (p. 43)
9:30–10:30 AM	K–8	S504d, McCormick Place	Engaging Students at the Intersection of STEM and <i>Common Core</i> (p. 43)
9:30–10:30 AM	P–C	W190a, McCormick Place	Featured Presentation: The Power of Play (p. 41)
9:30–10:30 AM	9–C	Burnham C, Hyatt	NARST Session: Reconceptualizing High School Chemistry to Focus on Authentic Practices (p. 41)
9:30–10:30 AM	P–C	W190a, McCormick Place	Featured Presentation: The Power of Play (p. 41)
9:30–10:30 AM	P–6	S505b, McCormick Place	iPad Apps for STEM Activities in the Classroom (p. 44)
9:30–10:30 AM	1–5	S503b, McCormick Place	Why Do You Think So? Asking Effective Questions in Engineering Activities (p. 48)
10:00–11:30 AM	5–C	W475a, McCormick Place	The “E” in STEM: 3-D STEM Engineering (p. 54)
10:00–11:30 AM	6–9	W186b, McCormick Place	MINDSTORMS® EV3 Robotics in the Middle School Classroom: Getting Started (p. 53)
11:00–11:30 AM	5–8	S405b, McCormick Place	Meet Me in the Middle Session: Everyday Engineering (p. 57)
11:00–12 Noon	9–12	W194b, McCormick Place	Engineering in the NGSS—Grades 9–12 (p. 65)
11:00–12 Noon	1–4	S503a, McCormick Place	Coaching Reluctant Elementary Teachers in to STEM Challenges (p. 63)
11:00–12 Noon	1–3	S502b, McCormick Place	Designing Bridges and Hand Pollinators—What's the Connection? (p. 63)
11:00–12 Noon	P–2	Jackson Park C, Hyatt	Portable Affordable Simple STEM (PASS) (p. 62)
11:00–12 Noon	P–3	Dusable A/B, Hyatt	ASTE Session: Making Time for Science and Engineering in Early Childhood Classrooms (p. 62)
11:00–12 Noon	K–8	S504bc, McCormick Place	A Model for K–8 Science and Engineering Fairs: Participation and Success for All Students (p. 60)
11:00–12 Noon	3–C	S401d, McCormick Place	One Million Lights: A Global Effort to Unite Students to Make the World a Better Place Through 3-D Printing (p. 60)
11:00–12 Noon	6–12	S404a, McCormick Place	Inquiry-based Instruction Using Astrobiology Across the Curriculum (p. 63)
11:00–12 Noon	6–12	W196c, McCormick Place	Boat-building Design Challenge: A Collaborative STEM and PBL Unit for Math and Science Teachers (p. 61)
11:30–12 Noon	6–C	Adler A/B, Hyatt	Use Social Media to Create a Shared Science Experience: A Social Science Club Example (p. 66)
12 Noon–1:30 PM	6–8	W194a, McCormick Place	Experience Amplify Science: Immerse Students into the World of Scientists and Engineers with the Newest Curriculum from The Lawrence Hall of Science (p. 69)
12 Noon–1:30 PM	4–12	W192b, McCormick Place	STEM on Wheels: Rubber Band Racer Engineering (p. 69)
12 Noon–1:30 PM	9–C	W185d, McCormick Place	Advanced Physics with Vernier (p. 68)
12 Noon–1:30 PM	1–5	W186b, McCormick Place	Multiple Subjects, One Platform: Tackle STEM Learning with LEGO Education WeDo! (p. 69)
12:30–1:30 PM	3–C	W196b, McCormick Place	Science 2.0: Putting Web 2.0 into the Science Classroom (p. 76)
12:30–1:30 PM	P–5	W192c, McCormick Place	CESI Session: Integrating Art and STEM (p. 76)
12:30–1:30 PM	6–12	W196c, McCormick Place	Engineer This! Getting Students to Design, Build, Test, and Modify (p. 76)
12:30–1:30 PM	9–C	Grant Park A, Hyatt	Building, Evaluating, and Applying Systems Models (p. 73)
1:00–1:30 PM	8–C	Adler A/B, Hyatt	Improve Student Argumentation and Engagement with Socio-Scientific Inquiry (SSI) (p. 82)
1:00–2:30 PM	4–8	W184a, McCormick Place	The STEM Design Challenge (p. 83)
1:00–4:00 PM	9–C	W474b, McCormick Place	Choose Your Own Adventure in the Explorer Room! (p. 84)
2:00–3:00 PM	6–12	S401a, McCormick Place	NSTA Press® Session: Cracking The Case: Decoding Engineering Principles Using Case Studies (p. 94)
2:00–3:00 PM	5–12	W186c, McCormick Place	Integrating Computing Principles to Enhance Science Classes (p. 96)
2:00–3:00 PM	1–12	W196c, McCormick Place	Make Learning Fun: Engaging Students Through Making (p. 92)
2:00–3:00 PM	7–12	W196a, McCormick Place	Build a Bridge...and Get Over It! (p. 96)

Schedule at a Glance Engineering, Technology, and the Application of Science

2:00–3:30 PM	5–8	W186b, McCormick Place	Exploring How Machines Work with the LEGO® Education Simple and Motorized Mechanisms Set (p. 99)
2:00–3:30 PM	9–C	W476, McCormick Place	Material Science: The Chemistry of Solids (p. 100)
3:30–4:30 PM	9–12	W179b, McCormick Place	The Physics of Sound Waves (p. 110)
3:30–4:30 PM	6–8	W187b, McCormick Place	Ready, Set, STEM! (p. 106)
3:30–4:30 PM	7–12	W196c, McCormick Place	Don't Fear the Engineer! How to Incorporate NGSS Engineering Standards into Your Classroom (p. 106)
3:30–4:30 PM	2–C	S401a, McCormick Place	NSTA Press® Session: Pendulums and Porch Swings (p. 107)
3:30–4:30 PM	6–8	W186c, McCormick Place	Engineering Design Inspired by Nature (p. 108)
3:30–4:30 PM	7–12	Field A/B, Hyatt	NSELA Session: NGSS Engineering: How to Help Every Science Teacher Move from Panic to Plan (p. 104)
3:30–4:30 PM	P–5	S504bc, McCormick Place	Translating Research into Practice: Framework and Philosophy of Integrating Engineering into Science (p. 105)
4:00–5:30 PM	6–12	W181c, McCormick Place	Engineer Excitement in Your Classroom with a Carolina STEM Challenge® (p. 112)
4:00–5:30 PM	6–12	W184bc, McCormick Place	CPO's Link™ Wind Turbine Learning Module: A STEM Approach to Engineering and Design (p. 112)
4:00–5:30 PM	1–3	W186b, McCormick Place	Exploring Forces, Motion, and Engineering Design with LEGO® Education Simple Machines (p. 113)
4:00–5:30 PM	6–9	W475a, McCormick Place	Engineering Design in the Middle School Science Classroom (p. 114)
4:00–5:30 PM	6–12	W192b, McCormick Place	Coaching Science Olympiad with Confidence and Connecting to the Classroom: Elastic Launched Glider (p. 113)
4:00–5:30 PM	6–12	W185d, McCormick Place	STEM/Engineering Activities Using Vernier Sensors with Arduino (p. 113)
5:00–6:00 PM	P–3	S504bc, McCormick Place	Engineering in the Early Elementary Classroom (p. 117)
5:00–6:00 PM	6–C	S403a, McCormick Place	More than Mud! From the Arctic to Backyard Ponds, the Climate Story of Sediment (p. 116)
5:00–6:00 PM	8–C	W196c, McCormick Place	Simulate STEM Online Through Virtual Clinical Trials (p. 118)
5:00–6:00 PM	P	S505a, McCormick Place	Integrating Science, Technology, and Engineering in PreK: STE-P Up Your Practice! (p. 117)
5:00–6:00 PM	6–12	Grant Park B, Hyatt	Building Teen Empowerment Through a School-Museum Partnership (p. 118)
5:00–6:00 PM	6–9	W186c, McCormick Place	Bioengineering Challenges and Middle School Life Science (p. 120)
5:00–6:00 PM	4–9	S504a, McCormick Place	Shake It! An NGSS, Engineering, and Nature of Science Look at Earthquakes (p. 120)
5:00–6:00 PM	1–12	W192a, McCormick Place	STEM Is EASY with PLT GreenSchools (p. 120)
5:00–6:00 PM	6–12	W196a, McCormick Place	Constructing ROVs, Collaborating with Researchers, and Getting Your Students Involved in Engineering, Problem Solving, and Field Work (p. 121)

Life Science

8:00–9:00 AM	7–12	S402b, McCormick Place	Genome Cache: A Scavenger Hunt Through the Human Genome (p. 24)
8:00–9:00 AM	9–12	S402a, McCormick Place	Dissections Done Differently: An Evolutionary Focus (p. 20)
8:00–9:00 AM	6–C	Jackson Park A, Hyatt	Authentic Research for Your Students Using Mastodons and the NGSS (p. 20)
8:00–9:00 AM	6–12	S401a, McCormick Place	NSTA Press® Session: <i>Scientific Argumentation in Biology: 30 Classroom Activities</i> (p. 24)
8:00–9:00 AM	K–12	S403b, McCormick Place	Environmental Stewardship: Engaging and Relevant PBL in the School Yard (p. 20)
8:00–9:00 AM	3–8	W192a, McCormick Place	FUN = Food help to Understand Nutrition (p. 28)
8:00–9:30 AM	9–C	W474b, McCormick Place	Identify Patient Zero of a Zombie Apocalypse (p. 35)
8:00–9:30 AM	9–12	W470b, McCormick Place	Biology for NGSS: A New Approach for a New Program (Grades 9–12) (p. 34)
8:00–9:30 AM	9–12	W192b, McCormick Place	Maximize Your Biotech Budget and Simplify Your Prep (p. 32)
8:00–9:30 AM	6–8	W184d, McCormick Place	Predicting Pollinators with FOSS Diversity of Life for Middle School (p. 32)
8:00–9:30 AM	9–12	W181a, McCormick Place	Comparative Vertebrate Anatomy with Carolina's Perfect Solution® Specimens (p. 30)

8:00–9:30 AM	9–C	W474a, McCormick Place	Struggling with How to Integrate Inquiry into Your AP Biology Course? (AP Big Idea 3) (p. 34)
8:00–9:30 AM	9–C	W476, McCormick Place	Biotechnologies: Protein Assays in STEM Education (p. 35)
8:00–10:00 AM	9–12	W175c, McCormick Place	Special Pathway Session: Shifts in High School Instruction to Meet the <i>Next Generation Science Standards</i> (p. 36)
9:30–10:30 AM	6–12	W186c, McCormick Place	Facilitating Interdisciplinary STEM Learning Through Biomechanics (p. 49)
9:30–10:30 AM	9–12	S402b, McCormick Place	Food for Thought: Modeling the Role of Glucose (p. 46)
9:30–10:30 AM	11–C	Grant Park B, Hyatt	Logical Arguments: Using Popular Media to Encourage Critical Discussion in Science Classrooms (p. 42)
9:30–10:30 AM	P–C	Jackson Park A, Hyatt	Empower All Learners with Neuroscience (p. 42)
9:30–10:30 AM	K–12	W187a, McCormick Place	Trout in the Classroom (p. 44)
9:30–10:30 AM	1–6	S502a, McCormick Place	Promoting Plant Literacy with the NGSS (p. 48)
10:00–11:30 AM	9–C	W474b, McCormick Place	Are Worms Smarter Than Your Students? (AP Big Ideas 1, 2, 3, 4) (p. 54)
10:00–11:30 AM	9–C	W183c, McCormick Place	The Origins of Humans and Recent Adaptations (p. 52)
10:00–11:30 AM	K–12	W181a, McCormick Place	Hands-On Activities to Model Habitat Preference and Population Sampling (p. 51)
10:00–11:30 AM	8–C	W186a, McCormick Place	Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR (p. 53)
10:00–11:30 AM	9–C	W180, McCormick Place	Advanced Inquiry Labs for AP Biology from Flinn Scientific (p. 51)
10:10–10:30 AM	6–C	Clark C, Hyatt	SCST Session: Growing Communities of Learners: A Gardening, Cooking, Science, and CCSS ELA Workshop for Teachers (p. 56)
10:15–10:45 AM	6–8	S405b, McCormick Place	Meet Me in the Middle Session: Engineering to the Standard (p. 56)
11:00–12 Noon	9–12	W179b, McCormick Place	Adapting Traditional Biology Labs to Sensor Technology (p. 65)
11:00–12 Noon	K–12	W192c, McCormick Place	CESI Session: Butterfly Gardening Using Native Plants (p. 64)
11:00–12 Noon	9–12	S402b, McCormick Place	A Head Is a Terrible Thing to Waste: Using Hominid Skulls to Teach Evolution (p. 62)
11:00–12 Noon	K–12	W187a, McCormick Place	NASA and GLOBE Connect K–12 Students to NGSS with Big-Data Applications (p. 61)
11:00–12 Noon	6–12	Jackson Park C, Hyatt	“I Have a Theory:” Teaching About the Nature of Scientific Theories (p. 62)
11:00–12 Noon	6–C	S402a, McCormick Place	Forensic Entomology: Fun Inexpensive Inquiry Activities (p. 60)
11:00–12 Noon	9–C	Grant Park B, Hyatt	Crowdsourcing to Develop Test Items for the High School Life Science NGSS (p. 59)
11:00–12 Noon	6–12	S501d, McCormick Place	Horticulture and Special Education: How to Make It Bloom (p. 60)
11:00–12 Noon	6–12	S404a, McCormick Place	Inquiry-based Instruction Using Astrobiology Across the Curriculum (p. 63)
11:00–12 Noon	9–12	S501bc, McCormick Place	Enhancing Visual–Spatial Ability Through Chemistry—from Physical Models to Apps (p. 63)
11:30–12 Noon	7–C	W176b, McCormick Place	The Power of Computational Modeling and Simulation in the Biology Classroom (p. 66)
11:30–12 Noon	K–12	S403a, McCormick Place	Local Parks as Partners: Outdoor Science in Your Community (p. 66)
11:30–12:30 PM	6–C	W193b, McCormick Place	Chelcie’s Story: STEM Careers and the Science Classroom (p. 67)
12 Noon–1:30 PM	6–12	W184b, McCormick Place	Genetics: Crazy Traits and CPO’s Link Learning Module (p. 68)
12 Noon–1:30 PM	9–C	W183c, McCormick Place	Domestication: Plant and Animal Evolution in a Human World (p. 68)
12 Noon–1:30 PM	8–C	W186a, McCormick Place	Diagnosing the Flu (p. 68)
12 Noon–1:30 PM	9–C	W181c, McCormick Place	They Come in Pairs: Using Socks to Identify and Address Student Misconceptions About Chromosomes (p. 68)
12 Noon–1:30 PM	9–C	W193a, McCormick Place	Genes, Genomes, and the New World of Personalized Medicine (p. 69)
12 Noon–1:30 PM	K–12	W181a, McCormick Place	Introduction to Wisconsin Fast Plants® (p. 67)
12 Noon–1:30 PM	9–C	W476, McCormick Place	Smoking and Lung Cancer Microarray (p. 70)
12 Noon–1:30 PM	6–12	W180, McCormick Place	Flinn Favorite Biology Lab Activities and Games (p. 67)
12:30–1:30 PM	7–12	S402b, McCormick Place	Organelle of the Day (p. 77)
12:30–1:30 PM	7–C	Hyde Park A, Hyatt	Lincoln Park Zoo’s Partners in Fieldwork: School Yard Citizen Science! (p. 76)
12:30–1:30 PM	K–6	S503b, McCormick Place	Engineering Teamwork: Reinforcing Collaborative Communication Through Design Challenges (p. 78)

