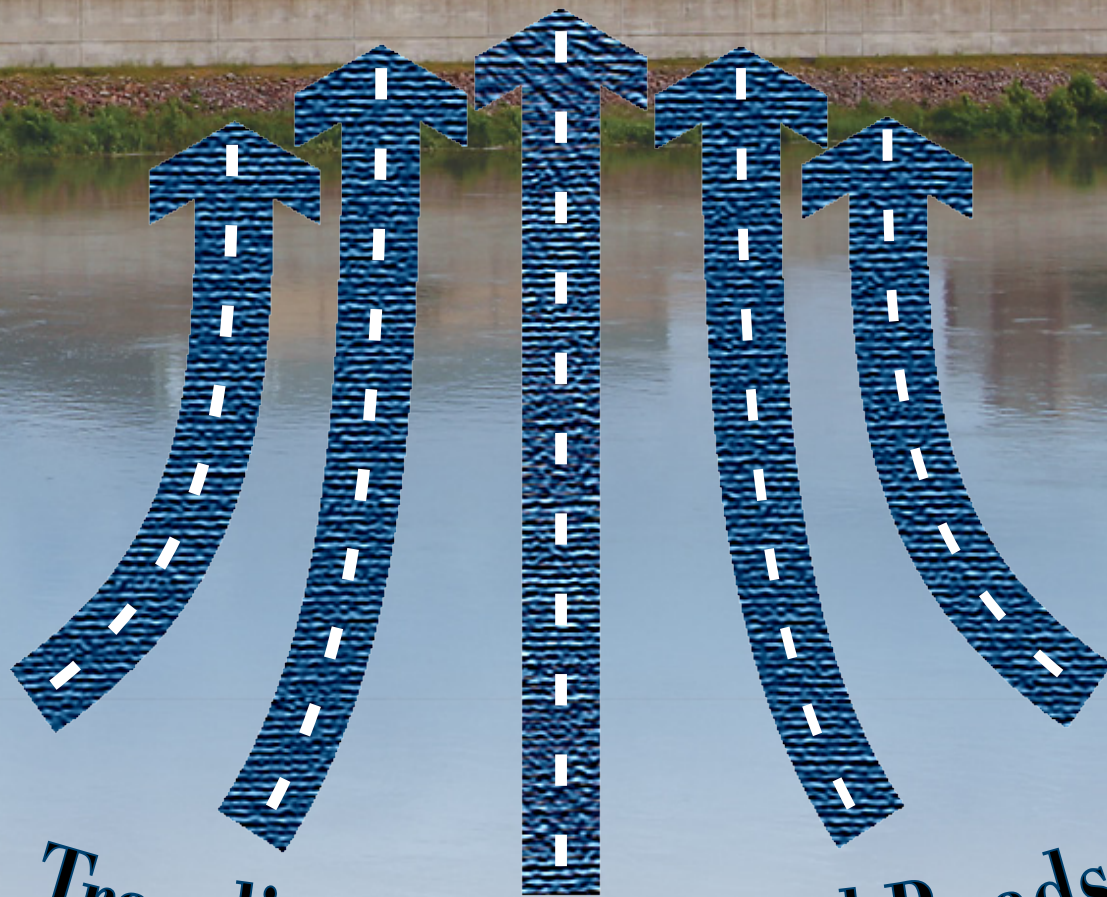




The Minnesota Science
Teachers Association Presents...



Traveling Instructional Roads in Science Education

Citizen Science

Literacy

Cross Cutting Concepts

Technology Integration

2014 Minnesota Conference on Science Education

Feb 21-22 • Verizon Wireless Center • Mankato

Schedule of Events

Thursday

5:00 - 8:00 Registraion Open, *Verizon Center Arena Lobby*
Exhibitor Check in and Setup

Friday

7:15 - 8:00 Registration Continues, *Verizon Center Arena Lobby*
Continental Breakfast Available, *Arena*
Exhibits Open at 7:30

8:00-8:45 Presentation Session 1

9:00 - 9:45 Presentation Session 2

10:00 - 10:45 Presentation Session 3

11:00 - 12:00 Welcome and Greetings, *Banquet Hall*
MnSTA Medtronic Foundation Teacher of the Year Award Presentation
Keynote Speaker: Ramsey Musallum
Exhibits Remain Open

12:00 - 1:15 Lunch Available and Exhibits Open, *Arena*

1:30 - 2:15 Presentation Session 4

2:30- 3:15 Presentation Session 5

3:30 - 4:15 Presentation Session 6

4:30 - 5:30 Social Event, *Arena*
Cash Bar & Snacks Available, Exhibits Remain Open until 5:00
4:30 Special Announcement: AirSpace MN Welcomes Don Louis Piccard!
Exhibits remain open until 5:00
Find others from your region...watch for labeled tables!

5:30 - 8:00 Try the MnCOSE “Twitter Guided Traveling Social” in Mankato!
#mncose14

Saturday

7:30 - 8:45 Continental Breakfast Available
8:30 MnSTA Annual Meeting, *Banquet Hall*
Door Prizes!

9:00 -12:00 Workshops - *Banquet Hall, Reception Hall, and Verizon 243*



Friday Keynote Speaker **“Curiosity as a Pedagogical Tool!”**

Ramsey Musallam
Secondary Science Instructor
Sacred Heart Cathedral, San Francisco, CA
Adjunct Professor of Education
University of California & Touro University

As Sir Ken Robinson states: “Curiosity is the engine of achievement”. Using examples from the classroom, the research, and society, this keynote will explore curiosity as a pedagogical tool, and emphasize

why current movements in science and technology provide a “perfect storm” for today’s science educator.

In addition to his role as a science instructor, Ramsey is the acting Science Department Chairperson and Director of Inquiry and Innovation at Sacred Heart Cathedral.

Ramsey delivers keynotes, webinars and facilitates workshops for teachers nationally and internationally with a focus on using technology as a strategic classroom partner in designing learning environments grounded in inquiry fueled by student curiosity. Additionally, Ramsey is the host of the Infinite Thinking Machine, an internet TV show dedicated to sharing innovative ideas for teachers and students. Ramsey’s TED Talk “3 Rules to Spark Learning” is widely popular with classroom teachers, and was the lead talk on TEDs first ever PBS TV premiere, “TED Talks Education.”

Upon graduating from the University of California Davis with a BS in Molecular and Cellular Biology, Ramsey went on to obtain a MA and Ed.D in Education from the University of San Francisco. Since graduating, Ramsey’s research interests have shifted from using Multimedia to manage student Cognitive Load, to a focus on harnessing Multimedia as a tool in cultivating student curiosity, inquiry and motivation.

“As a full-time high school science teacher and department chairperson, I am passionate about building and sharing innovative learning environments grounded in inquiry and guided by curiosity. Student questions can be windows into dynamic and tailored blended instruction, but not the other way around.” - Ramsey Musallam



Balloning legends Ed Yost and Don Piccard crossed the English Channel by balloon, picture here in 1963!



**MnSTA Proudly
Welcomes**

Special Guest Don Louis Piccard!

Join AirSpace Minnesota Friday afternoon at MnCOSE14 as they announce the Go Boldly Challenge!!

Son of the legendary Jean Piccard and Jeannette Piccard, Don Piccard first flew in a balloon in 1933, when he was enlisted as “crew” by his mother, the first woman to fly to the edge of space. A driving force behind the hot-air ballooning revival after the war while a student at the University of Minnesota, he made the first post-war free flight in 1947 with a captured Japanese balloon. In addition to innovative use of plastic and Mylar materials and leading promotion of hot air ballooning as a sport, in 1963 he and Ed Yost were the first to cross the English Channel in a hot air balloon. The U.S. Ballooning Hall of Fame, which was initiated in 2004, has honored 24 pioneering aeronauts. On July 27, 2014 at the National Balloon Museum in Indianola, Iowa, Don Piccard will join this illustrious company.

MnCOSE14 Strand Speakers

Session 1 • City Center Hotel, Jackson Room

“Let the Experts be the Guide.
What Would a Physics Classroom
Look Like if Designed by
the Pillars of Ed Psych??”



Physics Strand Speaker • Dr. Tom Brown, Minnesota State University, Mankato
Dr. Brown will discuss the guiding philosophies of 20th Century Educational Psychology as presented by the three main figures of the time: Dewey, Vygotsky, and Piaget. Along the way we discuss the implications of these theories on curriculum and pedagogical design in the physics classroom. Participants will work collaboratively to design what we imagine these three foundations of modern Ed Psych would have our Physics classes look like!

