

THURSDAY, MARCH 7

8:00-9:50

Engaging students with educational games -90 min MS/HS Chem, Engineering, Physics - Free

Matthew Stilwell (University of Wisconsin-Madison MRSEC)

Anne Lynn Gillian-Daniel (University of Wisconsin-Madison MRSEC)

Participants will play our freely available, educational digital games and discuss how and where they can effectively meet crucial science standards and engage students.

Place-based Resources and Kits to Leverage Scientific Learning

1 hour 50 minute Workshop MS/HS Bio/Life, Earth, Environmental - Free

Jenny Christopher, Wisconsin Center for Environmental Education LEAF, WI's K-12 Forestry Education Program, General Education Specialist and Kate Flick, Wisconsin Center for Environmental Education LEAF, WI's K-12 Forestry Education Program, Sustainable Forestry Education Outreach Specialist

Use hands-on kits to explore Wisconsin's forest ecology, health, and products industry. Leverage your students' sense of place to engage them in science concepts.

10:00-11:50

Wisconsin Rocks in Your Classroom- 1 hour 50 minute Workshop MS/HS Earth - Free

M Carol McCartney and Pete Chase from Wisconsin Geological and Natural History Survey

Teachers will practice using the 15-piece Wisconsin rock and minerals kit they build. Materials provided free. Maps, lesson plans, and trading cards included.

Engaging Youth in STEM Education Through the Community Science Approach

1 hour 50 minute Workshop MS/HS Environmental, Pedagogy Any day (25) Free

R. Justin Hougham, Isabelle Herde, Upham Woods Outdoor Learning Center/University of Wisconsin-Extension; John Celley, Tempestt Morgan, Upham Woods Outdoor Learning Center

This presentation will detail how the community science approach, with a focus on learning driven inquiry, enhances STEM learning.

1:00-2:50

Ale, Ale, the Gangs All Here - Other Workshop General, All (25) \$10

Ray Scolavino

It's not a WSST Conference without a talk on Fermentation. Join us for exploring the world of ales, from Scotch Ales to Stouts. Tastings of course.

Leading Implementation of the new Wisconsin Standards for Science

2 hour 50 minute Workshop General Pedagogy T/F/S (60) Free

Kevin Anderson (and likely other members of WSST PD committee, tbd)

Administrators and instructional leaders dig into resources and network around leading work with the new Wisconsin Standards for Science (NGSS)

2:00-4:50

Science and Our Food Supply - Investigating Food Safety from Farm to Table - High School Emphasis

2 hour 50 minute Workshop HS Bio/Life, FACS F/T (15) Free

Tina Henriksen, Plymouth High School

Through hands on activities, this workshop will introduce **high** school teachers to the FDA/NSTA Science and Our Food Supply curriculum. Free curriculum materials provided.

3:00-4:50

An Old Technique in the Modern World: Incorporating Hands-on Chromatography in the Classroom

1 hour 50 minute Workshop HS/College Chem/Engineering T/F/S (20) Free

Oana Martin (Madison Area Technical College), Diana Brandner (Madison Area Technical College)

Experience two hands-on chromatography activities and explore the impact this technique has on our daily lives, from purifying therapeutic proteins to forensics and environmental analysis.

FRIDAY, MARCH 8

8:00-9:50

Evolution for Educators

1 hour 50 minute Workshop MS/HS Bio F/T/S Free Any#

Kathy Van Hoeck

The Teacher Institute for Evolutionary Science helps teachers teach evolution with confidence. Participants will receive a free unit of materials and try out a lab.

8:00-10:50

Watersheds Alive

2 hour 50 minute Workshop MS/General Earth/Environmental F/T/S 25 Free

Liz Sutton, UW-Milwaukee, School of Freshwater Science Deb McRae, UW-Extension, Wehr Nature Center

What's your water address? Learn techniques to explore the Great lakes Basin as well as your local watershed through hands-on activities.

Science and Our Food Supply - Investigating Food Safety from Farm to Table - High School Emphasis

2 hour 50 minute Workshop MS Bio/Life, Chem, Earth, Engineering, Environmental, Physics F/T (15) Free

Tina Henriksen, Plymouth High School

Middle School teachers will explore ways to implement FDA food safety curricula into their science or FACT curricula. Free curricula provided with a focus on hands on activities.

8:00-11:50

Energy Curriculum for Real-world STEM Education

Other Workshop 3 hour 50 min MS Bio/Life, Earth, Environmental, Engineering, Physics, Pedagogy FST (30) \$25

Annie Baker, Wisconsin K-12 Energy Education Program (KEEP)

Explore energy efficiency curriculum and practice using energy audit tools; then make connections to environmental issues, your school's projects and goals, and service learning opportunities.

9-11:50 AM

The climate is changing: Investigating the effects on ponds, lakes, and oceans

Bassam Z. Shakhashiri, Wisconsin Initiative for Science Literacy, Department of Chemistry, University of Wisconsin Madison; Jerry A. Bell, Wisconsin Initiative for Science Literacy, Department of Chemistry, University of Wisconsin Madison"

Engage in hands-on activities and discussion you can use to introduce climate science concepts into the topics you already teach.

"Climate science is complicated, but it is based on fundamental concepts from our more familiar sciences. So the complexity offers opportunities to integrate climate science into teaching the concepts already included in your courses. This workshop is designed to help you see how to fit climate science into what you are already doing. The hands-on activities focus on the properties of water (including phase change, heat capacity, solubility, and acid/base chemistry) and how these properties of Earth's bodies of water are affected by human-caused increases in atmospheric greenhouse gases, especially carbon dioxide, and the resultant global warming. Many of the activities will be directly usable or easily adaptable for use in your classroom. All the written and projected materials will be available to you electronically for use in your classrooms.