Schedule at a Glance Life Science

12:30–1:30 PM	6–12	S402a, McCormick Place	Zoo Genetics: A Partnership Between Scientist and Teacher (p. 74)
12:30–1:30 PM	9–C	Grant Park A, Hyatt	Building, Evaluating, and Applying Systems Models (p. 73)
12:30–1:30 PM	9–12	Erie, Hyatt	Impact of a PCB Sequence on Student Outcomes: Reports from Two High Schools (p. 73)
1:00–1:30 PM	8–C	Adler A/B, Hyatt	Improve Student Argumentation and Engagement with Socio-Scientific Inquiry (SSI) (p. 82)
1:00–1:30 PM	6–9	Dusable C, Hyatt	You Thought You Were THE Science Teacher: Wrong! We Are All Teachers of Reading and Writing (p. 82)
2:00–2:30 PM	8–12	S402a, McCormick Place	Microbes Are a BLAST (p. 85)
2:00–2:30 PM	6–12	S403b, McCormick Place	The Good, the Bad and the Ugly: Creating a Toolkit to Help Educators Communicate About Invasive Species in the Mid-Atlantic (p. 85)
2:00–3:00 PM	9–12	S404a, McCormick Place	Lab Activities and Questioning Strategies that Unite Biology Concepts (p. 94)
2:00–3:00 PM	3–8	W196b, McCormick Place	From Aragog to Gillyweed: Authentic Assessments of Biodiversity with Harry Potter (p. 96)
2:00–3:00 PM	9–12	Regency E, Hyatt	DuPont Presents: Food Safety: Stop the Growth (p. 93)
2:00–3:00 PM	K–5	S503b, McCormick Place	Using M&Ms® to Teach Elementary Students Life Science and Math! (p. 94)
2:00–3:00 PM	9–C	Grant Park B, Hyatt	Moving Genes (p. 92)
2:00–3:00 PM	6–12	S403a, McCormick Place	Use NASA Airborne Science Missions to Bring Real-Time Science to Your Classroom (p. 88)
2:00–3:30 PM	7–12	W471a, McCormick Place	Feeding the World: The Science of Soil (p. 100)
2:00–3:30 PM	5–10	W470b, McCormick Place	Evolving Curiosity in the Animal Kingdom (p. 100)
2:00–3:30 PM	9–12	W183c, McCormick Place	Biodiversity in the Age of Humans (p. 98)
2:00–3:30 PM	G	W178a, McCormick Place	Magnify Your Mind!—with The Private Eye® (p. 97)
2:00–3:30 PM	9–12	W181a, McCormick Place	Autopsy: Forensic Dissection Featuring Carolina's Perfect Solution® Pigs (p. 97)
2:00–3:30 PM	5–12	W192b, McCormick Place	CTE: Biology Techniques for AgSci Applications (p. 99)
2:00–3:30 PM	9–C	W193a, McCormick Place	Telling Molecular Stories with David Goodsell's Cellular Landscapes (p. 99)
2:00–3:30 PM	8–C	W186a, McCormick Place	Investigating the Genome with DNA Sequencing Technology (p. 98)
2:00–3:30 PM	9–C	W181c, McCormick Place	Evolving Enzymes: Bioinformatics, Enzymes, and Inquiry (p. 98)
2:00–3:30 PM	9–C	W476, McCormick Place	Material Science: The Chemistry of Solids (p. 100)
2:00–3:30 PM	9–C	W185a, McCormick Place	Spectroscopy with Vernier (p. 98)
2:30–3:00 PM	5–C	W187a, McCormick Place	Making STEM Meaningful with Sea Turtles (p. 102)
2:40–3:00 PM	10–C	Clark C, Hyatt	SCST Session: A Community College/Audubon Society Partnership: Mutualism in Action (p. 102)
3:30–4:30 PM	6–8	W187b, McCormick Place	Ready, Set, STEM! (p. 106)
3:30–4:30 PM	5–12	W187a, McCormick Place	Doing Service and Science in Your Local Forest Preserves (p. 106)
3:30–4:30 PM	P–8	W192c, McCormick Place	CESI Session: Using Mobile Learning to Engage K–6 Students in Becoming Stewards of Their Environment (p. 106)
3:30–4:30 PM	9–12	Regency E, Hyatt	DuPont Presents: Tracking the Spread of Infectious Diseases—Human and Animal (p. 107)
3:30–4:30 PM	9–12	S402b, McCormick Place	Math + Biology: It Adds Up! (p. 107)
3:30–4:30 PM	3–5	S504a, McCormick Place	Math/Science Integration for Earth's Sake (p. 108)
3:30–4:30 PM	6–9	S405b, McCormick Place	Exploring Organisms in Ecosystems with Vermicomposting (p. 108)
4:00–5:00 PM	6–C	W193b, McCormick Place	Chelcie's Story: STEM Careers and the Science Classroom (p. 111)
4:00–5:30 PM	4–C	W470a, McCormick Place	Bringing Real Neuroscience (Spiking Neurons!) into Your Classroom (p. 114)
4:00–5:30 PM	6–C	W186a, McCormick Place	Biotechnology Basics (p. 113)
4:00–5:30 PM	9–C	W185a, McCormick Place	Biology with Vernier (p. 112)
4:00–5:30 PM	K–12	W181a, McCormick Place	Hands-On Science with Classroom Critters (p. 112)
4:00–5:30 PM	9–C	W183C, McCormick Place	Math and Statistics in Biology Classrooms (p. 112)
4:00–5:30 PM	5–C	W471a, McCormick Place	Leap into the Future with Hands-On Science Teaching (p. 114)
5:00–6:00 PM	6–12	S402a, McCormick Place	Zombie Science (p. 116)
5:00–6:00 PM	1–12	Regency E, Hyatt	DuPont Presents: Fuel, Exercise, and the Classroom: How to Make Sure Your Students Are Ready to Learn (p. 119)

5:00–6:00 PM	6–C	S403a, McCormick Place	More than Mud! From the Arctic to Backyard Ponds, the Climate Story of Sediment (p. 116)
5:00–6:00 PM	4–C	W176b, McCormick Place	Citizen Science: FrogWatch USA (p. 117)
5:00–6:00 PM	6–9	W186c, McCormick Place	Bioengineering Challenges and Middle School Life Science (p. 120)
5:00–6:00 PM	6–12	Grant Park A, Hyatt	Highlighting Nature of Science within the Dimensions of the NGSS (p. 118)
5:00–6:00 PM	5–12	S404bc, McCormick Place	Environmental Superheroes: Engaging Students with Stewardship Projects (p. 116)
5:00–6:00 PM	9–12	S403b, McCormick Place	Promoting Science Practices Through Computer Modeling in Ecology and Evolution (p. 116)
5:00–6:00 PM	9–12	S402b, McCormick Place	Round Holes and Square Pegs: How Do Traditional Biology Activities Fit into the NGSS? (p. 119)
5:00–6:00 PM	6–12	W196a, McCormick Place	Constructing ROVs, Collaborating with Researchers, and Getting Your Students Involved in Engineering, Problem Solving, and Field Work (p. 121)

Physical Science

8:00–9:00 AM	9–12	Adler C, Hyatt	Using the Practices of the Scientist for Scaffolding, Engagement, and Formative Assessment (p. 18)
8:00–9:00 AM	6–12	S501a, McCormick Place	Cosmetic Chemistry: A Hands–On Unit to Engage Students (p. 21)
8:00–9:00 AM	10–C	Grant Park B, Hyatt	I Can Teach Chemistry and Physics Using a Play? Tell Me How! (p. 24)
8:00–9:00 AM	9–12	S501bc, McCormick Place	Slingshot Physics (p. 26)
8:00–9:00 AM	2–5	S502b, McCormick Place	Using Wind-Up Puzzles for Engineering Design and Assessment of Engineering Practices (p. 26)
8:00–9:00 AM	9–12	Prairie A, Hyatt	Chemistry Activities Linked to the NGSS (p. 20)
8:00–9:00 AM	8–12	S501d, McCormick Place	DIYP: Do It Yourself Physics (p. 21)
8:00–9:00 AM	5–10	Regency E, Hyatt	Dupont Presents: The Science of Packaging (p. 24)
8:00–9:00 AM	K–12	W179b, McCormick Place	Supporting NGSS Requirements for Data Collection on Chromebooks (p. 28)
8:00–9:30 AM	6–C	W470a, McCormick Place	Cool Tools for Electricity and Magnetism (p. 34)
8:00–9:30 AM	6–8	W195, McCormick Place	Reclaiming the Metal (p. 34)
8:00–9:30 AM	5–12	W194a, McCormick Place	Detecting Radiation in Our Radioactive World (p. 33)
8:00–9:30 AM	9–12	W181c, McCormick Place	Flipping Out Over Chemistry! (p. 30)
8:00–9:30 AM	6–8	W181b, McCormick Place	Making Waves in Middle School (p. 30)
8:00–9:30 AM	2–9	W178a, McCormick Place	What the Heck Happened?! (p. 29)
8:00–9:30 AM	6–12	W180, McCormick Place	Fantastic Physical Science Demonstrations from Flinn Scientific (p. 30)
8:00–9:30 AM	6–12	W184bc, McCormick Place	CPO Science’s Link™ Learning Module: A STEM Approach to Optics, Light, and Color (p. 30)
8:00–9:30 AM	9–C	W185d, McCormick Place	Physics with Vernier (p. 32)
8:00–9:30 AM	9–C	W185a, McCormick Place	Chemistry with Vernier (p. 32)
8:00–10:00 AM	9–12	W175c, McCormick Place	Special Pathway Session: Shifts in High School Instruction to Meet the <i>Next Generation Science Standards</i> (p. 36)
9:30–10:30 AM	6–12	W194b, McCormick Place	Active Chemistry: A Leading Project–based High School Chemistry Program Capturing the Essence of the NGSS and STEM Plus New Support Resources (p. 49)
9:30–10:30 AM	9–12	W179b, McCormick Place	Spectrometry: Investigate Light Emission, Colored Solutions, Plant Pigments, Solution Concentration, and Reaction Kinetics (p. 49)
9:30–10:30 AM	P–5	W192c, McCormick Place	Let’s Get Physical—From Force and Friction to Water and Weather (p. 49)
9:30–10:30 AM	6–12	W186c, McCormick Place	Facilitating Interdisciplinary STEM Learning Through Biomechanics (p. 49)
9:30–10:30 AM	1–12	S504a, McCormick Place	Catching the Wind Together: A Successful Formal/Nonformal Partnership Focused on Wind Energy (p. 48)
9:30–10:30 AM	6–C	S501bc, McCormick Place	Some Like It Hot! (p. 48)
9:30–10:30 AM	8–12	S404a, McCormick Place	NASA’s Space Forensics: Integrating Storytelling into STEM Education (p. 46)