Session 2 • Verizon Center, Room 243

“What to Do If Your
Flipped Classroom Flops.”



Chemistry Strand Speaker • Dr. Matt Morgan, Hamline University
If you have tried flipping your chemistry classroom and it didn't work, don't despair! The hints and discussion in this talk may help!

Session 3 • Verizon Center, Room 279B

“Making the Most of
PBS LearningMedia™”



Elementary Sciences Strand Speaker • Kathleen O'Donnell,
Director, Family & Education Services, Twin Cities Public Television.
PBS LearningMedia™ is expressly designed for educators, PreK-16. This FREE service brings together the BEST of public media digital content from award-winning programs like NOVA, Nature, SciGirls, Sid the Science Kid, along with content from 90+ contributors, including NASA, National Public Radio, and The Learning Registry. We'll unpack this classroom-ready tool, highlighting those features that will help you personalize and customize the experience, make lesson-planning easier, and enrich your own professional development.

Session 4 • City Center Hotel, Hughes Room

**“Cancer 101:
When Good Cells Go Bad”**



Biology Strand Speaker • Dr. Chris Pannell, University of Minnesota. Cancer affects us all, either directly or indirectly. This presentation will provide historical and cutting-edge information on how cancer affects us, how it arises, and how it is treated. Comparisons between conventional and personalized therapies will be presented. Dr. Pannell is currently researching ways to devise novel immune-based strategies for cancer therapy. Currently he and his colleagues are focusing on two approaches. One is to develop plasmid DNA-based cancer vaccines. The second is to introduce antigen receptors into T cells to redirect their cytotoxicity to tumor targets.

Session 5 • Verizon Center, Room 279A

**“Lessons From the Edge
of the Living World”**



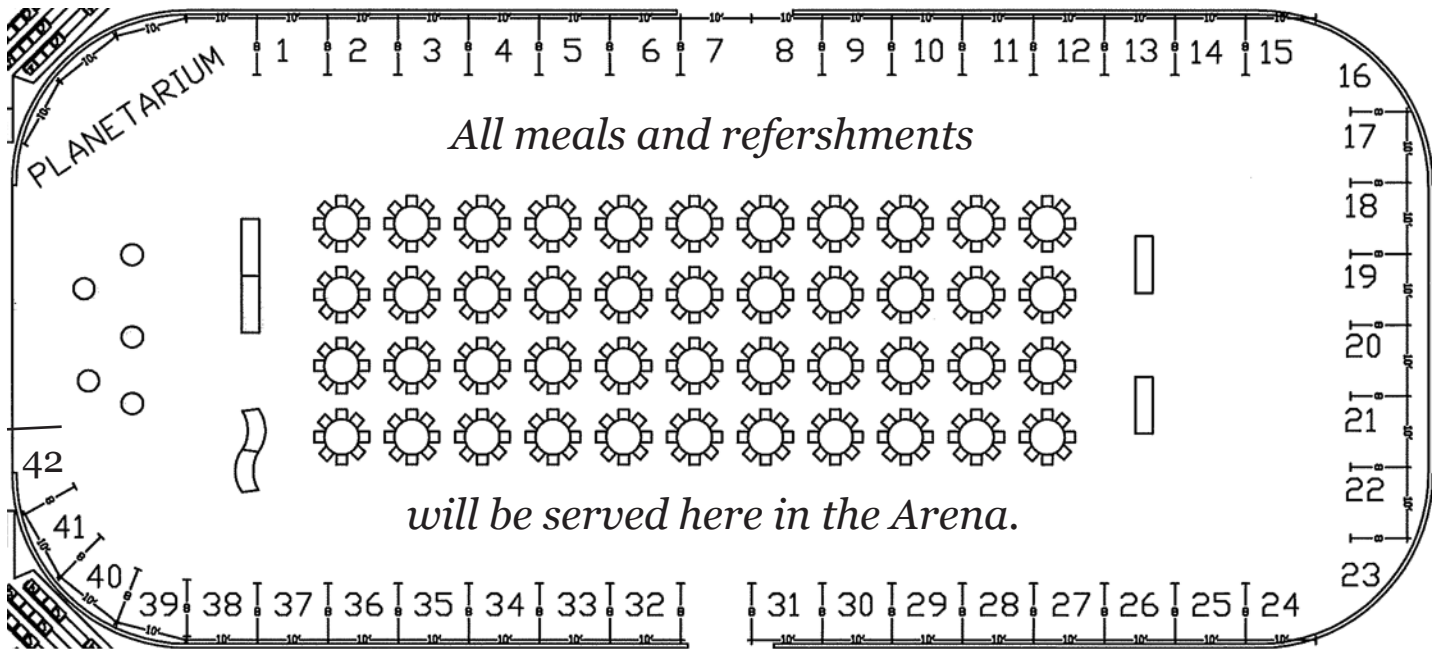
Earth Science Strand Speaker • Dr. Bryce Hoppe, Minnesota State University, Mankato

The Integrated Ocean Drilling Program’s Expedition 329 sailed from Tahiti in September of 2010 to recover and characterize the organisms that live in the deadest place on the surface of the Earth: The seafloor of the South Pacific Gyre. Over the course of the next two months, the team of 36 international biologists, chemists, physicists and geologists found sparingly rare communities of prokaryote and eukaryote microbes that appear to have lived buried in the seafloor for tens of millions of years in unchanged states of existence. Although their environment was changing physically and chemically, the microbes adapted to living on virtually no food or energy and developed life spans that could well be thousands or tens of thousands of years in length. From fighting cancer to supporting space travel, the implications of these findings are broad and far-reaching. This talk summarizes the investigative methods and a sampling of the results of Expedition 329. The talk intends to illustrate how cooperation among earth scientists of every stripe is needed to fully characterize the Earth’s environments and truly unravel the mysteries of life on this planet.

MnCOSE 2014 Exhibitors

We thank the exhibitors that are here to share their expertise with you! Please take time to visit with them during the conference!

<u>Exhibitor</u>	<u>Table Location</u>
Achieve 3000.....	1
AM Soc for Clinical Laboratory Science.....	2
Argosy University.....	3
Audubon Center of the Northwoods.....	9
Bell Museum, ExploraDome.....	Arena Floor
Bitwixt Software.....	10
Brown Dog Gadgets.....	11
Cengage Learning.....	7 & 8
Center for Global Environmental Education.....	12
Coastal Studies for Girls.....	13
CPO Science.....	15 & 16
Dakota County Technical College.....	4
Delta Education.....	14
Dragonfly Environmental Education.....	17
Eagle Bluff Environmental Learning Center.....	5
eScience Labs, LLC.....	18
Houghton Mifflin Harcourt.....	23 & 24
International Wolf Center.....	6
Lab Aids.....	19
Laser Classroom.....	20
MN Zoo.....	25
MN Agriculture in the Classroom.....	26
MN DNR - Firewise.....	27
MN Field Trip Library.....	28



Exhibitor

Table Location

MN High Tech Association	29
MN Landscape Arboretum	30
MN DOT - Office of Aeronautics	42
MnSTA	Arena Lobby
Newbridge Publishing	21
Project Lead the Way	22
Save the Rainforest	31
Science Museum of Minnesota	32
St. Catherine University	33
St. Cloud State University	34
The Works Museum	35
Twin Cities Public Television	41
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Walden University	39
Will Steger Foundation	40

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Session 0

New Teachers: Welcome to Your First Science Education Conference!

Michele Koomen, Gustavus Adolphus College

Alison Wallace, MN State University Moorhead-60

Verizon Reception Hall

[elem jr. high sr. high](#)

[General](#)

Come join us to learn more about the Minnesota Science Teacher Association, how to navigate your first conference and get the most out of your first Minnesota Conference in Science Education. Breakfast goodies and door prizes!

Session 1

8:00 - 8:45 AM

Using the 7 E's Model in Science Units.

Laurie Thorp, Jordan Middle School

City Center Hotel Hughes

[elem jr. high sr. high coll](#)

[Life Science](#)

Watch your students enthusiastically enter the classroom asking, "When can I get the next extension?" and : "When can I share my extension?"

In this session several units will be shared using the 7 E's unit plan concept to develop units embedding the 5th Grade science standards. These unit ideas can be expanded to fit any grade level or subject area. Units are kept in a science journal and a standardized syllabus is given to focus the students' learning on a particular standard and benchmark area. Also included are extension ideas that allow students a choice of projects that are completed over an extended period of time, and grading suggestions for the units will be addressed.