Schedule at a Glance Physical Science

9:30–10:30 AM	9–12	W187c, McCormick Place	Physics for the Next Generation: Using a Patterns Approach to Meet NGSS in Physics (p. 44)
9:30–10:30 AM	9–C	Burnham C, Hyatt	NARST Session: Reconceptualizing High School Chemistry to Focus on Authentic Practices (p. 41)
9:30–10:30 AM	7–12	S501a, McCormick Place	Engaging Students in Developing and Using Models to Explain Acceleration (p. 43)
10:00–10:30 AM	9–12	Erie, Hyatt	Flipping for Mastery, Diversity, and Time (p. 50)
10:00–11:30 AM	9–12	W181c, McCormick Place	Building Inquiry in AP Chemistry Labs (p. 52)
10:00–11:30 AM	3–12	W178a, McCormick Place	Fantastical Chemistry Demos for All Classrooms (p. 51)
10:00–11:30 AM	6–C	Skyline W375a, McCormick Place	Flinn Scientific’s Morning of Chemistry: The Best of ChemWest (p. 51)
10:00–11:30 AM	6–C	W185d, McCormick Place	Explore Motion with Vernier Video Physics for iOS (p. 52)
10:00–11:30 AM	7–C	W471b, McCormick Place	The NGSS and AP Chemistry: Promoting Conceptual Understanding with Molecular Level Visualization (p. 54)
10:10–10:30 AM	6–C	Clark C, Hyatt	SCST Session: Growing Communities of Learners: A Gardening, Cooking, Science, and CCSS ELA Workshop for Teachers (p. 56)
10:15–10:45 AM	6–8	S405b, McCormick Place	Meet Me in the Middle Session: Engineering to the Standard (p. 56)
11:00–12 Noon	K–8	W190b, McCormick Place	Sound and Waves: An Integrated K–8 Hands-On Approach Supporting the NGSS and CCSS (p. 64)
11:00–12 Noon	1–5	S502a, McCormick Place	Sounds Like Fun: Ideas for the Science of Sound (p. 63)
11:00–12 Noon	K–12	W187a, McCormick Place	NASA and GLOBE Connect K–12 Students to NGSS with Big-Data Applications (p. 61)
11:00–12 Noon	6–12	Jackson Park C, Hyatt	“I Have a Theory:” Teaching About the Nature of Scientific Theories (p. 62)
11:00–12 Noon	6–12	W196c, McCormick Place	Boat–building Design Challenge: A Collaborative STEM and PBL Unit for Math and Science Teachers (p. 61)
11:00–12 Noon	9–12	S501bc, McCormick Place	Enhancing Visual–Spatial Ability Through Chemistry—from Physical Models to Apps (p. 63)
11:00–12 Noon	6–12	S404a, McCormick Place	Inquiry–based Instruction Using Astrobiology Across the Curriculum (p. 63)
12 Noon–1:30 PM	2–9	W178a, McCormick Place	Cool! Can We Do That Again?! (p. 67)
12 Noon–1:30 PM	K–10	W475a, McCormick Place	It’s Elementary—Light and Optics for Kids (p. 70)
12 Noon–1:30 PM	9–C	W185d, McCormick Place	Advanced Physics with Vernier (p. 68)
12 Noon–1:30 PM	4–12	W192b, McCormick Place	STEM on Wheels: Rubber Band Racer Engineering (p. 69)
12:30–1:30 PM	7–12	S501bc, McCormick Place	Modeling Instruction: A Way of Teaching That Foregrounds NGSS Science and Engineering Practices (p. 77)
12:30–1:30 PM	5–8	W179b, McCormick Place	Exploring Motion in Middle School Science with Position and Velocity Games—MatchGraph! (p. 80)
12:30–1:30 PM	3–5	S502a, McCormick Place	Digging Deeper in Science for Grades 3–5 Teachers (p. 77)
12:30–1:30 PM	9–12	Erie, Hyatt	Impact of a PCB Sequence on Student Outcomes: Reports from Two High Schools (p. 73)
12:30–1:30 PM	10–C	Clark C, Hyatt	SCST Session: Marjorie Gardner Lecture: Strategies for Incorporating Research into the Undergraduate Curriculum (p. 73)
12:30–1:30 PM	6–12	S403b, McCormick Place	Connecting the Dots: Using Particles and Gas Laws to Scaffold Student Understanding of Weather (p. 75)
12:30–1:30 PM	6–12	W196c, McCormick Place	Engineer This! Getting Students to Design, Build, Test, and Modify (p. 76)
12:30–1:30 PM	7–12	S501a, McCormick Place	Using Authentic Performance Assessment to Structure Physics First Curriculum (p. 75)
1:00–1:30 PM	9–12	W187c, McCormick Place	Exploring Chemotaxis with <i>C. elegans</i> (p. 82)
1:15–1:45 PM	6–8	S405b, McCormick Place	Meet Me in the Middle Session: Engineering Practice in Middle School Chemistry (p. 84)
2:00–3:00 PM	9–12	W179b, McCormick Place	Project-based Activities for Gas Laws and Stoichiometry Chemistry Standards (p. 96)
2:00–3:00 PM	6–12	S403a, McCormick Place	Use NASA Airborne Science Missions to Bring Real–Time Science to Your Classroom (p. 88)
2:00–3:00 PM	6–12	S501a, McCormick Place	Having Your Chemistry Classroom Support the NGSS (p. 89)
2:00–3:00 PM	7–12	W196a, McCormick Place	Build a Bridge—and Get Over It! (p. 96)

Schedule at a Glance Physical Science

2:00–3:30 PM	9–C	W185a, McCormick Place	Spectroscopy with Vernier (p. 98)
2:00–3:30 PM	6–12	W184bc, McCormick Place	CPO's Link™ Learning Chemistry Models Module: Fun with Atom Building Games and the Periodic Table (p. 98)
2:00–3:30 PM	K–8	W181b, McCormick Place	A Progression of Learning Through the NGSS K–8 (p. 97)
2:00–3:30 PM	G	W178a, McCormick Place	Magnify Your Mind!—with The Private Eye® (p. 97)
2:00–3:30 PM	9–C	W180, McCormick Place	Advanced Inquiry Labs for AP Chemistry from Flinn Scientific (p. 97)
3:00–4:30 PM	7–12	W184a, McCormick Place	STEM Careers in Chemistry (p. 102)
3:30–4:00 PM	9–12	S501d, McCormick Place	Exploring STEM Activities with High School Physics Students Through a Partnership Program (p. 103)
3:30–4:00 PM	9–12	W187c, McCormick Place	Density Columns: An NGSS Approach (p. 103)
3:30–4:30 PM	9–C	Grant Park A, Hyatt	Inquiry-based Approaches to Support the New AP Physics 1 and 2 Courses (p. 104)
3:30–4:30 PM	6–8	W187b, McCormick Place	Ready, Set, STEM! (p. 106)
3:30–4:30 PM	10	S501bc, McCormick Place	It's a Matter of Attraction (p. 108)
3:30–4:30 PM	3–5	Grant Park D, Hyatt	ASTE Session: It's Alarming! Using Engineering Design to Build Students' Understanding of Simple Circuits (p. 107)
3:30–4:30 PM	3	S503b, McCormick Place	What's the Attraction? Magnetic Forces and Their Interactions (p. 107)
3:30–4:30 PM	7–12	S501a, McCormick Place	Actually Replace Lectures with Guided Inquiry (p. 105)
3:30–4:30 PM	K–12	W190b, McCormick Place	Creating Assessments for Physical Science that Integrate the Three Dimensions of the NGSS (p. 106)
4:00–4:30 PM	7–9	S501d, McCormick Place	Redesigning the Water Rocket (p. 111)
4:00–4:30 PM	9–12	W187c, McCormick Place	Hook Your Chemistry Students (p. 111)
4:00–5:30 PM	9–12	W179a, McCormick Place	The Best Test Prep Book Ever for AP Chemistry (p. 111)
4:00–5:30 PM	9–12	W180, McCormick Place	New AP Physics 1 Advanced Inquiry Investigations from Flinn Scientific (p. 112)
4:00–5:30 PM	K–C	W193a, McCormick Place	Physics as a Second Language (p. 113)
4:00–5:30 PM	K–6	W178a, McCormick Place	Elementary Teacher Survival Kit (p. 111)
5:00–6:00 PM	1–8	S502b, McCormick Place	Harnessing Student Energy in Your Assessments (p. 120)
5:00–6:00 PM	9–12	S501a, McCormick Place	Using Hawaiian Culture to Teach College Prep Chemistry to a Diverse Group of Learners (p. 117)
5:00–6:00 PM	8–12	Grant Park C, Hyatt	A Framework for Supporting Students in the Practice of Scientific Modeling (p. 119)
5:00–6:00 PM	K–12	Grant Park D, Hyatt	Using a Predict-Observe-Explain Sequence to Promote Student Discourse: A Model Lesson Using Liquid Nitrogen (p. 119)
5:00–6:00 PM	8–10	S501bc, McCormick Place	Creative Lessons Using Crosscutting Concepts That Help Eliminate Misconceptions About Force and Motion (p. 120)
5:00–6:00 PM	6–12	Grant Park A, Hyatt	Highlighting Nature of Science within the Dimensions of the NGSS (p. 118)
5:00–6:00 PM	4–9	S504a, McCormick Place	Shake It! An NGSS, Engineering, and Nature of Science Look at Earthquakes (p. 120)
5:00–6:00 PM	1–12	W192a, McCormick Place	STEM Is EASY with PLT GreenSchools (p. 120)
5:00–7:00 PM	K–C	Skyline W375a, McCormick Place	More than Just Physics (p. 121)

General Science Education

7:30–9:00 AM	7–12	Regency D, Hyatt	M–2: High School Breakfast (p. 17)
8:00–8:30 AM	1–12	Hyde Park A, Hyatt	Great Lakes Stewardship Initiative: Expanding Classrooms, Strengthening Communities (p. 18)
8:00–9:00 AM	8–12	W187b, McCormick Place	Science for all BI(all)ck Children: Making Meaning Through Language and Culture (p. 22)
8:00–9:00 AM	6–C	Clark A/B, Hyatt	Include Me! Inclusion Strategies for the Science Classroom (p. 18)
8:00–9:00 AM	6–8	404d, McCormick Place	Crafting a Cosmos—Making Connections in the NGSS (p. 21)
8:00–9:00 AM	K–3	S504d, McCormick Place	Making Content Comprehensible for English Language Learners (p. 22)
8:00–9:00 AM	6–12	Dusable C, Hyatt	Make a Difference! Steps to Success with Inquiry—The Evidence, the Examples, the Process (p. 18)

Schedule at a Glance General Science Education

8:00–9:00 AM	K–12	Jackson Park B, Hyatt	Object-based Learning: Engaging All Students Through Authentic Experiences (p. 24)
8:00–9:00 AM	P–12	W183ab, McCormick Place	NGSS@NSTA Forum Session: Implementing the Vision of the <i>Framework and Next Generation Science Standards</i> (p. 27)
8:00–9:00 AM	C	Grant Park C, Hyatt	Using the NGSS Practices and Reflection to Build Confidence in Preservice Elementary Science Educators (p. 20)
8:00–9:00 AM	K–12	Hyde Park B, Hyatt	K–12 Science Mentoring: High School, Middle School, and Elementary Students Learning Science Together (p. 20)
8:00–9:00 AM	K–12	Burnham A/B, Hyatt	Safer STEM Activities Through Collaboration! (p. 18)
8:00–9:00 AM	K–12	Field A/B, Hyatt	NSELA Session: Leadership Strategies for Ensuring Each Student Has a STEM Future (p. 19)
8:00–9:00 AM	8–12	Erie, Hyatt	Deliver Your Science Content with iPads in Your 1:1 Classroom (p. 19)
8:00–9:00 AM	7–C	S401d, McCormick Place	Modeling the Work of Scientists and Engineers (p. 24)
8:00–9:00 AM	6–8	S405b, McCormick Place	Science + Literacy = Learning! (p. 26)
8:00–9:00 AM	6–8	S405a, McCormick Place	Using Technology to Construct Science Meaning for English Language Learners (p. 26)
8:00–9:00 AM	K–3	S505b, McCormick Place	Integrating Sciences with Elementary Reading (p. 22)
8:00–9:00 AM	K–5	S503a, McCormick Place	Teacher Leader Pathways to Building Capacity (p. 22)
8:00–9:00 AM	1–5	S504a, McCormick Place	Between the Science Question and the Answer in the K–5 Classroom (p. 26)
8:00–9:00 AM	2–4	S502a, McCormick Place	“Orange” You Glad You Came? (p. 26)
8:00–9:00 AM	9–12	W187c, McCormick Place	Keeping Seniors on Track to the Finish Line (p. 23)
8:00–9:00 AM	P–C	W185 b/c, McCormick Place	Social Media for Science Teachers (p. 22)
8:00–9:00 AM	K–C	S401bc, McCormick Place	NSTA Press® Session: <i>Models and Approaches to STEM Professional Development</i> (p. 20)
8:00–9:00 AM	6–C	W190b, McCormick Place	Student Assessment: Reviewing NGSS and Critical Assessment Components (p. 23)
8:00–9:30 AM	6–8	W471b, McCormick Place	Bringing the NGSS to the Classroom with Discovery Education (p. 34)
8:00–9:30 AM	6–C	W193a, McCormick Place	Breaking the Rules: Hacking the Science Classroom with Arduino and Open-source Electronics (p. 33)
8:00–9:30 AM	1–10	W475a, McCormick Place	Integrating Online Learning into the Science Classroom (p. 35)
8:00–9:30 AM	8–C	W186a, McCormick Place	Transformation Tips and Tricks (p. 32)
8:00–9:30 AM	6–12	W179a, McCormick Place	College Readiness in Science: What’s Ideal—and What’s Real? (p. 29)
8:00–10:00 AM	P–C	W176a, McCormick Place	BSCS Pathway Session: Developing the NGSS Capacity Through Professional Development Partnerships (p. 36)
8:00–10:00 AM	P–6	Skyline W375c, McCormick Place	Elementary Extravaganza (p. 36)
8:00–10:00 AM	P–C	Regency C, Hyatt	NSTA’s Exemplary Science Programs (ESP) Meeting Current Reform Efforts (p. 35)
8:00–10:00 AM	6–12	Regency A, Hyatt	CSSS Session: Model Course Mapping to the NGSS in Middle School and High School (p. 36)
8:00–11:00 AM	6–12	W178b, McCormick Place	AMNH Pathway Session: Using the BSCS Instructional Model to Design Learning Sequences (p. 36)
8:30–9:00 AM	10–C	Clark C, Hyatt	SCST Session: Electronic Lab Books and Notebooks for Instilling Science and Technology Workforce Skills (p. 38)
8:30–9:00 AM	K–6	S504bc, McCormick Place	Regional Adaptation of Science Curriculum Materials to Meet the NGSS: Modifications, Instruction, and Student Learning (p. 38)
8:30–9:30 AM	6–12	W193b, McCormick Place	Zombie Apocalypse! (p. 38)
9:30–9:50 AM	C	Clark C, Hyatt	SCST Session: Creating an Interdisciplinary Course Using a Trade Book (p. 39)
9:30–10:00 AM	6–C	Adler A/B, Hyatt	Using Online Simulations to Help All Learners Succeed in Today’s Classroom (p. 39)
9:30–10:00 AM	6–C	Hyde Park A, Hyatt	Connecting Students and Scientists: Leveraging Technology to Extend the Classroom (p. 40)
9:30–10:30 AM	K–12	W183ab, McCormick Place	NGSS@NSTA Forum Session: Helping Students Make Sense of the World with Next Generation Science and Engineering Practices (p. 48)