PHYSICS STRAND SPEAKER

Let the Experts be the Guide. What Would a Physics Classroom Look Like if Designed by the Pillars of Ed Psych??

Dr. Tom Brown, Minnesota State University, Mankato

City Center Hotel Jackson

[sr. high coll](#)

[Physics](#)

What to Do If Your Flipped Classroom Flops."

Can You Design The Most Efficient Wind Turbine?

Vince Zaccardi, CPO Science

City Center Hotel Johnson

[sr. high](#)

[Exhibitor Workshop](#)

EXHIBITOR WORKSHOP

Apply the engineering cycle to design and test a unique Wind Turbine. This workshop is a great opportunity for teachers to learn about engineering and the Next Generation Science Standards. Participants will engage in the process of the engineering cycle and apply the process to design and construct a simple wind turbine. Tools for implementing the engineering cycle and STEM in the classroom are provided.

Facilitating Multi-age Student Partnerships to Reinforce and Encourage Science Interest

Amanda Meyer, Springfield High School

Hilton Room 303

[sr. high](#)

[General](#)

Science students at Springfield High School interact with Elementary students in a variety of ways. Learn about how you can organize student-led science teaching experiences between grade levels. These types of interactions can improve skills in organization, collaboration, and communication in students, as well as strengthening science concepts for all ages.

Creative Engineering: Making the NGSS Connection to Engineering Design and Creative Circuits

Deborah Besser, University of St. Thomas

Hilton Room 305

[elem jr. high](#)

[General](#)

Experience engineering design through an energy challenge and creative circuit experience. We will explore connections in our shared experiences to Next Generation Science Standards.

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Experience the Future of Digital Science from National Geographic and Achieve3000

Steven Weniger, ACHIEVE3000

ISD 77 Mankato Room

jr. high

Exhibitor Workshop

EXHIBITOR WORKSHOP

Experience how a digital middle school science program can extend the day, improve reading and science scores, and engage all students through interactive National Geographic content. This dynamic program is delivered at multiple Lexile® reading levels and is poised to help teachers meet the challenges of the Next Generation Science Standards. We will touch on Common Core for Math and Reading, STEM, Tech versus Text, and NGSS! This is not something else to put on your plate...this is simply a better plate!

Learning to GOOGLE Drive

Carolyn Fruin, Sophia Learning

ISD77 MN River Room

jr. high sr. high

General

Questions about how to make the most of your time using shortcuts? Looking to add more formative assessments to your lessons but don't have class time? Learn about some quick, easy skills to help you make your class more collaborative and your course prep time more efficient. Bring your device - we plan on work time!!

Standards Based Grading in a Flipped Biology Setting

Mark Peterson, Dassel Cokato High School

ISD77 MN Valley Room

sr. high

General

Mark flipped his biology classroom at Dassel Cokato High School in 2012, along with implementing standards based grading. The journey continues as he remains in Beta, trying to make a better science inquiry setting for individual learners. The presentation will include technical production of screencasts (Mac or PC), creating learning targets using the MNSS and using standards based grades as the driver for it all.

Geodesic Domes for the Elementary Classroom

Nichole Christofferson-Weston, Menahga School

Verizon Room 241

elem jr. high

Elementary

This presentation will show how geodesic domes can encompass all subject areas including extension activities for the elementary classrooms. Lots of hands on exploring!

Using Plays to Introduce Science Concepts

Phillip Nesse, Rochester STEM Academy

Verizon Room 243

sr. high

Chemistry

Discussion of a one act play starring Dmitri Mendeleev and the first twenty elements of the Periodic Table.

What A Turtle Can Teach: Animals In The Classroom To Help Promote Science Education

Patty Born Selly, National Center for STEM Elementary Education

Verizon Room 279B

elem jr. high

Elementary

Live animals are perfect companions for teaching science: they can inspire countless inquiry investigations, while also helping children think about ethics, humane behavior, and responsibility.

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Session 2

9:00 - 9:45 AM

The Immersive Classroom: Integrating Science, Literacy, and Engineering Standards

Sally Brummel, Bell Museum of Natural History
Sarah Komperud, Bell Museum of Natural History

EXHIBITOR WORKSHOP

Learn how planetarium tools and other resources are integrated to teach a wide variety of standards. These lessons can also be utilized in classrooms without the immersive technology.

Arena ExploraDome

elem jr. high sr. high
Exhibitor Workshop

The Growing Classroom - School Gardens for Learning

Sue Knott, Minnesota Agriculture in the Classroom
Al Withers, MN Agriculture in the Classroom

Discover how your students can grow their own food and achieve Minnesota's K-12 Science Standards! Participants will complete garden-based, hands-on activities applicable to a wide range of learners. Attendees will receive a FREE copy of the Minnesota School Garden Guide.

City Center Hotel Hughes

elem jr. high sr. high
Life Science

Citizen Science: Service Learning with the National Park Service

Megan Hall, Open World Learning Community
Brian Goodspeed, National Park Service

Explore Life Science lessons that incorporate community ecology with habitat restoration. Gather ideas for making curricular connections with community organizations including local and state parks, the Department of Natural Resources, Wilderness Inquiry, and the National Park Service.

City Center Hotel Johnson

jr. high
Life Science

Build an Electric Guitar

Thomas Tomashek, Minnetonka High School

Join us as we investigate the science behind the electric guitar. The main component to any electric guitar is the pickup which electrifies the vibrations from the strings. We'll start with a little history then do some experimenting. To investigate the principles we'll build some one string electrified music making machines from simple materials. A fascinating project you can use as a demo or have students build their own.

City Center Hotel Palmer

jr. high sr. high
Physics

Science First! Using Technology to Support Inquiry in the Classroom.

Amanda Meyer, Springfield High School
Jayme Fast, Springfield High School

The primary focus of our science department is inquiry-based learning. We will share a variety of technology tools that we use in our High School Science classes that support this model of instruction. Some of the tools that will be discussed include Google Apps for Education, Schoology, Socrative, You Tube, screencasting options, and various iPad apps.

Hilton Room 303

sr. high
General

Helping Students Develop Science Concepts

John Olson, Minnesota Department of Education
Doug Paulson, Minnesota Department of Education

Recent research on science learning has identified teaching strategies for helping students move from their current understanding to more correct understandings. Participants will engage in activities that demonstrate model development and discourse/argumentation as support for learning concepts and as skills that students should learn. The session will reference science practices in A Framework for K-12 Science Education.

Hilton Room 305

elem jr. high sr. high
General

Fast and Furious: Measuring Speed

Darin Christianson, Lab-aids

EXHIBITOR WORKSHOP

This activity is from the SEPUP middle level physical science series which explores Newton's Laws in a context of motor vehicle safety. Participants are challenged to design an investigation to measure the speed of a moving cart as function of its release point from a curved ramp. They carry out their experiment, discuss the role of speed in automobile collisions, and conclude by examining distance vs. motion graphs.

ISD 77 Mankato Room

jr. high
Exhibitor Workshop

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Schoolyard Gardens for Hands On Science!

Zeta Kilbride, MN Landscape Arboretum

ISD77 MN River Room

[elem](#)

[Exhibitor Workshop](#)

EXHIBITOR WORKSHOP

Tips and techniques for planning and managing a schoolyard garden. Decisions to be made and how to begin. Hands on lessons demonstrated. Take something home!

Connect & Collect: #Twitter

Laurie Callies, Eden Prairie School District

Michelle Ament, Eden Prairie School District

ISD77 MN Valley Room

[jr. high sr. high coll](#)

[General](#)

Learn to leverage Twitter to connect students, promote discussions, discover resources, communicate with experts, collect data to expand sample sizes and enrich research opportunities for the Practice of Science.

Engineering: Living in a Designed World

Kelly Meyer, Science Museum of Minnesota

Verizon Reception Hall

[elem](#)

[Exhibitor Workshop](#)

EXHIBITOR WORKSHOP

Be introduced to the new Engineering Assemblies - through engaging and interactive presentations, the assemblies explore what engineers do, what inspires them, and why it is important. Also learn about the new Engineering Immersion Residencies - innovative in-classroom experiences that combine teacher professional development with dynamic engineering instruction for students. Participate in hands-on activities. Experience the range of Engineering Programming offered from the Science Museum of Minnesota.

CHEMISTRY STRAND SPEAKER

What to Do If Your Flipped Classroom Flops.

Dr. Matt Morgan, Hamline University

Verizon Room 243

[sr. high coll](#)

[Chemistry](#)

See Strand Speaker Page for full details.