Schedule at a Glance General Science Education

9:30–10:30 AM	3–12	Jackson Park B, Hyatt	The Importance of Science Journals (p. 46)
9:30–10:30 AM	6–12	W190b, McCormick Place	Standards–based Grading and the NGSS (p. 44)
9:30–10:30 AM	C	Burnham A/B, Hyatt	Integrated STEM Education: The New Frontier (p. 45)
9:30–10:30 AM	G	W185bc, McCormick Place	Building Capacity in Best Practices for STEM Teaching and Learning (p. 40)
9:30–10:30 AM	P–C	Adler C, Hyatt	Preservice Teachers, How Their History Can Affect Their Future (p. 41)
9:30–10:30 AM	C	Grant Park C, Hyatt	Co-Teaching to Improve Learning in STEM in Higher Education (p. 42)
9:30–10:30 AM	6–C	W196a, McCormick Place	Enhancing STEM Teaching and Learning Through Graduate Level Courses and Action Research Projects (p. 49)
9:30–10:30 AM	9–12	S501d, McCormick Place	High School ELL/SPED Students Present Claims and Evidence to AP Environmental Science Students About Clean Energy (p. 43)
9:30–10:30 AM	6–C	Hyde Park B, Hyatt	From Melting Pot to Salad Bowl: Integrating Students’ Cultures in Our Science Teaching (p. 42)
9:30–10:30 AM	P–C	Jackson Park D, Hyatt	The Best in Science Literature—Choosing It, Using It (p. 42)
9:30–10:30 AM	5–12	S402a, McCormick Place	Scaffolding Inquiry Using iPads and Model Organisms (p. 42)
9:30–10:30 AM	K–12	W176b, McCormick Place	Reaching New Heights in Science with Toshiba/NSTA ExploraVision (p. 44)
9:30–10:30 AM	6–C	W187b, McCormick Place	Creating Classroom Access and Equity to Transform Student Science Outcomes (p. 44)
9:30–10:30 AM	6–12	Dusable C, Hyatt	Guiding and Assessing Experimental Design...and Surviving It! (p. 41)
9:30–10:30 AM	1–C	Clark A/B, Hyatt	Leading Science Education Reform: How Leaders Overcome Barriers to the Change Process (p. 41)
9:30–10:30 AM	P–C	Field A/B, Hyatt	NSELA Session: Tools for Science Leaders (p. 42)
9:30–10:30 AM	P–5	W196b, McCormick Place	Using Lab Notebooks in the Preschool and Elementary Classroom (p. 49)
9:30–10:30 AM	K–12	W192a, McCormick Place	3, 2, 1! Send a Student–designed Experiment to the International Space Station! (p. 44)
9:30–10:30 AM	5–C	Dusable A/B, Hyatt	ASTE Session: Lessons that Create Opportunities for Students to Develop Proficiency in the 21st–Century Standards (p. 45)
9:30–10:30 AM	K–C	S401bc, McCormick Place	NSTA Press® Session: What Are They Really Thinking? Probe Formats that Uncover K–16 Students’ and Teachers’ Ideas (p. 42)
9:30–10:30 AM	5–C	S401a, McCormick Place	NSTA Press® Session: CCSS, <i>Mathematics</i> + NGSS = More Brain-powered Science (p. 46)
9:50–10:10 AM	C	Clark C, Hyatt	SCST Session: Implementation of a New Science Methods Course to Shift Teacher Candidate’s Views of Nature of Science (p. 49)
10:00–10:30 AM	9–12	W196c, McCormick Place	Projects and Lots of ‘em: STEM Edition (p. 50)
10:00–10:30 AM	K–C	Hyde Park A, Hyatt	Forming Partnerships to Enhance STEM Education (p. 50)
10:00–11:00 AM	6–C	W193b, McCormick Place	Body of Evidence: A Forensic Science Mystery! (p. 50)
10:00–11:30 AM	K–12	S405b, McCormick Place	20 Creative Ways to Using Discovery Education Streaming in the Science Classroom (p. 54)
10:00–11:30 AM	6–12	W184bc, McCormick Place	Solving the Mystery of STEM Using Forensic Science (p. 52)
10:00–11:30 AM	6–C	W193a, McCormick Place	Bringing Science Home: Integrating the Science Classroom with the Internet of Things (p. 53)
10:00–11:30 AM	K–8	W194a, McCormick Place	Ignite the NGSS with Today’s Cutting-edge Technology (p. 53)
10:00–11:30 AM	K–12	W192b, McCormick Place	Grant Writing: Designing for Dollars (p. 53)
10:00–11:30 AM	9–C	W474b, McCormick Place	Communicating Science Through Lab Notebooking (p. 54)
10:15–10:45 AM	5–9	S404bc, McCormick Place	Meet Me in the Middle Session: Roundtable Discussions for Middle School Educators (p. 56)
10:15–10:45 AM	5–8	S405a, McCormick Place	Meet Me in the Middle Session: Safety Acknowledgement Forms: Legally Protecting You! (p. 56)
11:00–11:30 AM	7–C	Adler A/B, Hyatt	Using Direct-Measurement Video to Teach Science Practice (p. 57)
11:00–11:30 AM	9–12	Erie, Hyatt	Using Student-generated Paper-Slide Videos to Promote Science Literacy and Argumentation (p. 57)
11:00–11:30 AM	5–9	S404bc, McCormick Place	Meet Me in the Middle Session: Roundtable Discussions for Middle School Educators (p. 57)

Schedule at a Glance General Science Education

11:00–11:30 AM	K–8, C	S405a, McCormick Place	Meet Me in the Middle Session: The NSTA Learning Center—Free Professional Development Resources and Opportunities for Educators (p. 57)
11:00–12 Noon	G	W196a, McCormick Place	Have Tablet, We’ll Blend (p. 64)
11:00–12 Noon	1–12	W183ab, McCormick Place	NGSS@NSTA Forum Session: Developing and Evaluating Three-Dimensional Curriculum Materials (p. 64)
11:00–12 Noon	1–5	S503b, McCormick Place	Talking Like Scientists: Strategies in Action (p. 63)
11:00–12 Noon	P–3	W187b, McCormick Place	<i>El Club de Padres</i> : Maximize Science Learning for Your Bilingual Students by Promoting a Learning Partnership with Their Parents (p. 61)
11:00–12 Noon	6–8	Prairie A, Hyatt	AMSE Session: Classroom Teachers as Leaders: A Panel Discussion (p. 58)
11:00–12 Noon	1–11	Hyde Park A, Hyatt	Using Essential Questions to Engage Your Students in the NGSS Learning Progressions (p. 59)
11:00–12 Noon	K–12	Jackson Park D, Hyatt	The Nevada STEM Education Framework for K–12 (p. 59)
11:00–12 Noon	4–C	S401bc, McCormick Place	NSTA Press® Session: Teaching STEM Subjects to Students with Special Needs (p. 60)
11:00–12 Noon	K–5	S401a, McCormick Place	NSTA Press® Session: <i>Picture-Perfect Science Lessons: Using Children’s Books to Guide Inquiry, K–5</i> (p. 62)
11:00–12 Noon	1–12	W187c, McCormick Place	Developing a Creative Culture (p. 61)
11:00–12 Noon	7–12	W175 a/b, McCormick Place	McREL Pathway Session: Citizen Science: Leveraging Virtual Manipulatives to Develop Student Understanding (sTem) (p. 61)
11:00–12 Noon	P–C	Field C, Hyatt	CSSS Session: By Teachers for Teachers: Engaging Colorado Educators as the Creators of 21st–Century Science Curricula (p. 59)
11:00–12 Noon	K–12	Burnham C, Hyatt	NARST Session: Science Youth Action Research: Empowering Students to Take Action Through Science (p. 58)
11:00–12 Noon	2–12	Hyde Park B, Hyatt	Equal Access to Science: Universal Design and Students with Disabilities (p. 62)
11:00–12 Noon	5–9,C	Grant Park C, Hyatt	Community College/University Partnership: Developing Interdisciplinary Math and Sciences Program for Undergraduate Middle School Teacher Preparation (p. 59)
11:00–12 Noon	1–C	Burnham A/B, Hyatt	Professional Development Models: Showcasing and Sustaining Meaningful Practices and Collaborative Approaches Focusing on STEM and the NGSS for Teacher Leaders and PD Providers (p. 58)
11:00–12 Noon	P–C	Field A/B, Hyatt	NSELA Session: Got Diversity? (p. 59)
11:00–12 Noon	P–12	Adler C, Hyatt	Transitioning to the NGSS: The Chicago Public Schools Perspective (p. 58)
11:00–12 Noon	G	W196b, McCormick Place	Flipped Class 101: A User’s Manual (p. 61)
11:00–12 Noon	6–12	Dusable C, Hyatt	Teach STEM Content and Spark Science Career Interest with Free Online Games (p. 59)
11:00–12 Noon	6–C	Clark A/B, Hyatt	Quantitative Literacy: Essential in the 21st Century (p. 59)
11:00–12 Noon	K–3	S504d, McCormick Place	“Can I Write About the Garden?” Science as a Context for Writing with Purpose and Passion in Primary Classrooms (p. 60)
11:00–12 Noon	P–5	S505b, McCormick Place	Using Technology in Elementary Classrooms (p. 60)
11:00–12 Noon	K–6	S504a, McCormick Place	Assessing Student Learning in Science Through Arts Integration (p. 63)
11:00–12 Noon	K–12	Grant Park D, Hyatt	“Making” Sense of Science Learning Through Community Science Workshops (p. 62)
11:00–12:30 PM	3–6	W175c, McCormick Place	Special Pathway Session: Formative Assessment: Lessons Learned (p. 66)
11:30–12:30 PM	6–C	W193b, McCormick Place	Chelcie’s Story: STEM Careers and the Science Classroom (p. 67)
12 Noon–1:30 PM	K–11	W471b, McCormick Place	STEM: Discover, Collaborate, Innovate (p. 70)
12 Noon–1:30 PM	7–C	W470b, McCormick Place	Plotly: Graphing, Statistics, and Data Analysis for the Modern Science Classroom (p. 70)
12 Noon–1:30 PM	K–5	W181b, McCormick Place	Science Notebooks to Address the NGSS and CCSS (p. 67)
12 Noon–1:30 PM	1–5	W184d, McCormick Place	Crosscutting Concepts: What Do They Look Like in a FOSS Elementary Classroom? (p. 68)
12 Noon–1:30 PM	9–12	W179a, McCormick Place	New Tools, New Insights, and New Ways of Understanding Science with Miller and Levine <i>Biology</i> (p. 67)
12 Noon–1:30 PM	P–C	W470a, McCormick Place	The Value of Inquiry and Scientific Explanations (p. 69)

Schedule at a Glance General Science Education

12 Noon–1:30 PM	4–12	W471a, McCormick Place	How Do Scientists Think? (p. 70)
12:30–1:00 PM	5–8	S405a, McCormick Place	Meet Me in the Middle Session: What the NGSS Mean to a Middle Level Teacher: Thoughts From a Member of the Writing Team (p. 72)
12:30–1:00 PM	K–12	Dusable A/B, Hyatt	Building an Inquiry-based Classroom (p. 71)
12:30–1:00 PM	6–8	S404bc, McCormick Place	Meet Me in the Middle Session: Tearing Down the Wall: How to Build Better Partnerships with Your Administrator (p. 71)
12:30–1:00 PM	6–8	S404d, McCormick Place	Meet Me in the Middle Session: Science Formative Assessment: What Do Middle School Students Really Think? (p. 72)
12:30–1:00 PM	6–9	S405b, McCormick Place	Meet Me in the Middle Session: Data Literacy in the Middle School Years (p. 72)
12:30–1:00 PM	6–12	Dusable C, Hyatt	Informational Literacy: Using Trade Books Instead of Textbooks to Teach Science (p. 71)
12:30–1:00 PM	5–12	Adler A/B, Hyatt	Claims, Evidence, Reasoning, and Modeling Oh My! Student Shifts in Classroom Discourse (p. 71)
12:30–1:00 PM	P–4	S504d, McCormick Place	Science Notebooking: The REAL Deal! (p. 72)
12:30–1:30 PM	6–12	W194b, McCormick Place	Sustaining an NGSS-focused/Project-based Program for Middle School and High School Science (p. 80)
12:30–1:30 PM	1–5	S401d, McCormick Place	NGSS: Make Your Lessons 3-D (p. 77)
12:30–1:30 PM	3–5	Regency E, Hyatt	Bringing Literacy and Science Together (BLAST) (p. 76)
12:30–1:30 PM	1–12	Jackson Park B, Hyatt	Professional Development for Administrators: NGSS and the 5E Model of Instruction (p. 76)
12:30–1:30 PM	6–12	Burnham A/B, Hyatt	Calling All Secondary Administrators, Coaches, and Teachers! (p. 76)
12:30–1:30 PM	6–8	S505b, McCormick Place	Dream Homes: Applying Concepts, Practices, and Core Ideas (p. 75)
12:30–1:30 PM	G	Hyde Park B, Hyatt	What Teachers Need to Know About Stereotypes and Stereotype Threat in a Science Classroom (p. 74)
12:30–1:30 PM	P–12	Grant Park B, Hyatt	“Making the Shift” from Teacher–centered to Learner–centered Instruction (p. 74)
12:30–1:30 PM	P–C	Clark A/B, Hyatt	What Do They Think? Engaging and Assessing Through the Use of Visual Media (p. 73)
12:30–1:30 PM	9–12	W196a, McCormick Place	Beyond Traditional Graphing: Student-created Infographics to Visualize STEM Data and Ideas (p. 79)
12:30–1:30 PM	4–12	Jackson Park D, Hyatt	Becoming Teacher Leaders in a Turnaround School (p. 74)
12:30–1:30 PM	7–12	S501d, McCormick Place	Increasing Student Achievement in an Urban Science Classroom (p. 75)
12:30–1:30 PM	6–12	S504a, McCormick Place	Literacy and Science (p.78)
12:30–1:30 PM	9–C	Grant Park C, Hyatt	My Life with Charles Darwin (p. 74)
12:30–1:30 PM	K–12	W183ab, McCormick Place	NGSS@NSTA Forum Session: Assessing NGSS in the Classroom (p. 78)
12:30–1:30 PM	3–C	W185 b/c, McCormick Place	Magical Illusions and Scintillating Simulations for Science: It’s Showtime! (p. 75)
12:30–1:30 PM	K–8	S503a, McCormick Place	Birds Bring Your Science Class Alive (p. 77)
12:30–1:30 PM	6–C	S403a, McCormick Place	Teen Science Cafes: Exploring Real–World Science with Scientists (p. 74)
12:30–1:30 PM	11–C	S401a, McCormick Place	NSTA Press® Session: Project Based Learning—the Why and How (p. 77)
12:30–1:30 PM	K–12	W190b, McCormick Place	Immediate Student Feedback Without Those Expensive Clicker\$ (p. 76)
12:30–1:30 PM	3–12	W192a, McCormick Place	Engineering with Models and Sensors (p. 79)
12:30–1:30 PM	9–12	Prairie A, Hyatt	AMSE Session: Opening the Gateway to Success Using Case Studies to Help Implement Scientific Concepts (p. 74)
12:30–1:30 PM	G	W176b, McCormick Place	Authors Needed: How to Publish Your Ideas in an NSTA Journal (p. 75)
12:30–1:30 PM	1–5	W186c, McCormick Place	“Buddy Up” to NGSS Through Companion Lessons (p. 79)
12:30–2:30 PM	K–5	W176a, McCormick Place	BSCS Pathway Session: The Practices of Science in the Elementary Classroom (p. 80)
12:30–2:30 PM	6–12	W178b, McCormick Place	AMNH Pathway Session: Using a Tool and NGSS Performance Expectation Specifications to Develop Assessment Tasks (p. 80)
1:00–2:00 PM	6–12	W193b, McCormick Place	Zombie Apocalypse! (p. 82)
1:00–2:30 PM	6–8	W474a, McCormick Place	How to Use Pop-Culture Science in Your Classes (p. 83)
1:15–1:45 PM	6–8	S404bc, McCormick Place	Meet Me in the Middle Session: The Envelope Please: Science Projects That Pop! (p. 84)

Schedule at a Glance General Science Education

1:15–1:45 PM	5–8	S404d, McCormick Place	Meet Me in the Middle Session: Practical Lessons and Demonstrations on a Budget (p. 84)
1:15–1:45 PM	5–7	S405a, McCormick Place	Meet Me in the Middle Session: Merging Literacies in the Middle Grades (p. 84)
2:00–2:30 PM	4–C	Burnham C, Hyatt	NARST Session: Culturally Relevant Principles for Curricular Contextualization (p. 85)
2:00–2:30 PM	6–C	Field C, Hyatt	ASTE Session: Supporting New Science Teachers: What the Research Says About How to Support Them (p. 85)
2:00–2:30 PM	P–C	Adler A/B, Hyatt	Coaches' Corner: How Teachers Help Other Teachers Engage with the NGSS Science Teaching Practices (p. 85)
2:00–3:00 PM	K–12	W183ab, McCormick Place	NGSS@NSTA Forum Session: Curriculum Planning the NGSS Way (p. 96)
2:00–3:00 PM	7–10	S501bc, McCormick Place	Assessing Middle School Students' Argumentation About Physical Behavior of Matter (p. 94)
2:00–3:00 PM	6–12	S401d, McCormick Place	Revealing Student Thinking: Teacher Tools for Assessing Student Understanding in the NGSS Classroom (p. 94)
2:00–3:00 PM	G	W187c, McCormick Place	The NSTA Learning Center—Free Professional Development Resources and Opportunities for Educators (p. 90)
2:00–3:00 PM	4–12	W187b, McCormick Place	NGSS Science and Engineering Practices: Combining Science Learning and Language Development for ELLs (p. 90)
2:00–3:00 PM	5–8	S504d, McCormick Place	STEM Project—From Planning to Implementation (p. 90)
2:00–3:00 PM	6–12	Dusable C, Hyatt	NGSS: Developing and Implementing a Vertically Aligned Curriculum, Grades 6–12 (p. 86)
2:00–3:00 PM	G	Jackson Park D, Hyatt	Discover the NGSS: NSTA's New Interactive E-Book (p. 88)
2:00–3:00 PM	P–3	S505b, McCormick Place	Engaging Young Children with Everyday Science and Nurturing Their Curiosity—Observing, Questioning, Investigating, Thinking, and Talking About Science (p. 90)
2:00–3:00 PM	3–5	S504a, McCormick Place	Teaching for Lifelong Learning: Improving the Metacognitive Skills in Students Through the Use of Formative Assessments (p. 95)
2:00–3:00 PM	4–9	S505a, McCormick Place	Spark a Future! Inspire Girls in STEM by Engaging Role Models in Your Classroom (p. 90)
2:00–3:00 PM	K–12	Jackson Park B, Hyatt	Science Inquiry, ELLs, and Meeting the NGSS for All Grade Levels (p. 92)
2:00–3:00 PM	P–12	Regency A, Hyatt	CSSS Session: A Vision for Science Education: The Integration of Engineering into Classroom Instruction Through the NGSS Practices (p. 93)
2:00–3:00 PM	6–12	Jackson Park C, Hyatt	<i>Next Generation Science Standards</i> for Administrators (p. 93)
2:00–3:00 PM	6–12	S501d, McCormick Place	Instructional Strategies Designed with Your Diverse Students in Mind (p. 89)
2:00–3:00 PM	K–6	S502b, McCormick Place	Engineering the K–6 Curriculum (p. 94)
2:00–3:00 PM	P–2	S504bc, McCormick Place	Filling the Gap: How to Better Prepare Teachers for a Diverse Classroom (p. 89)
2:00–3:00 PM	G	Prairie A, Hyatt	Science Education Fellowship Program: Supporting District Cohorts of Science Teacher Leaders (p. 88)
2:00–3:00 PM	K–5	S503a, McCormick Place	STEM Road Map: Using Problem-Based Learning to Integrate STEM in the Elementary Grades (p. 94)
2:00–3:00 PM	8–12	Erie, Hyatt	Our Experiences Starting a Science Research Course (p. 87)
2:00–3:00 PM	5–12	Clark A/B, Hyatt	State Your Claim: The Fusion of Literacy and Science Through Standard-driven, Performance-based Summative Assessments (p. 86)
2:00–3:00 PM	K–C	Burnham A/B, Hyatt	Safety Advisory Board Roundtable: Listening/Addressing Your Safety Issues! (p. 86)
2:00–3:00 PM	3–12	Jackson Park A, Hyatt	Top 10 Science Checks for Understanding (p. 88)
2:00–3:00 PM	5–9,C	Grant Park A, Hyatt	Climate Science Academies: Integrating Content, Pedagogy, Technology, and Access to Climate Experts (p.)
2:00–3:00 PM	P–C	Field A/B, Hyatt	NSELA Session: Supporting Novice AND Experienced Teachers Through Mentoring and Leadership (p. 87)
2:00–3:00 PM	9–C	Grant Park C, Hyatt	The Power of Data: Using Science Data as a Tool to Teach Real-World Issues (p. 92)

Schedule at a Glance General Science Education

2:00–3:00 PM	7–C	Grant Park D, Hyatt	Geek Out Your PD: Effective Use of Technology for Planning, Executing, and Evaluating Professional Development Events (p. 92)
2:00–3:00 PM	G	S401bc, McCormick Place	NSTA Press® Session: Introducing the NGSS to Teachers and Administrators (p. 88)
2:00–3:00 PM	P–C	W176b, McCormick Place	Reviewers Needed: Join an NSTA Journal Manuscript Review Panel (p. 90)
2:00–3:00 PM	9–12	S404d, McCormick Place	Knowledge Building in the 21st Century: Yager Scholar Presentation (p. 88)
2:00–3:00 PM	K–5	W192c, McCormick Place	CESI Session: Strong Science! Using a “Strengths–based” Approach to Teaching Elementary Science (p. 96)
2:00–3:00 PM	1–12	W192a, McCormick Place	Integrating STEM and Culturally Relevant Teaching (CRT) into Teacher Preparation Programs to Educate ELLs and ELLs with Disabilities (p. 92)
2:00–3:00 PM	K–12	W190b, McCormick Place	Transitioning Curriculum, Instruction, and Assessments to Meet the NGSS (p. 90)
2:00–3:30 PM	3–C	W185d, McCormick Place	iPad and Wireless Sensors with Vernier (p. 98)
2:00–3:30 PM	K–12	S471b, McCormick Place	Read, Write, and Think SCIENCE! (p. 100)
2:00–3:30 PM	2–C	W470a, McCormick Place	The Secrets to PBL Success for STEM (p. 99)
2:00–3:30 PM	1–6	W184d, McCormick Place	Assessment: The Bridge Between Teaching and Learning (p. 98)
2:00–3:30 PM	1–5	W194a, McCormick Place	A Revolutionary Way to Address All Your Standards with National Geographic (p. 99)
2:00–4:00 PM	5–9	Vista/S406a, McCormick Place	Meet Me in the Middle Session: Middle Level Share-a-Thon (p. 101)
2:20–2:40 PM	6–C	Clark C, Hyatt	SCST Session: Understanding by Design (UbD) in Science Professional Development Programs: Success Depends upon Scientific Content, Creativity, and Applicability (p. 101)
2:30–3:00 PM	K–C	Field C, Hyatt	ASTE Session: Bridging Policy and Practice—Science Teacher Education for the Next Generation (p. 101)
2:30–3:00 PM	2–C	Adler A/B, Hyatt	New Terrain: Working Together at All Levels to Incorporate Science Practices (p. 101)
2:30–3:00 PM	6–C	W193b, McCormick Place	Body of Evidence: A Forensic Science Mystery! (p. 102)
3:30–4:00 PM	6–C	S401bc, McCormick Place	NSTA Press® Session: <i>Beyond the Numbers: Making Sense of Statistics</i> (p. 103)
3:30–4:00 PM	C	Grant Park C, Hyatt	Transforming Assessment of Student Learning in a Multidisciplinary Department (p. 103)
3:30–4:00 PM	P–C	Hyde Park B, Hyatt	STEM Integration for District Leaders: Addressing the Needs of All Students (p. 103)
3:30–4:30 PM	2–8	W196b, McCormick Place	Scaffolding for Asking Testable Questions (p. 109)
3:30–4:30 PM	K–12	Jackson Park B, Hyatt	Extreme Makeover: Meeting the <i>Next Generation Science Standards</i> (p. 107)
3:30–4:30 PM	9–12	S401d, McCormick Place	Model It! Using the NGSS Practice of Developing and Using Models to Assess Student Learning (p. 104)
3:30–4:30 PM	5–12	Jackson Park A, Hyatt	Using Case Studies in the Science Classroom (p. 104)
3:30–4:30 PM	P–5	S505b, McCormick Place	Are You Using the “Write” Engineering Tools?...Connecting Engineering and Writing in the Elementary Science Classroom (p. 105)
3:30–4:30 PM	9–12	W196a, McCormick Place	STEM Road Map: Using Problem-Based Learning to Integrate STEM at the High School Level (p. 94)
3:30–4:30 PM	6–12	W176b, McCormick Place	Do You Need a New Science Lab? (p. 105)
3:30–4:30 PM	6–12	S403a, McCormick Place	The SeaPerch Experience: Using Competition to Spark Interest in STEM (p. 104)
3:30–4:30 PM	6–12	Erie, Hyatt	NGSS and Science Fair—a Change Is Gonna Come! (p. 104)
3:30–4:30 PM	P–C	Jackson Park D, Hyatt	The Connected Educator: Joining the Global Conversation with Social Media Tools (p. 104)
3:30–4:30 PM	K–5	S503a, McCormick Place	CCSS Close Reading and the 5E Instructional Model in K–5 Science: The Roles of Vocabulary, Text Complexity, and Inquiry (p. 108)
3:30–4:30 PM	P–5	S505a, McCormick Place	<i>Stellaluna</i> : A Lesson in Understanding and Appreciating Differences (p. 105)
3:30–4:30 PM	6–12	Burnham A/B, Hyatt	Can You “See” It Now? Using Models, Manipulatives, and Other Visual Aids to Engage Science Students (p. 107)
3:30–4:30 PM	6–8	S405a, McCormick Place	Assisting Students with Disabilities, ELLs, and ESL Learners Access the NGSS Through the NOS Concepts (p. 105)