Culture and the Nature of Science

Mark Ryan, Changing Course

Verizon Room 279A

[sr. high](#)

[Earth Science](#)

The Nature of Science is a concept we banter around in our classroom but research indicates it is poorly covered in most curricula. One of the contentious elements of NOS is the role culture plays in defining the concept. This session will present research data on the interface of these two ideas and is intended to begin a dialogue on how they impact instruction.

What A Turtle Can Teach: Animals In The Classroom To Help Promote Science Education (repeated Session)

Patty Born Selly, National Center for STEM Elementary Education

Verizon Room 279B

[elem jr. high](#)

[Elementary](#)

Live animals are perfect companions for teaching science: they can inspire countless inquiry investigations, while also helping children think about ethics, humane behavior, and responsibility.

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Session 2-3

9:00 - 10:45 AM

Workshop on Direct-Measurement Video Physics: An Engaging Method to Develop Students' Problem Solving Skills

Peter Bohacek, Henry Sibley High School

Rebekah Johnson, Henry Sibley High School

Gain hands-on experience using direct-measurement videos in physics teaching. We'll explore how to use these engaging videos, showing how students learn advanced problem-solving skills applying physics ideas to realistic situations.

City Center Hotel Jackson

sr. high coll

Physics

What Effect Does Implementing a New Model for STEM & ESTEM Instruction Have on Teaching and Student Learning?

Thomas Meagher, Owatonna Public Schools

Jayne Jacobson, Owatonna Public Schools

In this session we will be presenting on how adopting a new model for K-8 STEM & ESTEM teaching has influenced the attitudes and academic abilities of the students enrolled in this comprehensive program in Owatonna, MN.

We will share the curricular and instructional shifts teachers have made in their classes and the preliminary results of research from over 500 students who have been participating in the program for two years.

elem jr. high

Elementary

Session 3

10:00 - 10:45 AM

Immersive Earth: NASA Middle School Earth Science Lessons

Sally Brummel, Bell Museum of Natural History

Sarah Komperud, Bell Museum of Natural History

EXHIBITOR WORKSHOP

NASA-funded "Immersive Earth" contains middle school units incorporating classroom lessons and a planetarium program. These lessons can also be utilized in classrooms without the immersive technology.

Arena ExploraDome

jr. high

Exhibitor Workshop

Science Con-Artists

Douglas Allchin, Univ. of Minnesota

In the public media, some people claim scientific expertise and authority when they have none. Learn their common tricks and how we can prepare students to be savvy consumers of science.

City Center Hotel Hughes

jr. high sr. high coll

General

Dragonfly Nymphs As Classroom Pets

Ami Thompson, Dragonfly Environmental Education

Baby dragonfly nymphs are excellent classroom creatures. They are hardy aquatic insects who happily live in a small bowl. Learn where to catch them, how to set up their habitat, and what to feed them. Your efforts will be rewarded when they crawl out of the water to metamorphose into an adult dragonfly in your classroom!

City Center Hotel Johnson

elem jr. high sr. high coll

Life Science

Modeling, Making, DIY, and Arduino

Nathan Moore, Winona State University

The talk will describe my efforts to combine the cultural zeitgeist of the "Maker" movement with the pedagogical framework of Modeling Instruction. In brief, my students have been making their own lab equipment via an Arduino microcontroller and various electrical sensors.

City Center Hotel Palmer

sr. high

Physics

Young Northfield Chefs: Exploring Science Through Cooking

Eric McDonald, Carleton College

Vayu Rekdal, Carleton College

Emily Pence, Carleton College

We will introduce Young Northfield Chefs, an after school program that aims to empower middle school students with cooking skills while also engaging them with relevant science topics. We will also introduce a curriculum/lab manual we are writing based on our experiences.

Hilton Room 303

jr. high

General

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Supporting Science Learning Through Literacy Skills

John Olson, Minnesota Department of Education

Doug Paulson, Minnesota Department of Education

Hilton Room 305

jr. high sr. high

General

Strengthen the literacy skills that students need to be successful in science while engaging students in inquiry learning. This session will model instructional strategies through learning activities and illustrate the use of text as evidence, rubrics for writing conclusions, and structure for claims/evidence/reasoning. It will reference the Minnesota Literacy Standards in Science and A Framework for K-12 Science Education.

Color, Spectrophotometry, and the Structure of the Atom

Darin Christianson, Lab-aids

ISD 77 Mankato Room

sr. high

Exhibitor Workshop

EXHIBITOR WORKSHOP

How do we teach topics such as electron configurations, that were graduate school material a generation ago, so students can learn and understand them? Walk away with some effective ways to teach the structure of the atom. Using a user-friendly spectrophotometer, explore how light interacts with dyes. Then use unique spectrum cards to show how atoms, color, and spectra are related, making a conceptual bridge between a core chemical technology - making dyes - and the fundamental structure of the atom.

Why Should I "Flipping" Care?

Carolyn Fruin, School District 196

ISD77 MN River Room

jr. high sr. high

General

Spending too much time with lab set-up and demos? Save hundreds of minutes of class time by "flipping" prelab and postlab activities. Learn how to choose and integrate appropriate web tools into your science instruction.

Teacher-Designed Science Activities Connecting the Nobel Conference at Gustavus to Your Curriculum

Scott Bur, Gustavus Adolphus College

"Shoe" Shoemaker, St. Peter High School

Eric Koser, Mankato West High School

ISD77 MN Valley Room

sr. high coll

General

Minnesota teachers developed approximately 30 activities across science disciplines. Activities are tied to the annual Nobel Conference and Gustavus Adolphus College. Past Nobel presentations are available to stream at no cost. Come and learn about this program!

How Inquiry and Mastery Helped Me Change My Classroom.

Claire Hypolite, Edison High School

Verizon Room 243

sr. high

Chemistry

Learn how the presenter uses guided inquiry and Layered Mastery to give her students choice and control over their learning, allowing students of all abilities to find success in the tough world of chemistry.

ELEMENTARY STRAND SPEAKER

"Making the Most of PBS LearningMedia™"

Kathleen O'Donnell, Director, Family & Education Services, Twin Cities Public Television

Verizon Room 279B

elem jr. high

Elementary

See Strand Speaker Page for full details.

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Session 4

1:30 - 2:15 PM

The Immersive Classroom: Integrating Science, Literacy, and Engineering Standards

Sally Brummel, Bell Museum of Natural History
Sarah Komperud, Bell Museum of Natural History

EXHIBITOR WORKSHOP

Learn how planetarium tools and other resources are integrated to teach a wide variety of standards. These lessons can also be utilized in classrooms without the immersive technology.

Arena ExploraDome

[elem jr. high sr. high](#)

[Exhibitor Workshop](#)

BIOLOGY STRAND SPEAKER

Cancer 101: When Good Cells go Bad

Dr. Chris Pannell, University of Minnesota

See Strand Speaker Page for full details.

City Center Hotel Hughes

[sr. high coll](#)

[Biology](#)

Pinhole Optics & Visual Acuity: Building Evidence to Explain What We See!

John Koser, University of St. Thomas

Utilize Project Star telescope tubes to define pinhole images, measure the distance to the sun, establish Distance/Diameter ratios, and compare with optical image created by converging lenses. Build some tools and strategies to take back to your school!

City Center Hotel Johnson

[sr. high](#)

[Physics](#)

Visualizing Physics with Video Analysis

Paul Anderson, Buffalo High School

Students make better connections to content when they can see the physics. This is best accomplished by incorporating video analysis into labs. Learn some tips and techniques to integrate it into your curriculum.

City Center Hotel Palmer

[sr. high](#)

[Physics](#)

Spread the Word, Not the Species: A Look At Aquatic Invasive Species and How to Prevent Their Spread

Marte Kitson, University of Minnesota Sea Grant

Aquatic invasive species (AIS) harm our environment. Learn about their threats, impacts, how they are spread, and tools to incorporate AIS education into your classroom.

Hilton Room 303

[jr. high](#)

[General](#)

Photosynthesis and Cellular Respiration!

Darin Christianson, Lab-aids

EXHIBITOR WORKSHOP

Students have major misconceptions about photosynthesis and cellular respiration, but this content is essential for understanding how matter and energy flows, both at the micro (cellular) and macro (ecosystem) levels. Using a computer simulation, a hands-on activity, and science notebooking and discussion strategies, expose student thinking - all from the new SEPUP Science and Global Issues Biology program.