Schedule at a Glance General Science Education

3:30–4:30 PM	6–8	S404d, McCormick Place	Effective Middle School PLCs (p. 105)
3:30–4:30 PM	K–C	Grant Park B, Hyatt	How We Flipped Our Classrooms and How You Can, Too (p. 104)
3:30–4:30 PM	1–6	W175 a/b, McCormick Place	McREL Pathway Session: Ed Tech in Elementary STEM Lessons (p. 108)
3:30–4:30 PM	3–8	W192a, McCormick Place	Deepen Visual and Spatial Thinking in STEM (p. 109)
3:30–4:30 PM	K–C	Prairie A, Hyatt	AMSE Session: Navigating Racial Differences Between Teachers and Students (p. 104)
3:30–5:00 PM	K–12	W183ab, McCormick Place	NGSS@NSTA Forum Session: Implementing NGSS: Stories from the Front Lines (p. 110)
3:30–5:30 PM	K–C	Field C, Hyatt	CSSS Session: 3-D Instruction: Mapping Instruction for Three–Dimensional Performance Expectations (p. 110)
3:30–5:30 PM	6–12	W176a, McCormick Place	BSCS Pathway Session: Engaging Students in Explanations and Argumentation—Practices 6 and 7 (p. 110)
4:00–4:30 PM	6–12	Dusable C, Hyatt	An Approach to Scientific Inquiry (p. 111)
4:00–4:30 PM	P–C	Hyde Park B, Hyatt	Addressing Barriers to Learning STEM Education for “Priority Engagement” Youth (p. 111)
4:00–5:30 PM	1–5	W184d, McCormick Place	Science Practices: What Does Argumentation Look Like in a FOSS Elementary Classroom? (p. 112)
4:00–5:30 PM	K–12	W471b, McCormick Place	Discovery Education 3M Young Scientist Challenge Reception (p. 115)
4:00–5:30 PM	P–5	W476, McCormick Place	Blending the CCSS and NGSS in Your K–5 Science Classroom (p. 114)
4:00–5:30 PM	K–C	W470b, McCormick Place	Push the Envelope and Unfold the Possibilities with Foldables® (p. 114)
4:00–5:30 PM	6–12	W194a, McCormick Place	Slip and Slides: Making Preps and Using Digital Technology in Your Science Classroom (p. 113)
5:00–5:30 PM	K–12	Adler A/B, Hyatt	How Do You Know When Your Students “Get It”? (p. 115)
5:00–6:00 PM	7–12	Erie, Hyatt	Reach for the Stars! Bringing Computational Modeling into Your Curriculum (p. 115)
5:00–6:00 PM	2–&	Field A/B, Hyatt	NSELA Session: Engaging in Argument from Evidence: CCSS and NGSS (p. 115)
5:00–6:00 PM	6–C	W190b, McCormick Place	The Flipped Classroom: Now There’s Time for More Meaningful Assessments (p. 118)
5:00–6:00 PM	9–12	S401d, McCormick Place	Changing Instruction and Assessment to Meet the NGSS (p. 116)
5:00–6:00 PM	6–12	Hyde Park B, Hyatt	Frontiers in Physiology Research Teacher Fellowship: How It Changed Our Teaching (p. 116)
5:00–6:00 PM	6–12	S501d, McCormick Place	Inherently Differentiated Problem–Based Learning: Engaging Diverse Learners in Secondary Science (p. 117)
5:00–6:00 PM	P–12	Jackson Park D, Hyatt	Find the Fund\$ for STEM: Grant Writing 101 (p. 116)
5:00–6:00 PM	6–8	S405a, McCormick Place	Learning About Scale, Proportion, and Computational Thinking Through Forced Perspective Photography and Animation (p. 117)
5:00–6:00 PM	6–12	Jackson Park C, Hyatt	Interactive Notebooks and the Flipped Classroom: Supporting Inquiry and Literacy (p. 119)
5:00–6:00 PM	2–8	W178b, McCormick Place	Write Like a Scientist! (p. 120)
5:00–6:00 PM	6–9	S405b, McCormick Place	Improve Student Reading Comprehension and Science Writing Using the Old and the New! (p. 119)
5:00–6:00 PM	6–8	S404d, McCormick Place	Building a School Science Community (p. 117)
5:00–6:00 PM	K–8	W196b, McCormick Place	Fun-ative Assessments (p. 121)
5:00–6:00 PM	P–8	S503b, McCormick Place	Old Stuff Is Cool! How to Bring Archaeology into PreK–8 Classrooms (p. 120)
5:00–6:00 PM	6–12	Dusable C, Hyatt	Social Art and Science: A Symbiotic Relationship (p. 115)
5:00–6:00 PM	6–C	Clark A/B, Hyatt	Fact or Fiction? Applying Critical Pedagogy Skills in the Science Classroom and Beyond—Results of a Pilot Program (p. 115)
5:00–6:00 PM	7–12	Burnham A/B, Hyatt	The Ultimate Review Game: Stimulating Retention and Success (p. 118)
5:00–6:00 PM	1–9,11	CW175 a/b, McCormick Place	McREL Pathway Session: Fostering Self-Assessment (Metacognition) to Support Positive Environments (p. 117)
5:00–6:00 PM	8–C	S401a, McCormick Place	NSTA Press® Session: Earth Science Puzzles—Making Meaning from Data (p. 119)
5:00–6:00 PM	6–8	W187b, McCormick Place	<i>Aprendamos Juntos!</i> (Let’s Learn Together): Embracing Native Languages in Non-bilingual Classrooms to Build Intermediate Science Literacy in English (p. 118)

Schedule at a Glance General Science Education

5:30–6:00 PM 5–12 Jackson Park A, Hyatt Using Video Clubs to Reflect on Scientific Practices During Real–Time Enactment (p. 121)

Informal Science Education

8:00–9:00 AM	1–C	Jackson Park D, Hyatt	Students Respond to the Field: Teaching with Research Experiences Creates Future Scientists (p. 20)
8:00–9:00 AM	K–C	S401bc, McCormick Place	NSTA Press® Session: <i>Models and Approaches to STEM Professional Development</i> (p. 20)
8:00–9:00 AM	1–12	W196a, McCormick Place	Help Us Start the Revolution (p. 28)
8:00–9:00 AM	K–12	Burnham A/B, Hyatt	Safer STEM Activities Through Collaboration! (p. 18)
8:00–9:00 AM	10–C	Grant Park B, Hyatt	I Can Teach Chemistry and Physics Using a Play? Tell Me How! (p. 24)
8:00–9:00 AM	6–C	W176b, McCormick Place	Everyone Can Be a Research Astronomer (p. 22)
8:00–9:30 AM	7–C	W175 a/b, McCormick Place	McREL Pathway Session: Incorporating Emerging Science and Engineering Content to Meet the Expectations of the NGSS (p. 29)
8:00–9:30 AM	6–C	W470a, McCormick Place	Cool Tools for Electricity and Magnetism (p. 34)
8:00–9:30 AM	8–C	W186a, McCormick Place	Transformation Tips and Tricks (p. 32)
8:30–9:00 AM	10–C	Clark C, Hyatt	SCST Session: Electronic Lab Books and Notebooks for Instilling Science and Technology Workforce Skills (p. 38)
8:30–9:00 AM	1–C	Hyde Park A, Hyatt	Planting a Seed of Passion in Our Students to Protect and Sustain Our Resources (p. 38)
8:30–9:30 AM	6–12	W193b, McCormick Place	Zombie Apocalypse! (p. 38)
9:30–10:30 AM	P–C	W190a, McCormick Place	Featured Presentation: The Power of Play (p. 41)
9:30–10:30 AM	P–C	Field A/B, Hyatt	NSELA Session: Tools for Science Leaders (p. 42)
9:30–10:30 AM	6–12	S403b, McCormick Place	Understanding the Gravity of the Situation: Honoring the CCSS Through the NGSS (p. 46)
9:30–10:30 AM	P–C	Adler C, Hyatt	Preservice Teachers, How Their History Can Affect Their Future (p. 41)
9:30–10:30 AM	C	Grant Park C, Hyatt	Co-Teaching to Improve Learning in STEM in Higher Education (p. 42)
9:30–10:30 AM	1–12	S504a, McCormick Place	Catching the Wind Together: A Successful Formal/Nonformal Partnership Focused on Wind Energy (p. 48)
9:30–10:30 AM	1–5	S502b, McCormick Place	STEAM: Give STEM an A for Arts! (p. 48)
9:30–10:30 AM	3–C	Jackson Park C, Hyatt	Comic Strips Can Invite Science (p. 46)
10:00–11:00 AM	6–C	W193b, McCormick Place	Body of Evidence: A Forensic Science Mystery! (p. 50)
10:00–11:30 AM	8–C	W186a, McCormick Place	Exploring the Genetics of Taste: SNP Analysis of the PTC Gene Using PCR (p. 53)
11:00–12 Noon	P–3	W187b, McCormick Place	<i>El Club de Padres</i> : Maximize Science Learning for Your Bilingual Students by Promoting a Learning Partnership with Their Parents (p. 61)
11:00–12 Noon	7–12	W175 a/b, McCormick Place	McREL Pathway Session: Citizen Science: Leveraging Virtual Manipulatives to Develop Student Understanding (sTem) (p. 61)
11:00–12 Noon	G	W196b, McCormick Place	Flipped Class 101: A User’s Manual (p. 61)
11:00–12 Noon	6–12	Dusable C, Hyatt	Teach STEM Content and Spark Science Career Interest with Free Online Games (p. 59)
11:00–12 Noon	K–12	Grant Park D, Hyatt	“Making” Sense of Science Learning Through Community Science Workshops (p. 62)
11:30–12 Noon	6–C	Adler A/B, Hyatt	Use Social Media to Create a Shared Science Experience: A Social Science Club Example (p. 66)
11:30–12 Noon	K–12	S403a, McCormick Place	Local Parks as Partners: Outdoor Science in Your Community (p. 66)
11:30–12:30 PM	6–C	W193b, McCormick Place	Chelcie’s Story: STEM Careers and the Science Classroom (p. 67)
12 Noon–1:30 PM	8–C	W186a, McCormick Place	Diagnosing the Flu (p. 68)
12 Noon–1:30 PM	K–10	W475a, McCormick Place	It’s Elementary—Light and Optics for Kids (p. 70)
12:30–1:30 PM	6–12	S402a, McCormick Place	Zoo Genetics: A Partnership Between Scientist and Teacher (p. 74)
12:30–1:30 PM	4–C	W187a, McCormick Place	Nature, One Game at a Time: Eco Stewardship via Augmented Reality Games (p. 75)
12:30–1:30 PM	P–5	W192c, McCormick Place	CESI Session: Integrating Art and STEM (p. 76)
12:30–1:30 PM	3–C	W185 b/c, McCormick Place	Magical Illusions and Scintillating Simulations for Science: It’s Showtime! (p. 75)

Schedule at a Glance Informal Science Education

12:30–1:30 PM	9–C	Grant Park C, Hyatt	My Life with Charles Darwin (p. 74)
12:30–1:30 PM	K–8	S503a, McCormick Place	Birds Bring Your Science Class Alive (p. 77)
12:30–1:30 PM	6–C	S403a, McCormick Place	Teen Science Cafes: Exploring Real–World Science with Scientists (p. 74)
12:30–1:30 PM	P–C	Clark A/B, Hyatt	What Do They Think? Engaging and Assessing Through the Use of Visual Media (p. 73)
1:00–1:30 PM	P–5	S504d, McCormick Place	You CAN Have It All: Positive Gains in Nature Appreciation, Health, and Academic Achievement! (p. 82)
1:00–2:00 PM	6–12	W193b, McCormick Place	Zombie Apocalypse! (p. 82)
2:00–2:30 PM	P–C	Hyde Park B, Hyatt	Matching Experiential Knowledge with Academic Language (p. 85)
2:00–3:00 PM	9–C	Grant Park B, Hyatt	Moving Genes (p. 92)
2:00–3:00 PM	K–C	Burnham A/B, Hyatt	Safety Advisory Board Roundtable: Listening/Addressing Your Safety Issues! (p. 86)
2:00–3:00 PM	5–9,C	Grant Park A, Hyatt	Climate Science Academies: Integrating Content, Pedagogy, Technology, and Access to Climate Experts (p. 87)
2:00–3:00 PM	6–12	S401a, McCormick Place	NSTA Press® Session: Cracking The Case: Decoding Engineering Principles Using Case Studies (p. 88)
2:00–3:30 PM	K–8	W181b, McCormick Place	A Progression of Learning Through the NGSS K–8 (p. 87)
2:00–3:30 PM	9–C	W476, McCormick Place	Material Science: The Chemistry of Solids (p. 100)
2:00–3:30 PM	8–C	W186a, McCormick Place	Investigating the Genome with DNA Sequencing Technology (p. 98)
2:00–4:00 PM	K–C	W175c, McCormick Place	Special Pathway Session: Get Grounded—Experience the NGSS in Practice (p. 101)
2:30–3:00 PM	6–C	W193b, McCormick Place	Body of Evidence: A Forensic Science Mystery! (p. 102)
2:30–3:00 PM	5–C	W187a, McCormick Place	Making STEM Meaningful with Sea Turtles (p. 102)
2:30–3:00 PM	5–12	Hyde Park B, Hyatt	Astronomy and Geology Vocabulary, i.e. “NASA Words” in Native American Languages (p. 101)
2:40–3:00 PM	10–C	Clark C, Hyatt	SCST Session: A Community College/Audubon Society Partnership: Mutualism in Action (p. 102)
3:30–4:30 PM	P–8	W192c, McCormick Place	CESI Session: Using Mobile Learning to Engage K–6 Students in Becoming Stewards of Their Environment (p. 106)
3:30–4:30 PM	1–6	W175 a/b, McCormick Place	McREL Pathway Session: Ed Tech in Elementary STEM Lessons (p. 108)
3:30–4:30 PM	6–12	S403a, McCormick Place	The SeaPerch Experience: Using Competition to Spark Interest in STEM (p. 104)
3:30–4:30 PM	6–12	Erie, Hyatt	NGSS and Science Fair—a Change Is Gonna Come! (p. 104)
3:30–4:30 PM	6–8	S405a, McCormick Place	Assisting Students with Disabilities, ELLs, and ESL Learners Access the NGSS Through the NOS Concepts (p. 105)
3:30–4:30 PM	1–12	Jackson Park C, Hyatt	The Many Faces of Word Walls (p. 107)
3:30–4:30 PM	7–12	S501a, McCormick Place	Actually Replace Lectures with Guided Inquiry (p. 105)
4:00–5:30 PM	6–C	W186a, McCormick Place	Biotechnology Basics (p. 113)
4:00–5:30 PM	6–12	W194a, McCormick Place	Slip and Slides: Making Preps and Using Digital Technology in Your Science Classroom (p. 113)
4:00–5:30 PM	6–12	W192b, McCormick Place	Coaching Science Olympiad with Confidence and Connecting to the Classroom: Elastic Launched Glider (p. 113)
5:00–6:00 PM	1–9,11–	CW175 a/b, McCormick Place	McREL Pathway Session: Fostering Self–Assessment (Metacognition) to Support Positive Environments (p. 117)
5:00–6:00 PM	6–8	W187a, McCormick Place	Stormwater Literacy Project (p. 118)
5:00–6:00 PM	6–8	W187b, McCormick Place	<i>Aprendamos Juntos!</i> (Let’s Learn Together): Embracing Native Languages in Non-bilingual Classrooms to Build Intermediate Science Literacy in English (p. 118)
5:00–6:00 PM	1–12	W192a, McCormick Place	STEM Is EASY with PLT GreenSchools (p. 120)
5:00–6:00 PM	6–12	W196a, McCormick Place	Constructing ROVs, Collaborating with Researchers, and Getting Your Students Involved in Engineering, Problem Solving, and Field Work (p. 121)
5:00–6:00 PM	6–12	Grant Park B, Hyatt	Building Teen Empowerment Through a School–Museum Partnership (p. 118)
5:00–6:00 PM	8–C	W196c, McCormick Place	Simulate STEM Online Through Virtual Clinical Trials (p. 118)

Schedule at a Glance Informal Science Education

5:00–6:00 PM	3–8	W192c, McCormick Place	Pipes and Precipitation = Embodied Great Lakes Watershed Project for Students and Teachers (p. 121)
5:00–6:00 PM	P–8	S503b, McCormick Place	Old Stuff Is Cool! How to Bring Archaeology into PreK–8 Classrooms (p. 120)
5:00–6:00 PM	6–C	Clark A/B, Hyatt	Fact or Fiction? Applying Critical Pedagogy Skills in the Science Classroom and Beyond—Results of a Pilot Program (p. 115)
5:00–6:00 PM	6–12	Dusable C, Hyatt	Social Art and Science: A Symbiotic Relationship (p. 115)
5:00–6:00 PM	4–C	W176b, McCormick Place	Citizen Science: FrogWatch USA (p. 117)