ISD 77 Mankato Room

[sr. high](#)

[Exhibitor Workshop](#)

Science Institute for Educators: Convergence of Current Scientific Research and Environmental Education For Use in Formal Classrooms

Nadine Meyer, MN DNR MinnAqua Program
Samantha Smingler, Great Lakes Aquarium

Place-based activities utilizing indoor/outdoor settings engage students in real world problem solving. Participants will sample activities and receive free online resources including presentations from local scientists, activity kits for check-out, and lesson plans.

ISD77 MN River Room

[elem jr. high sr. high](#)

[General](#)

Cutting Across Curriculum: Integrating Engineering, Mathematics and Literacy with Science Concepts for Elementary

Paulson Doug, Minnesota Department of Education

Having a self-contained classroom in elementary is a great opportunity! Identify lessons with literacy, math, and science learning targets that engage students. Participate in a hands-on session with an overview of STEM practices and integration strategies that can be used in your classroom.

ISD77 MN Valley Room

[General](#)

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Minnesota Science Olympiad: It's Elementary!

Michael Huberty, Minnesota Science Olympiad

Verizon Room 241

elem jr. high

Elementary

Minnesota's "track and field" style science team competition is engaging kids in grades 3-6. Events include entomology, astronomy, fossils, robotics, pasta tower. Start your team today!

Rockin' Good Times: Designing an Earthquake-Proof Anchor System for a Ferris Wheel Ride

David McGill, Capitol Hill Gifted and Talented School

Heidi Sundet, Expo Elementary School

Shelley Norton, Bruce Vento Elementary

Verizon Room 243

jr. high

Elementary

Students are presented with a general contractor client wanting to build an amusement park near a city in an earthquake prone area.

Their challenge is to design and build an anchoring system to effectively anchor the Ferris Wheel ride to the ground.

Experience Energy Curriculum

John Smith, Will Steger Foundation

Verizon Room 279A

elem jr. high sr. high

Exhibitor Workshop

EXHIBITOR WORKSHOP

Discover new ways to make the subject of energy hands-on and accessible for grades 3-8. All who attend will receive complimentary print editions of the curriculum. The Will Steger Foundation develops climate change and environmental education curriculum and resources that support the teaching of formal and non-formal educators. Come learn more about this great local resource!

Open The Door, Let's Explore: Seasonal Activities for Children

Polly Saatzer, Garlough Environmental Magnet School

Verizon Room 279B

elem

Elementary

Feel confident about teaching outdoors through the seasons as a way to spark a student's sense of wonder while teaching across different curriculum areas and meeting state standards. Free classroom materials from the Jeffers Foundation.

Session 4-5

1:30 - 3:15 PM

Neutrinos and Dark Matter Soudan Underground Physics Lab and NOvA

Allen Lipke, Soudan Underground Physics Lab

City Center Hotel Jackson

jr. high sr. high coll

Physics

I will share with the group the research that we are doing here at Soudan and the NOvA Detector at the Ash River Facility. We are also doing a Dark Matter search which is called CDMS. I use a combination of media, posters, demonstrations and PPT to convey the concepts.

Minnesota Conference on Science Education

Presentation Grid

Shaded sessions are Exhibitor Workshops

Strand	Room	Session I 8:00 - 8:45 AM	Session II 9:00 - 9:45 AM	Session III 10:00 - 10:45 AM	Session IV 1:30 - 2:15 PM	Session V 2:30 - 3:15 PM	Session VI 3:30 - 4:15
Elementary	Verizon 241	Geodesic Domes for the Elementary Classroom: Nichole Christofferson-Weston, Menahga School	What Effect Does Implementing a New Model for STEM & ESTEM Instruction Have on Teaching and Student Learning?: Thomas Meagher, Owatonna Public Schools	Elementary Strand Speaker-Kathleen O'Donnell	Minnesota Science Olympiad: It's Elementary!: Michael Huberty, Minnesota Science Olympiad	Science Olympiad: A fun way for teams to compete in science: Brandi Hansmeyer, Minnesota Science Olympiad	Incorporating Native American Perspectives on Science and Engineering: Kevin Zak, Department of Education, University of Minn. Duluth
	Verizon 279B	What a Turtle can Teach: Animals in the classroom to help promote science education: Patty Born Selly, National Center for STEM Elementary Education	What a Turtle can Teach: Animals in the classroom to help promote science education: Patty Born Selly, National Center for STEM Elementary Education, (Repeated session)		Open The Door, Let's Explore: Seasonal Activities for Children: Polly Saatzer, Garlough Environmental Magnet School	Sound at Work: Bill Lindquist, Hamline University	Why Some Creatures Eat Their Young... Tempted?: Michelle Regan, Osseo Area Schools
Biology	City Center Hotel Hughes Room	Using the 7 E's Model in Science Units.: Laurie Thorp, Jordan Middle School	The Growing Classroom - School Gardens for Learning: Sue Knott, Minnesota Agriculture in the Classroom	Science Con-Artists: Douglas Alchin, Univ. of Minnesota	Biology Strand Speaker- Chris Pannell	Teaching Nature of Science through History: The Case of Alfred Russel Wallace and the Origin of New Species: Douglas Alchin, SHIPS Education Press	
	City Center Hotel Johnson Room	Can you design the most efficient Wind Turbine?: Vince Zaccardi, CPO Science	Citizen Science: Service Learning with the National Park Service: Megan Hall, Open World Learning Community	Dragonfly Nymphs As Classroom Pets: Ami Thompson, Dragonfly Environmental Education	Pinhole Optics & Visual Acuity: Building Evidence to Explain What We See: John Koser, University of St. Thomas	Using Technology to See Proteins: Becky Haack, La Crescent High School	Can You Dig It?: Sarah Weaver, University of Minnesota - Monarch Lab
Earth/ Chemistry	Verizon 243	Using Plays to Introduce Science Concepts: Philip Nesse, Rochester STEM Academy	Chemistry Strand Speaker-Matt Morgan	How Inquiry and Mastery Helped Me Change My Classroom.: Claire Hypolite, Edison High School	Rockin' Good Times: Designing an Earthquake-Proof Anchor System for a Ferris Wheel Ride: David McGill, Capitol Hill Gifted and Talented School	One-to-One Technology in a Chemistry Classroom: Kalli-Ann Binkowski, Spring Lake Park High School	Implementing the CCSS Science Literacy Standards: Carolyn Fruin, Sophia Learning
	Verizon 279A		Culture and the Nature of Science: Mark Ryan, Changing Course		Experience Energy Curriculum: John Smith, Will Steger Foundation	Earth Science Strand Speaker-Bryce Hoppie	Firewise in the Classroom: Ken Pekarek, MN DNR Firewise in the Classroom
Physics	City Center Hotel Jackson Room	Physics Strand Speaker Tom Brown	Workshop on Direct-Measurement Video Physics: An Engaging Method to Develop Students' Problem Solving Skills: Peter Bohacek, Henry Sibley High School	Neutrinos and Dark Matter Soudan Underground Physics Lab and NOVA: Allen Lipke, Soudan Underground Physics Lab			Bridges to Engineering: Non-Threatening Engineering Ideas for the Anxious Science Teacher: Alan Husby, Field Middle School

Physics	City Center Hotel Palmer Room		Build an Electric Guitar: Thomas Tomaszek, Minnetonka High School	Modeling, Making, DIY, and Arduino: Nathan Moore, Winona State University	Visualizing Physics with Video Analysis: Paul Anderson, Buffalo High School	LED Projects for Teaching Electrical Concepts: Andrew Tubesing, University of St. Thomas
Vendor	ISD77 Mankato Room	Experience the Future of Digital Science from National Geographic and Achieve3000: Steven Weniger, ACHIEVE3000	Fast and Furious: Measuring Speed: Darin Christianson, Lab-aids	Color, Spectrophotometry, and the Structure of the Atom: Darin Christianson, Lab- aids	Photosynthesis and Cellular Respiration!: Darin Christianson, Lab- aids	Using Technology to Facilitate a Progression in Students' Understanding of the Structure and Properties of Matter: David Doherty, Bitwixt Software Systems
Vendor	Verizon Reception Hall	Engineering: Living in a Designed World: Kelly Meyer, Science Museum of Minnesota	Engaging: Living in a Designed World: Kelly Meyer, Science Museum of Minnesota	Teacher-Designed Science Activities Connecting the Nobel Conference at Gustavus to Your Curriculum: Scott Bur, Gustavus Adolphus College	Cutting Across Curriculum: Integrating Engineering, Mathematics and Literacy with Science Concepts for Elementary	A Hands-On Laboratory for Teaching Microfabrication: James Mari, University of Minnesota Nano Center
General I	ISD77 MN Valley Room	Standards Based Grading in a Flipped Biology Setting: Mark Peterson, Dassel Cokato High School	Connect & Collect: #Twitter: Laurie Callies, Eden Prairie School District	Why Should I "Flipping" Care?: Carolyn Fruin, School District 196	Science Institute for Educators: Convergence of Current Scientific Research and Environmental Education For Use in Formal Classrooms	THE EVOLUTION OF ONLINE SCIENCE EDUCATION: Jan- Marie Hall, eScience Labs, LLC
General II	ISD77 MN River Room	Learning to GOOGLE Drive: Carolyn Fruin, Sophia Learning	Schoolyard Gardens for Hands On Science: Zeta Kilbride, MN Landscape Arboretum	Young Northfield Chefs: Exploring Science Through Cooking: Eric McDonald, Carleton College	Engineering in the Elementary Classroom and Beyond: ParkSci: Mark Miller, ParkSci	GIS in the Physical Science Classroom: Richard Smith, Glencoe - Silver Lake High School
General III	Hilton Room 303	Facilitating Multi-age Student Partnerships to Reinforce and Encourage Science Interest: Amanda Meyer, Springfield High School	Science First! Using Technology to Support Inquiry in the Classroom: : Amanda Meyer, Springfield High School	Supporting Science Learning Through Literacy Skills: John Olson, Minnesota Department of Education	Hands-On: Real-World Lessons for Middle School Classrooms: Amy Beavers, University of Tennessee	Infuse Nanoscience concepts into your classroom: Deb Newberry, Dakota County Technical College
General IV	Hilton Room 305	Creative Engineering: Making the NGSS Connection to Engineering Design and Creative Circuits: Deborah Besser, University of St. Thomas	Helping Students Develop Science Concepts: John Olson, Minnesota Department of Education	The Immersive Classroom: Integrating Science, Literacy, and Engineering Standards: Sally Brummel, Bell Museum of Natural History	Immersive Earth: NASA Middle School Earth Science Lessons: Sally Brummel, Bell Museum of Natural History	
Dome - Arena	ExploraDome on Arena Floor		The Immersive Classroom: Integrating Science, Literacy, and Engineering Standards: Sally Brummel, Bell Museum of Natural History	Immersive Earth: NASA Middle School Earth Science Lessons: Sally Brummel, Bell Museum of Natural History		

L U N C H

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Session 5

2:30 - 3:15 PM

Immersive Earth: NASA Middle School Earth Science Lessons

Sally Brummel, Bell Museum of Natural History
Sarah Komperud, Bell Museum of Natural History

Arena ExploraDome

jr. high
Exhibitor Workshop

EXHIBITOR WORKSHOP

NASA-funded "Immersive Earth" contains middle school units incorporating classroom lessons and a planetarium program. These lessons can also be utilized in classrooms without the immersive technology.

Using Technology to See Proteins

Becky Haack, La Crescent High School
Sandy Grunwald, University of WI - La Crosse

City Center Hotel Johnson

sr. high
Life Science

What is a protein? To help understand protein structure and function, students use PyMol to view and manipulate common proteins. We will demonstrate how to use this free software. Leave with a computer lab activity that will increase your high school students' understanding of proteins.

Using Technology to Facilitate a Progression in Students' Understanding of the Structure and Properties of Matter

David Doherty, Bitwixt Software Systems

ISD 77 Mankato Room

sr. high
Exhibitor Workshop

EXHIBITOR WORKSHOP

Progressing from middle to high school, NGSS expect students' understanding of the structure and properties of matter to increase in complexity. Physics-based, interactive, 3D atomic and molecular models, on iPads and laptops, provide an array of visual and engaging tools that facilitate this growth in understanding. Starting with the structure and properties of solids, liquids and gases and progressing through the atomic composition of simple molecules, their properties and how they interact, to atomic structure and the arrangement of the periodic table, and advancing through large molecule topics, we will demonstrate models to help students build their knowledge of matter.

Engineering in the Elementary Classroom and Beyond: ParkSCI

Mark Miller, ParkSci
Al Wachutka, St. Louis Park High School
Kristen and Sara Moravetz and Peterson, St. Louis Park High School

ISD77 MN River Room

elem jr. high
Elementary

Park Science Curriculum Integration is a unique delivery system that teams high school science teachers with elementary and middle school teachers to engage students in the engineer design process using Engineering is Elementary (EiE) curriculum.

Facilitating Science Discourse

Scot Hovan, Mahtomedi High School

ISD77 MN Valley Room

sr. high
General

This session will present an analysis of one teacher's experience facilitating scientific discourse in two modes: (1) whiteboard presentations by small groups and (2) large group graded discussions.

A Hands-On Laboratory for Teaching Microfabrication

James Marti, University of Minnesota Nano Center

Verizon Reception Hall

sr. high coll
Exhibitor Workshop

EXHIBITOR WORKSHOP

A new Microfabrication Teaching Laboratory has been developed at the University of Minnesota nano Center. The lab allows students to simulate the fabrication of microelectronic devices using simple tools and procedures. Using this lab, students will replicate key processes used throughout the semiconductor industry. Starting with bare silicon wafers, students will produce working microelectronic devices such as a p-n diode, a solar cell, and a MOSFET transistor. We will be introducing this activity during our presentation and invite teachers to help us test the new lab in their classrooms.

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Science Olympiad: A Fun Way For Teams To Compete In Science

Brandi Hansmeyer, Minnesota Science Olympiad

Michael Huberty, Minnesota Science Olympiad

Verizon Room 241

jr. high sr. high

General

More than 100 teams in Minnesota participate in Science Olympiad. Get your school involved! Includes forensics, entomology, astronomy, genetics, helicopter building, robotics, and many more.

One-to-One Technology in a Chemistry Classroom

Kalli-Ann Binkowski, Spring Lake Park High School

Verizon Room 243

sr. high

Chemistry

Learn about how my students use iPads daily in a variety of ways and about some of my favorite apps. Bring your iPad to play along.

EARTH SCIENCE STRAND SPEAKER

Lessons from the Edge of the Living World

Dr. Bryce Hoppe, Minnesota State University, Mankato

Verizon Room 279A

jr. high sr. high coll

Earth Science

What to Do If Your Flipped Classroom Flops.

Sound at Work

Bill Lindquist, Hamline University

Britt Forsberg, Crossroads Elementary School

Verizon Room 279B

jr. high

Elementary

This session will share the story of NOAA's Teacher at Sea program followed with the creation of an Inquiry Zone "Sounding Box" work station at Crossroads Elementary to model the work of hydrographers.

Session 5-6

2:30 - 4:15

Teaching Nature of Science through History: The Case of Alfred Russell Wallace and the Origin of New Species

Douglas Allchin, SHIPS Education Press

City Center Hotel Hughes

sr. high coll

Life Science

Experience a demonstration class of guided historical inquiry, here leading to Wallace's co-discovery of evolution by natural selection. Encounter and discuss questions about the nature of science. Observe and discuss teaching methods.

LED Projects for Teaching Electrical Concepts

Andrew Tubesing, University of St. Thomas

City Center Hotel Palmer

elem jr. high sr. high coll

Physics

Ideas for using LEDs to explore electrical topics, substitute for expensive equipment, and facilitate creative design projects that integrate math, science, engineering, and art with real-world issues. Participants will build their own LED torch using colored LEDs, a connector, and household batteries.

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Session 6

3:30 - 4:15 PM

Bridges to Engineering: Non-Threatening Engineering Ideas for the Anxious Science Teacher

Alan Husby, Field Middle School

City Center Hotel Jackson

[jr. high](#)

[Physics](#)

Ideas for addressing the engineering standards through low-tech lab challenges, reading passages, short videos, and some on-line activities.

Can You Dig It?

Sarah Weaver, University of Minnesota - Monarch Lab

Ami Thompson, Cedar Creek

City Center Hotel Johnson

[jr. high](#)

[Life Science](#)

Think you have explored everything your schoolyard has to offer? What about the soil beneath your feet?! Few things bring biology and chemistry together like studying soil. Access multiple STEM strands and make them immediately relevant to your students through data collection and citizen science.

Solve the Case of the Snoozing Scientists

Amy Crane, Cengage Learning

ISD 77 Mankato Room

[sr. high](#)

[Exhibitor Workshop](#)

EXHIBITOR WORKSHOP

Hunting for engaging science curriculum to close the case on snoozing scientists? Join us to hear how schools are re-engaging students in science curriculum using Cengage Learning's complete high school forensic science program. Learn how forensic science integrates the STEM education movement as well as strategies for incorporating literacy and community service. Teachers tell us that students are begging for more science classes like Forensic Science! Empower all the budding scientists and super sleuths in your school to think about a future in Science!