Index of Participants

A

Abbott, Rebecca 69
Abrams, Bob 76
Adams, Gerald 103
Adams, Patrick 44
Agee, Kathy 116
Agree, Andrea 105
Albrecht, Helmut 82
Allan, Elizabeth 92
Allan, Richard 34
Allen, Patti 63
Almeida, Jose Ricardo 63
Alston, Daniel 18
Amagai, Satoshi 112
Anderson, Cathie 59
Anderson, Nancy 119
Andrews, Sherri 35, 54, 83
Angle, Julie 49
Anjur, Sowmya 111
Ansberry, Karen 62
Anthes-Washburn, Matthew 52
Antink-Meyer, Allison 111
Arndt, Laura 29, 61, 108
Artero, Jason 104
Askeland-Nagle, Tammy 22
Askovich, Hallie 58
Assumpção, Cristiana Mattos 63
Ateh, Comfort 45
Austin, Jaclyn 118

B

Baker, Carol 36, 90
Balesdent, Chantal 48
Balter, Nancy 108
Bancroft, Jeanne 66
Barchenger, Christie 71, 85
Barnes, Jennifer 68
Barr, Dean 86
Barrow, Lloyd 48, 62
Bartholow, Sarah 57
Bartley, Tony 72
Baughman, Graham 54
Baxter, Jennifer 116
Beattie, Rachel 57
Benedict, Lea 69
Bennett, David 39
Benton, Erik 30, 68, 98, 112
Berent, Rusti 53
Berg, Carolyn 86
Bertino, Anthony 60
Bertino, Patricia Nolan 60
Betancourt, Ileana 77

Betancourt, Veronica 26
Beyer, Ted 29
Bhattacharya, Devarati 73
Black, Alice (Jill) 120
Blasi, Nancy 37
Bliese, Carol 108
Bloomquist, Debra 62
Blumenrath, Sandra 30
Bohn, Lisa 92
Bonetta, Laura 52
Bookman, Julie 88
Bowen, Michael 72
Bowers, Karen 106
Bowling, Kristi 41, 59, 118
Braaten, Melissa 90

Brachman, Rachel Zimmerman 62
Brady, Emily 42
Branson, Jeff 33, 53
Bricker, Patricia 60
Brindley, Lila 79, 121
Brinza, Gretchen 63
Broemmell, Amy 48
Brokaw, Ann 17, 112
Brooks, Kathleen 84
Brown, Katrina 63
Brown, Leigh 34, 54
Bruno, Joanna 59
Bruns, Robert 90
Brunsell, Eric 88
Bryant, Mike 54, 100
Buehler, Davida 26
Bundy, Jennifer 118
Burck, Elizabeth 74
Burns, Elise 104
Burrows, Andrea 23
Buskirk, Heather 44
Butcher, Ginger 64
Butler, Kristy 20
Buzby, Colleen 103
Bydlowski, David 105
Byers, Jesse 71
Byrne, Cathy 111
Byrne, Ken 111

C

Cacciatore, Kristen 20
Calogero, Catherine 86
Camins, Arthur 66
Campanella, Melissa 104
Campanile, Megan 49
Campbell, Brian T. 68, 112
Campbell, David 43

Campbell, Todd 35
Carden, Jennifer 119
Carlisle, Peggy 105
Carrick, Lila 76
Carter, David 32
Carter, Patrick 21
Casado, Bilexis 61
Case, Karen 39
Casey, Liam 32
Castro, Sandi 60
Century, Jeanne 71
Chapin, Dexter 73
Chapin, Sarah 74
Chegwidden, Dawn 107
ChemWest 51
Cheney, Malcolm 76
Chickadel, Deb 49
Childers, Gina 94
Christmann, Edwin 103
Chudoba, Tara 117
Clancy, Peter 40
Clark, Coral 48
Clark, Leisa 88
Clary, Renee 40, 101
Clayton, Steven 118
Clayton-Code, Kimberly 18
Clinchot, Michael 41
Coats-Haan, Sandee 23
Cobb, Whitney 29, 80
Coil-Sherck, Lauren 75
Colak, Huseyin 59, 103
Coleman, Elizabeth 58
Colvard, Mary 52
Connell, Margaretann 108
Connelly, Tim 116
Connolly, Kevin 106
Cook, Kyla 24
Cooper, Colleen 107
Cox-Boniol, Cathi 18, 90
Crean, Jason 30, 74
Crowther, David 59
Cullen, Deanna 20
Culverhouse, Jessica 66
Cunningham, Suzanne 28

D

Daehler, Kirsten 37
Dahl, Susan 56
Dalby, Timothy 24
Daly, Angela 93
Daugherty, Ellyn 35
Davis, Bridgette 104

Davis, Hilarie 59
Davis, Kathleen 18
Dayton, Maria 32, 53, 68, 98, 113
Deaton, Cynthia 106
DeBarger, Angela 78
Deese, Bill 121
DeHarpporte, Colette 70
Delacy, Caine 54
Dell, Paula 121
DeMauro, Christine 108
Detwiler, Michele 46
DeVore, Edna 119
Devries, Tim 33
DeWolf, Cris 48
Dillingham, Amanda 20
Dipinto, Anna 82
Dipinto, Vito 82
DiRanna, Kathy 80
Disch, Susan 22
Dlugi, Theresa 70
Dogan, Chelia McCoo 74
Dolan, Paul 59
Donkers, Kevin 70
Donovan, Marie 108
Dorney, Paul 63
Dorsey, Chad 64, 79, 106
Dorsey, Emily 72
Doyiakos, James 76
Dozier, Sara 94
Drozt, Jennifer 38
Dubosarsky, Mia 103
Duhon, Kyle 116
Duncan, Patti 34, 70
Durrance, Anne 72
Duvall, Rhonda 76
Dyasi, Rebecca 26

E

Edgerly, Hallie 75
Edmondson, Elizabeth 63
Eglite, Julie 39
Ehrlich, Robyn 85
Eisenkraft, Arthur 49, 80, 88
Ell, Brian 32, 53, 68, 98, 113
Ellis, Todd 64, 78
Evans, David 110
Evans, Pam 77
Evans, Zoe 37, 71
Everett, Susan 57
Exley, Peter 41
Eyermaun, Sarah 46

F

Faetz, Melissa 60
 Falcon, Peter 64, 78
 Fassbender, Mary 57
 Fassler, Amy 98
 Feidler, Jeffrey 67
 Felter, Maryellen 119
 Fitzgibbons, Molly 89
 Fletcher, Amy 117
 Flynn, Suzanne 42
 Foster, Regina 42
 Foulk, Jaimie 104
 Foyle, Kelly 70
 Fragoso, Michael 46
 Fraley, Natasha 100
 Franzen, Margaret 99
 Frazier, Mike 97
 French, Debbie 23
 Froschauer, Linda 36

G

Gabler, Craig 42
 Gane, Brian 106
 Gardiner, Lisa 77
 Gardner, April 110
 Gardner, Eric 80, 110
 Gates, Jennifer 48
 Gatto, Lynn 75, 109
 Gaubatz, Julie 41, 73
 Gensic, John 82, 94
 German, Susan 56
 Gilbert, Amanda 62
 Gilbert, Joan 87
 Gleason, Joyce 58
 Goff, Kevin 64, 100
 Gonzalez, Adaliz 106
 Gorak, Elizabeth 57
 Gorman, Victoria 119
 Graba, Brad 22
 Grant, Jennifer Jimenez 22
 Green, Nicole 114
 Griffith, Meg 51, 67
 Grublesky, Brian 74

H

Hagins, Whitney 77
 Haines, Sarah 85
 Hale, Stephen 88
 Hall, Garrett 75
 Hall, Michelle 74
 Hall, Nate' 89

Hallihan, Adam 85
 Hamel, Peter 39
 Hamilton, Aaron 107
 Hammersly, Ann 104
 Hanuscin, Deborah 101
 Harris, Christopher 78, 106
 Hart, Reeda 79, 121
 Hartman, Matthew 114
 Hauck, Holly 94
 Hawbaker, Emily 120
 Hayes, Carolyn 61
 Hayes, Lisa 43
 Hazell, Natasha 87
 Heater, Mary Jane 60
 Heckmann, Nola 21
 Hedden, Carol 50
 Helft, Laura 68
 Heneghan, Liam 58
 Henry, Candice 117
 Henry, Paul 105
 Herberts, Sean 74
 Herman, Redina 18
 Herman, Tim 99
 Hernandez, Sergio 46
 Hershberger, Kimber 20
 Hester, Melanie 62
 Heydrick, Kenneth 42
 Higgins, Teresa 26
 Hill, Bradford 44
 Hinojosa, Tom 99
 Hite, Rebecca 94
 Hoekenga, Janet 30, 112
 Holdaway, Simon 35
 Hollinger, Cheryl 52
 Hollister, Alia 59
 Holloway, Carrie 79, 121
 Holzer, Margaret 27, 48, 64, 78, 95, 110
 Hong, David 98
 Hooper, Jennifer 107
 Hoover, Todd 56, 57, 101
 Howard, Cindy 32, 53, 69, 99, 113
 Howarth, John 120
 Howe, John 60
 Huang, Brian 33, 53
 Hubenthal, Michael 48
 Huff, Kenneth 72
 Hug, Barbara 46, 107
 Hughes, Christina 107
 Hughes, Melissa 35, 43
 Huncosky, Kathy 37

Hunnings, Douglas 22
 Hutchison, Katie 43
 Hvidsten, Connie 36, 80
 Hwang, Jin Kyung 89

I

Ihrig, Lori 94

J

Jackson, Debbie 96
 Jackson, Laura 32, 53, 69, 99, 113
 Jackson, Michael 73
 Jacobs, Elana 64
 James, Chandra 58
 Januszyk, Rita 84
 Jasti, Chandana 107
 Johnson, Candyce 118
 Johnson, Heather J. 121
 Johnson, Robert 120
 Johnson, Sabrina 22
 Jonas, Lauren 22
 Jones, Bruce 73
 Jones, M. Gail 94
 Jordan, Daniel 103
 Jordan, Janet 44
 Jordan, Malaika 117
 Joyce, Michelle 78

K

Kahn, Sami 96
 Kannady, Rachel 18, 58
 Kardon, Evan 106
 Karl, Rita 90
 Kasparie, Diane 19
 Katz, Phyllis 46
 Kearney, Dennis 18
 Kedvesh, James 76
 Keeley, Page 42, 107
 Keith, Karin 64
 Kenning, Rachel 104
 Kesi, Jude 63
 Kessler, James 84
 Keys, Robin 105
 Khan, Lori 105, 117
 Killeen, Roberta Johnson 27, 48, 64, 78, 95
 Kirk, Suzanne 63
 Knodle, Howard 66, 116
 Knoell, Donna 90
 Koehler, Catherine 94

Koker, Mark 34, 53, 69, 99, 114
 Koller, Herb 34, 54
 Konicek-Moran, Richard 107
 Koo, Josh 88
 Kouadio, Carrie 60
 Kovacs, Agnes 92
 Krajcik, Joseph 64, 85, 106, 119
 Krakowka, Andrew 115
 Krall, Rebecca 85
 Kravitz, Dora 36
 Kruse, Jerrid 24, 94
 Kuhn, Bob 68

L

Lach, Michael 27
 LaFave, Norman 77
 Lamb, Rob 79
 Lambertz, Jennifer 41
 Lang, Robert 93
 Lankford, Deanna 107
 Larson, Erica 66
 Larson, Katie 121
 Latourelle, Sandra 39
 Lausell, Sahid Rosado 107
 Lauterbach, Lynn 41, 59, 118
 Lavallee, Jessica 109
 Lawton, Ericka 95
 Lederman, Judith 49, 118
 Lederman, Norman 49, 118
 Lee, Jason 49, 65
 Lee, SunAh 66
 Lee-Diaz, Robyn 74
 Lehnhard, Joey 120
 Leider, Megan 49
 Lentino, Joseph 44
 Levine, Joseph 67
 Liarakos, Sophia 73
 Lietz, Martha 104
 Linz, Ed 60
 Lipscomb, Mary Lou 56
 Lisius, Jill 89
 Livesay, Sarah 56, 57, 120
 Lockard, Mijana 94
 Lodes, Katie 85
 Loesing, Mary 86, 115
 Loftin, Lou 52
 Loftin, Madelene 24
 Lombardi, Doug 24
 Lomeli, Elizabeth 111
 Long, Cynthia 54

Index of Participants

Long, Kathy 66, 98
Lorenzin, Mariana Peão 63
Lough, Tom 57, 78
Love, Tyler 18
Lucas-Odom, Judith 26
Ludwig, Claudia 73
Luft, Julie 85, 101

M

MacDonald, Rita 90
Machi, Staceylyn 37, 101
MacManus, Jessica 102
MacPherson, Anna 94
Madrazo, Gerry 58, 92
Marshall, Jeff 18
Marshall, Robert 30, 52, 83, 102
Martin, Dean 37
Martin, Melba 101
Martin, Tim 116
Martin-Hansen, Lisa 35, 101
Martin-Hiner, Jason 22
Martinez, Liz 56
Marvel, Mike 97, 112
Marzullo, Timothy 114
Massey, Vicki 59, 73
Matias-Leonard, Emmy 26
Matthews, Michael 92
Mattox, Stephen 77
Maur, Bonnie 101
May, Valerie 30
Mayer, Kristin 119
Maynard, Stacy 22
McAuliffe, Carla 48, 64, 78
McCaffrey, Mark 88
McCarthy, Larry 50
McCaskey, Timothy 103
McCormack, Alan 75
McCoy, Laura 56
McDaniel, Colleen 52, 68, 112
McDonald, Jim 26
McDonnough, Jacqueline 42
McDyre, Alicia 20
McGinnis, Patty 56, 57
McKee, Yolanda 117
McKenna, Acacia 44
McKinney, Tiah 111
McLaren, Peter 36, 93
McNeill, Katherine 37
McQuillan, Patrick 64
Meggers, Sue 100