Infuse Nanoscience Concepts Into Your Classroom

Deb Newberry, Dakota County Technical College

ISD77 MN River Room

[sr. high coll](#)

[Exhibitor Workshop](#)

EXHIBITOR WORKSHOP

This hands-on workshop will discuss and show teachers how they can get nano related supplies and modules delivered right to their classroom free of charge. Experiments will be demonstrated.

GIS in the Physical Science Classroom

Richard Smith, Glencoe - Silver Lake High School

ISD77 MN Valley Room

[sr. high](#)

[General](#)

Using GIS and the Tap Water Tour in the 9th gr. Physical Science classroom. We used GIS to explore spatial relations, connections between science and societal issues, as well as other standard based topics.

The Evolution Of Online Science Education

Jan- Marie Hall, eScience Labs, LLC

Verizon Reception Hall

[sr. high coll](#)

[Exhibitor Workshop](#)

EXHIBITOR WORKSHOP

Science education is challenged by the demands and rapid growth of online education. The reality of offering lab-based science courses via online formats has lead college educators and administrators to consider and discuss the fundamentals of a science lab experience. This informational session will outline the current landscape of online lab science courses and discuss emerging trends. Come prepared to engage with other education professionals and discuss your own experiences and questions.

Incorporating Native American Perspectives on Science and Engineering

Kevin Zak, Department of Education, University of Minn. Duluth

Verizon Room 241

[elem jr. high](#)

[Elementary](#)

Through a sample activity and lesson, learn how to utilize a Native American context to help all students learn about the nature of science and engineering. Connections to Minnesota and Next Generation Science Standards will also be made.

2014 Minnesota Conference on Science Education

Presentation Resources Shared Digitally after MnCOSE14 at www.mnsta.org

Implementing the CCSS Science Literacy Standards

Carolyn Fruin, Sophia Learning

Jodi Hansen,

Verizon Room 243

sr. high

What's the deal with the literacy standards and how do I teach this in a science class? Science journals or lab notebooks are an essential part of any lab based science course. Learn how to save time grading as well as some good ideas about teaching kids to organize results and get the most out of lab activities by switching up reporting methods with your students.

Firewise in the Classroom

Ken Pekarek, MN DNR Firewise in the Classroom

Verizon Room 279A

jr. high sr. high coll

Exhibitor Workshop

EXHIBITOR WORKSHOP

The Firewise curriculum provides a unique, hands-on opportunity for students to use Geographic Information Systems (GIS) to assess the wildfire risk of their community. Lessons cover GIS, GPS, Public Land Survey and the science of wildfire. Elementary school lessons use Google Earth/Google Maps and Firewise lessons work on Macs or PCs. Ken Pekarek will customize the lessons and teach your students. Attendees at the workshop will receive a Firewise Teacher DVD containing lessons and GIS/GPS resources. The curriculum is correlated to national and Minnesota Academic Standards in geography and science.

Why Some Creatures Eat Their Young...Tempted?

Michelle Regan, Osseo Area Schools

Verizon Room 279B

elem jr. high sr. high coll

General

If you knew what we know you wouldn't be! Classroom management techniques for the civilized. We will give you real tools to maintain calm in the classroom...and your sanity!

Saturday Workshops

After our Annual Meeting and door prizes, come engage in a professional development opportunity around one of three topics! Each of these sessions runs 9AM - Noon.



Read Like A Scientist: Reading Strategies For The Secondary Science Classroom

Jon Kahle

Verizon Room 243



This session will examine some of the research and best practice in adolescent reading development and its possible applications to the secondary science classroom. Research in adolescent literacy is booming and there is much to offer the content area classroom teacher. During this interactive session we will explore strategies and practices that encourage and develop:

- Close reading of text
- Effective annotation techniques
- Vocabulary development
- Alternative texts
- Motivation and Engagement

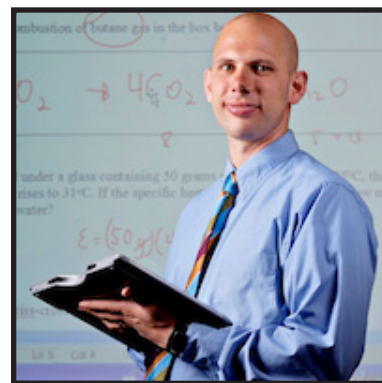
Jon Kahle is the Literacy Specialist at Eden Prairie High School and adjunct faculty at Hamline University. Jon has taught secondary English and reading for 24 years and is interested in adolescent literacy development and its impact on content area classrooms. He is a member of the Minnesota Reading Association, the Secondary Reading Interest Council, and the Minnesota Council of Teachers of English.

CLOCK HOURS: 3.0 Minnesota clock hours will be made available. This sessions is designed to meet the state requirement for Reading Preparation and/or Accommodations, Modifications and Adaptations of Curriculum, Materials and Instruction.

**3.0 MN
Reading CEUs**

Using Technology to Fuel Inquiry for Students

Dr. Ramsey Musallam
Verizon Center Banquet Hall



Whether the catalyst be the common core, Next Generation Science Standards, changes within the College Board, or personal professional growth, establishing a learning environment grounded in inquiry is central to sound science instruction. Through a simulated experience, this workshop will share tech techniques for lesson planning and leveraging technology to fuel consistent and targeted inquiry experiences for students.

Birds, Butterflies, Bees, and More: Citizen Science Projects for Classrooms

Dr. Michele Koomen, Dr. Rob Blair,
Katie-Lyn Bunney, Sarada Saramaswan,
Sarah Weaver

Verizon Center Reception Hall



Citizen science provides an effective way to connect youth to nature and engage them in science and environmental learning! Learn how you can use research in your indoor and outdoor classroom.

Come to learn about how you can use citizen science in your classroom, and win exciting door prizes! This interactive session will spotlight citizen science projects that are ideally suited for youth. We'll describe six projects (focused on butterflies, bees, birds, streams, dragonflies, and phenology) that we use during an intensive summer professional development for K-12 teachers. Then we'll summarize ways in which the projects facilitated science and environment education, and how disciplinary literacy is embedded within projects. All participants will have an opportunity to choose a citizen science project, practice collecting data, and build on their data to design a mini research project. If you like what you learn, we invite you to join us for an extended two week version of the workshop in summer 2014!

MnCOSE 2014 Conference Planning Committee

Jean Tushie, MnCOSE Conference Coordinator Eden Prairie High School, MnSTA Board
Eric Koser, MnCOSE Conference Manager Mankato West High School, MnSTA WebMaster
Joe Reymann, MnCOSE Exhibits Coordinator Retired, MnSTA Treasurer
Holly Knudson, MnCOSE Program Coordinator Marshall High School, Marshall, MnSTA Reg 6 & 8
Kari Dombrowski, MnCOSE Program Coordinator South Junior High, St. Cloud, MnSTA Reg 7
Nicole Christofferson-Weston, MnCOSE Marketing Coordinator Menahga Schools, MnSTA Elem Rep
Phil Sinner, MnCOSE Marketing Coordinator Renville County West, MnSTA Reg 6 & 8
Ed Hessler, MnSTA Executive Secretary Hamline University, MnSTA
Robert Shoemaker, Friday Social Planner St. Peter High School

MnSTA Strand Leaders

Nancy Orr-Johnson, MnSTA Biology Representative Humbolt High School, St. Paul
Carolyn Fruin, MnSTA Chemistry Representative Sophia Learning
Kate Rosok, MnSTA Earth Science Representative Mineapolis South High School
Nicole Christofferson-Weston, MnSTA Elementary Representative Menahga School
Polly Saatzer, MnSTA Elementary Representative Garlough Environmental Magnet, W. St. Paul
Paul Lulai, MnSTA Physics Representative St. Anthony Village High School

Please cut this out and find a great, visible place for it!!

MnSTA is Planning for Next Year!!

**The
Minnesota
Conference
on Science
Education**

**Verizon Wireless Center
Mankato, MN
Feb 20-Feb 21, 2015
www.mnsta.org**

Your Evaluation of Session Presentations

We work hard to make our conference meet our mission to stimulate, coordinate, and improve science teaching and learning for all. Please provide feedback to help us continue to do our best.

For each Friday session you attended and the Saturday session too, please answer the five questions below by putting the room name and your session rating in the grid. Be sure to record the room name accurately so we can collect the data.