Megowan-Romanowicz, Colleen 56, 77
Melton, Mitchell 116
Mendez, Flavio 57, 90
Metty, Jane 45
Meyer, Emily 21, 113
Miller, Brian 38
Miller, Chris 115
Miller, Emily 84
Miller, Kenneth 29, 67
Minbiole, Julie 103
Mitchell, Sara 46
Mohr, Chris Embry 37
Moore, Danielle 75
Moore, Douglas 117
Moore, Janet 24
Morey, Shannon 20
Morgan, Emily 62
Morrell, Claudia 44
Morrell, Sharon 117
Morris, Linda J. 115
Morrison, Deb 64, 71, 85
Morrison, Katie 49
Moser, Kurt 100
Moss, Dot 46
Motz, LaMoine 58
Moyer, Richard 57
Mulkerrin, Elizabeth 42
Muller, Eric 48, 94
Mulligan, Matthew 76
Munzenmaier, Diane 69

N

Nadler, Kristy 44
Nakagiri, Gary 119
Nam, Elaine 32
Nassis, George 35
Neesemann, Lisa 87
Neil, Jason 105
Nelson, Sara 63
Newburger, Brian 44
Nicastro, Nicholas 57
Nielsen, Mark 98
Niemi, Kevin 88
Noel-Storr, Jake 22
Numedahl, Paul 36, 80
Nyren, Lois 50

O

O'Brien, Thomas 46
O'Day, Elizabeth 37, 84

Ogens, Eva 105
Ohl, Roxane 113
Okoro, Bernadine 84
O'Leary, Renee 62, 76
Olson, Julie 37
Olson, Kristen 61
Oostra, Daniel 61
Ort, Cory 30, 68, 98, 112
Osborne, Jonathan 94
Osorio, Sandra 89
Osowiecki, Aaron 26
Ostlund, Karen 77
Otry, Joy 116
Owen, Thomas 102
Owens, Alexandra 116
Owens, David 82

P

Paczolt, John 33
Pagani, Michelle 99
Page, Katie 115
Palmer, Jennifer 64
Palz, Keith 64
Panion, Frank 46
Panvini, Darlene 56
Pappantoniou, Antonios 102
Parent, Katie 88
Parisi, Tanya 56
Passow, Michael 27, 48, 64, 78, 95
Patel, Valerie 117
Patten, Rachel 121
Paulsen, Michelle 115
Pea, Celestine 20
Peacock, Jeremy 37
Pearson, Mindy 46
Peck, Rosemary 22
Pelletier, Pamela 37
Penchos, Jessica 52
Pennycook, Jean 78
Penuel, William 78
Perkins, Kristen 50
Perretto, Lawrence 58
Perry, Emily 118
Perry, Judy 75
Peters, Thomas 26
Peters-Burton, Erin 109
Peterson, Patricia 92
Petroni, Christopher 48, 87
Petto, Andrew 35
Pfaffinger, Christine 89

Pistorius, Carolyn 76
Polman, Joseph 79
Poody, Fran 68
Potter-Nelson, Elizabeth 103
Powers, Donald 120
Powers, Mark 103
Presley, Lucinda 109
Price, Paul 54
Pruitt, Stephen 96
Putnam, Dwight 34
Pyle, Eric 61

R

Ramirez, Veronica 92
Ramunno, Franco 63
Randall, Jack 98
Randall, Mike 121
Rearden, Kristin 48
Reed, William 62
Reid, Virginia 32, 52
Reiser, Brian 48
Reitz, William 46
Rentfro, Lauren 115
Rhoton, Jack 40, 58
Richardson, Patricia 20
Richey, William 51
Rickert, Matthew 66
Rico-Beck, Laura 53
Roata, Iuliana 22
Roberts, Ken 75, 90
Roberts-Harris, Deborah 41
Robinson, Theresa 22
Rouleau, Heidi 49
Rovito, Kerrie 120
Roy, Kenneth 18, 56, 86
Royce, Christine 22, 84
Rudes, Merrill 100
Ruef, Kerry 97
Ruffin, Chloe 61
Runberg, Derek 33
Rutherford, E. Howard 74
Ruud, Ruth 49, 105
Ryan, Denise 100
Rylander, Jeff 88

S

Sadler, Philip 59
Sale, Nancy 64
Sampson, Victor 24
Sanchez, Rick 23
Sard, Katie 61

- Saunders, Jennifer 56
Saur, Karen 108
Schaefer, Scott 44
Schaffer, Dannah (Dane) 62
Schaffer, Linda 19
Schaller, Emily 78
Schaumburg, Marilyn 92
Schenk, Shelia 93
Scheppler, Judith 35
Scherben, Katrina 42
Schleigh, Sharon 24, 84
Schmidt, Marilyn 114
Schmoll, Shannon 49
Schofield, Laura 116
Schregardus, Randall 42
Schreiner, James 61, 118
Schuler, Sydney 93
Schultz, Kathy 22
Schutt, Kyle 115
Segers, Marcia 105
Serikaku, Jill 60
Sevian, Hannah 41
Shafer, Michelle 54
Shane, Mary 78
Shane, Pat 92
Shaw, Christopher 103
Shaw, Samuel 110
Sheehan, Sue 56
Shefner, Rachel 76
Shelton, Tricia 22, 40
Shepard, Kelly 96
Shmaefsky, Brian 38
Short, Jim 36
Shorter, Angela 105
Shortino, Carla 108
Showalter, Steve 92
Shrewsbury, Stacey 77
Simmons, Joe 113
Simmons, Patricia 45
Smith, Ben 76
Smith, Julie 116
Smith, October 18
Sneider, Cary 65
Snyder, Pamela 92
Snyder, Wayne 118
Sobolak, Claire 77
Soldat, Christopher 66
Sood, Meera 90
Sotak, Bob 19
Southwick, Jesse 26
Sparks, David 74
Spencer, Karl 35
Spillane, Nancy 24
Sridhar, Nigamanth 96
Stallard, Jaclyn 56, 57, 120
Starr, Mary 28
Staudt, Carolyn 79
Steeves, Rebecca 88
Stennett, Betty 110
Stimmer, Maryann 28
Stites, Jennifer 62
Stremme, Robert 114
Strobel, Johannes 105
Strode, Paul 112
Sullivan, Sandra 74
Sundquist, Matthew 70
Svoboda, Michele 78
Swafford, Tony 61
- T**
Taber, John 78
Tai, Chih-Che 64
Talley, Terry 56, 99
Tanenbaum, Jacob 44
Tapia, Ingrid Sanchez 85
Tate, Susan 116
Taylor, Adam 40
Teague, Susanne 26
TeBockhorst, Deanna 64, 78
Teisan, June 53, 116
Telford, Amy 104
Tesoriero, Gina 117
Texley, Juliana 49
Thomas, Saniyyah 75
Thompson, Ellen 101
Tighe, Damon 84
Tillotson, John 101
Todd, Joe 28
Torres, Sara 87
Train, Joseph 111
Truesdell, Joel 117
Tugel, Joyce 42, 72, 107
Turrin, Margie 92, 119
Tweed, Anne 117
Twietmeyer, Benjamin 36, 108
- U**
Ullock, Caitlin 63
Umeda, Karen 108
- V**
Valadez, Jerry 62
VanDeWalle, Kurt 107
Vargas, Claudio 37
Vavalla, Marguerite 46, 62, 76, 119
Velez, Diana 37, 66
Vernier, David 113
Veronesi, Peter 35
Vick, Matthew 71
Voller, Kelsey 42
Von Schnase, Jennifer 51, 67
Voorhees, David 20
- W**
Wagner, Glenn 88
Walters, Verle 98
Warburton, Janet 20, 57
Ward, Carrie 41
Warren, Mary 38
Waterman, Ed 111
Webb, Sheila Anne 85
Weber, Helen 66
Weber, Lynn 114
Weld, Jeff 35
Wellborne, Nathan 53
Wellman, Lora 71
Wells, Gordon 59
Wenk, Elizabeth 96
West, Andrew 119
Whatley, Clemmie 45
Whisher-Hehl, Jessica 38
White, Jim 86
Whitmore, Mary 18
Whitt, Katahdin Cook 66, 116
Wierman, Traci 69
Wilcox, Jesse 24, 75, 94
Wilde, Heather 69
Wilder, Lesia 26
Williamson, Christa 107
Wilson, Amanda 96
Winey, Tracey 60
Wintner, Andrew 86
Wisker, Nancy 84
Woerner, Janet (Jan) 48
Wolfe, Karen 66, 116
Wolfe, Thomas 46
Wood, Karan 20
Wood, Steve 86
Woods, Shane 75
Wright, Ellen 82
Wright, Keith 18
Wysession, Michael 51, 97
- Y**
Yang, Sharlene 78
Yates, Natasha 42
Yu, Gangde 48
- Z**
Zahm, Barbara 80
Zan, Betty 117
Zuis, Ed 50
Zullo, Amanda 96
Zych, Ariel 66, 74

Advertisers

Camp Invention (Booth #1563), www.campinvention.org , 800-968-4332	13
Flinn Scientific (Booth #631) www.flinnsci.com 800-452-1261	19, 83
GEICO (Booth #747) www.geico.com/edu/NSTA , 800-841-3000	31
National Association for the Education of Young Children (NAEYC) (Booth #559) www.naeyc.org , 800 424 2460	1
National Earth Science Teachers Association www.nestanet.org	55
OHAUS Corp. (Booth #1051), www.ohaus.com , 800-672-7722	Cover 4
PASCO scientific (Booth #1522), www.pasco.com , 800-772-8700	93
TCI (Booth #1552), www.teachtci.com , 800 497 6138	2
University of the Sciences in Philadelphia www.usciences.edu	Cover 2
Vernier Software & Technology (Booth #1244), www.vernier.com , 888-837-6437	Cover 3
Ward's Science (Booth #830) www.wardsci.com	11, 29
XPRIZE Foundation (www.googlelunarprize.org/domeshow	23
YLACES www.ylaces.org	7

NSTA Ads

NGSS@NSTA (Booth #866: NSTA Expo), www.nsta.org/ngss	9
NSTA (Booth #967: NSTA Expo), www.nsta.org	43
NSTA Conferences (Booth #782, Reno) (Booth #784, Philadelphia) (Booth #785, Kansas City) (Booth #778, Nashville) (Booth #783, 2015 STEM Forum), www.nsta.org/conferences	10, 12, 21, 25, 27, 39, 81, 87, 89, 95
NSTA Expo (Booth #967), www.nsta.org/chicago	91
NSTA Learning Center (Booth #868), www.nsta.org/conferences	45
NSTA Member Services (Booth #967, NSTA Membership), www.nsta.org/membership , 800-722-6782	15, 33, 65, 79, 109
NSTA Press®, store.nsta.org , 800-277-5300	4, 47



FREE Workshops

DATA-COLLECTION TECHNOLOGY

WORKSHOP ROOM W185a – THURSDAY, MARCH 12

8:00-9:30	HANDS-ON	Integrate Chromebook and BYOD with Vernier Technology
10:00-11:30	HANDS-ON	Biology with Vernier
12:00-1:30	HANDS-ON	Inquiry-Based Biology with Vernier
2:00-3:30	HANDS-ON	Wireless Sensor Exploration with Vernier
4:00-5:30	HANDS-ON	Chemistry with Vernier

WORKSHOP ROOM W185d – THURSDAY, MARCH 12

8:00-9:30	HANDS-ON	Investigating Wind Energy with Vernier
10:00-11:30	HANDS-ON	Renewable Energy with KidWind and Vernier
12:00-1:30	HANDS-ON, BYOD	iPad and Wireless Sensors with Vernier
2:00-3:30	HANDS-ON	Advanced Physics with Vernier
4:00-5:30	HANDS-ON	Physics with Vernier

WORKSHOP ROOM W185a – FRIDAY, MARCH 13

8:00-9:30	HANDS-ON	Chemistry with Vernier
10:00-11:30	HANDS-ON	Environmental Science with Vernier
12:00-1:30	HANDS-ON	Water Quality with Vernier
2:00-3:30	HANDS-ON	Spectroscopy with Vernier
4:00-5:30	HANDS-ON	Biology with Vernier

WORKSHOP ROOM W185d – FRIDAY, MARCH 13

8:00-9:30	HANDS-ON	Physics with Vernier
10:00-11:30	HANDS-ON	Explore Motion with Vernier Video Physics for iOS
12:00-1:30	HANDS-ON	Advanced Physics with Vernier
2:00-3:30	HANDS-ON, BYOD	iPad and Wireless Sensors with Vernier
4:00-5:30	HANDS-ON	STEM/Engineering Activities using Vernier Sensors with Arduino

WORKSHOP ROOM W185a – SATURDAY, MARCH 14

8:00-9:30	HANDS-ON	Biology with Vernier
10:00-11:30	HANDS-ON	Chemistry with Vernier
12:00-1:30	HANDS-ON	Inquiry-Based Chemistry with Vernier
2:00-3:30	HANDS-ON	Human Physiology with Vernier

WORKSHOP ROOM W185d – SATURDAY, MARCH 14

8:00-9:30	HANDS-ON, BYOD	Integrate Chromebook and BYOD with Vernier Technology
10:00-11:30	HANDS-ON	Renewable Energy with KidWind and Vernier
12:00-1:30	HANDS-ON	Middle School Science with Vernier
2:00-3:30	HANDS-ON	Introductory Engineering-Design Projects with Vernier



NO PRE-REGISTRATION! NO FEE!



Adventurer[®]
Analytical and Precision Balances



ADVENTURER[®]

READY FOR YOUR LAB, WHEREVER THAT MAY BE.



It's about the journey—and the destination: your lab.

The all-new Adventurer[®] was carefully designed to meet your needs, perfect for Advanced Placement and post-secondary science education.

- Superior weighing performance with amazing accuracy and fast stabilization time for prompt results
- Large 4.3" color touchscreen is easy to read and navigate through balance menus and settings
- Versatile connectivity with standard RS232 and two USB ports
- New space-saving draftshield designed to maximize workspace



Color Touchscreen
and Intuitive User
Interface



Learn more online at www.ohaus.com/adventurer

ohaus.com
facebook.com/ohauscorp
youtube.com/ohauschannel
twitter.com/ohaus_corp

Ingeniously Practical