Q1) Please rank the usefulness of this presentation to you as a science educator:

<i>very useful</i>		<i>somewhat useful</i>		<i>not very useful</i>
5	4	3	2	1

Q2) Please rank your perception of the preparedness of the presenter for the presentation:

<i>well prepared</i>				<i>not very prepared</i>
5	4	3	2	1

Q3) Please rank how this presentation met your expectations based on the description:

<i>met expectations</i>				<i>did not meet expectations</i>
5	4	3	2	1

Q4) Please rank the overall quality of the presentation:

<i>very high quality</i>				<i>Very low quality</i>
5	4	3	2	1

Q5) Should MnSTA repeat this presentation or a similar presentation at future conferences?

<i>yes, definitely</i>				<i>no, certainly not</i>
5	4	3	2	1

Session	Room Name	Q 1	Q 2	Q 3	Q 4	Q 5
1						
2						
3						
4						
5						
6						

What other comments do you have about presentations?

Please continue the evaluation on the other side of this sheet.

Tear out this page and leave it at the registration table when complete, please.



Your Overall Conference Evaluation

Thank you for your thoughtful feedback! It is appreciated!

Why did you choose to come to the Minnesota Conference on Science Education?

Please describe the best part of the conference experience for you.

Please describe the most difficult part of the conference experience for you.

What components would you like us to hang on to and not change?


What one or two changes would you like to see in our event?

How can MnSTA best serve your needs as a science educator?

What would you tell a new teacher about MnSTA?

Please share any other comments you have on this event.

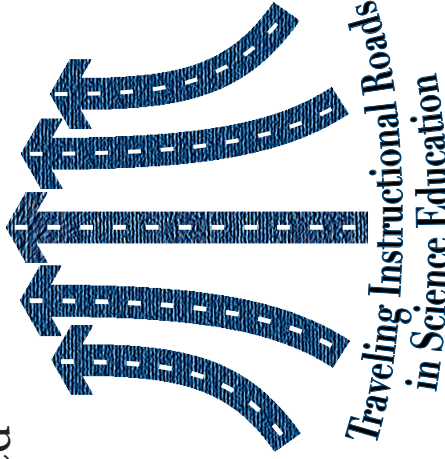
Please continue the evaluation on the other side of this sheet.
Tear out this page and leave it at the registration table when complete, please.



Certificate of Attendance

This certifies that

_____ attended



Citizen Science
Cross Cutting Concepts
Technology/Integration
Literacy

for 7 hours.

Steve Walvig

Steve Walvig
MnSTA President

Jean Tushie

Jean Tushie
MnCoSE Conference Coordinator

Eric Koser

Eric Koser
MnCoSE Conference Manager



Exhibitor Load-In

LOADING DOCK
18' x 12' DOOR

Arena

All Meals,
Exhibits,
Social Event

to
City
Center
Hotel

Banquet Hall

Friday Keynote
Sat Workshop

Registration

Reception
Hall

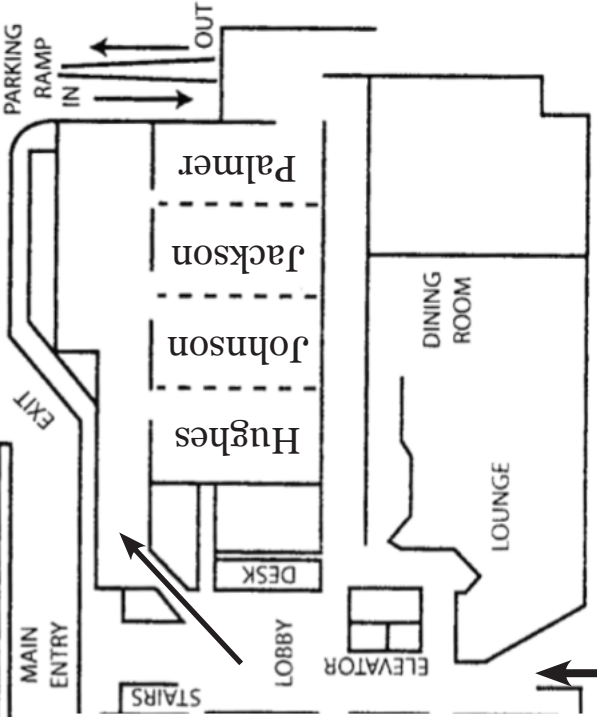
2nd floor skyway to
City Center Hotel

2nd Floor
Verizon Center

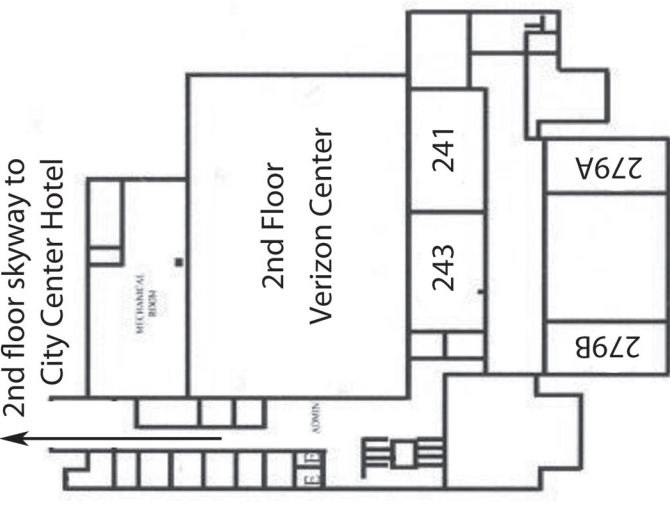
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279A

279B



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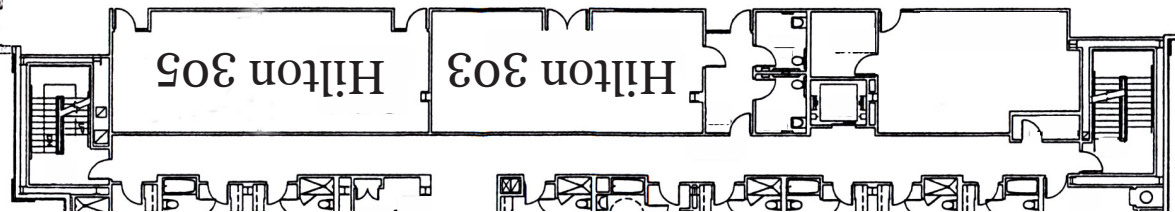
Skyway to Hilton
General III & IV

to Verizon
SKYWAY

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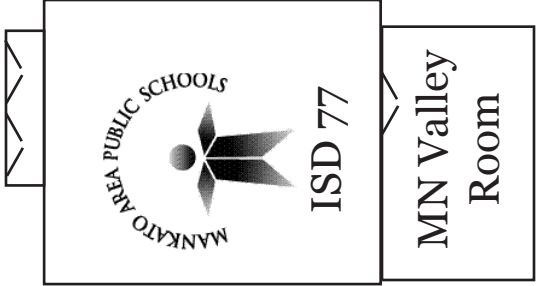


To Hotel

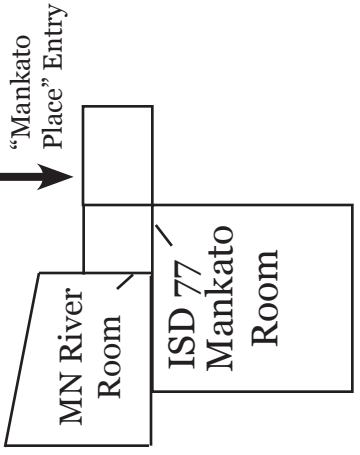


to ISD77
(across street)
Vendor and
General I & II

from
Verizon
Center



from
Verizon
Center



Friday Evening Social Activities

After your last session, join us for socializing and networking together at the Verizon Center. Be sure to see our special announcement and guest at 4:30 in the Arena.

Visit each of the local establishments listed! Each establishment will also be offering food and beverage specials...just tell them you are a science educator conference attendee or show your name tag or special list!

Be sure to Tweet out your progress. Not on Twitter? What a great time to learn to Tweet! Get started with a guide on our website...and use the hashtag #mncose14 during our event!



#mncose14
@MnSTA1





MnSTA PRESENTS...

The Minnesota Conference on Science Education

Verizon Wireless Center
Mankato, MN
Feb 21-Feb 22, 2014
www.mnsta.org

It is the mission of MnSTA to stimulate, coordinate, and improve science teaching and learning for all.

**Join us back here in Mankato for MnCOSE15!
Feb 20-21, 2015 • www.mnsta.org**