9:00-11:50

Investigating Next Generation Science and Engineering Instruction

2 hour 50 minute Workshop E/MS Bio/Life, Engineering, Physics, Pedagogy F/S/T (24) Free

Kathy Huncosky - WestEd (and ?)

Explore what next generation science and engineering instruction looks and sounds like in a classroom. Experience hands-on investigations about the behavior of light.

10:00-11:50

Improv to Improve Science Communication

1 hour 50 minute Workshop General, Science communication F/T/S (50) Free

Anne Lynn Gillian-Daniel, UW- Madison MRSEC

Matthew Stilwell, UW-Madison MRSEC

In this interactive session, science communication professionals will lead improvisation activities and games to help participants increase their creativity, spontaneity, confidence and positive communication skills.

10:00-11:50

It's all about the Energy

1 hour 50 minute Workshop E/MS Physics, NGSS, 5E Model F/T/S (50) \$5

Elaine Gwinn--Shenandoah High School-Indiana

Beth Allcox-New Holstein High School

Todd Hansen-Denmark High School

Energy is a part of our everyday life and an important topic in science. In this workshop we explore ways to teach energy with hands on activities.

2:00-3:50

Investigating Weather and Natural Hazards using Next-Generation Satellite Data.

1 hour 50 minute Workshop MS/HS Earth, Engineering, Environmental F/T/S Free (15)

Scott Lindstrom, NOAA's Cooperative Institute for Meteorological Satellite Studies (CIMSS), UW-Madison
Margaret Mooney, NOAA's Cooperative Institute for Meteorological Satellite Studies (CIMSS), UW-Madison
Tim Schmit, NOAA's Advanced Satellites Products Branch (ASPB), CIMSS
Learn about our newest Geostationary Operational Environmental Satellites (GOES) and how to access and investigate imagery using the free Satellite Information and Familiarization Tool (SIFT).

Breaking BioInteractive: Cancer as an Anchoring Phenomenon

1 hour 50 minute Workshop HS/College Bio/Life Pedagogy/Teaching strategies F/T/S (30) Free

Steven Rogg, Ph.D. | Carthage College | Kenosha, WI
Explore high quality free HHMI BioInteractive instructional resources, including a new release! Experience a popular cancer discovery lesson. Discover how to easily "BioInteractivate" your curriculum!

Explore How We Can Provide Freshwater to Those in Need with Smithsonian Science

1 hour 50 minute Workshop E Engineering F/T/S (24) Free

Bob Friedel
Smithsonian Science for grades 3-5. Find out how this NGSS-based K-5 program takes the stress out of teaching Engineering Design!!

2:00-2:50

Opioid Science: Connecting Chemistry and Biology

1 hour 50 minute Workshop HS/College Bio/Life, Chem, Pedagogy F/T/S (30) Free

Tim Herman, PhD, MSOE Center for BioMolecular Modeling/3D Molecular Designs
Manipulate 3D models of morphine to create heroin and the rescue drug NARCAN and use synapse models to understand the effect of opioids on our physiology.

SATURDAY, MARCH 9

9:00-10:50

The Case of the Missing Babysitter--An Experience in the Science of Criminal Investigation

1 hour 50 minute Workshop MS/HS Bio/Life, General Science/Criminology Sat (25) \$15

Julie Srenaski, Green Bay Public Schools
Ann Mathu, Green Bay Public Schools
Mary Gillis, Green Bay Public Schools
Kathy Fabry, Green Bay Public Schools
Charles Hatfield, Retired

School science often lacks reality. This classroom-tested unit places middle school students in the center of a criminal investigation using scientific inquiry, standard lab procedures, technological resources, organizational skills, and good discipline.

9:00-11:50

Evaluating and Implementing New Instructional Materials using NextGen TIME

2 hour 50 minute Workshop General Pedagogy, C & I Sat (50) \$10

Chad Janowski, Learning Architect, Einstein Project

Kim Lemberger, Time, Talent, and Treasure Hunter, Einstein Project

NextGen TIME provides tools and processes for evaluating instructional materials. Learn how evaluating resources can be a transformative part of a successful NGSS implementation.

Developing the Maker's Mindset

2 hour 50 minute Workshop General Engineering, Pedagogy, Maker Ed Sat (50) \$10

Dennis Rockhill, Makerspace Director, Einstein Project

Fueled by a desire to promote innovation and creativity, the makerspace initiative is spreading. Learn how to cultivate a maker's mindset within your STEM program.

WSST Saturday Afternoon Workshops

This year, we are trying something new. Workshops on Saturday afternoon will be held at Edgewood College from 1-3 pm. Workshops are free, but space is limited. You can pre-register on the registration form.

Environmental Education Workshop

Connect, Explore, Engage: Using Place-Based Learning to Address Standards

The Wisconsin Standards for Environmental Literacy and Sustainability provide support and guidance for integrating environmental education in your classroom. The strands of Connect, Explore, and Engage will serve as the framework for activities in this hands on session. We will unpack the standards and take time to experience what they mean through a sample of Environmental Education activities.

Presenter: Becca Franzen, Wisconsin Center for Environmental Education

Elementary Science Workshop

Using Mathematics and Computational Thinking through Bridges, The Math Learning Center, Unit 8.

The final unit in the K-5 math curriculum, Bridges, is a STEM unit in which students apply math skills learned during the year in a hands-on project. These units explicitly connect to the Next Generation Science Standards performance expectations for engineering. In this workshop you will learn how to support students with an engineering design process and to support students in using mathematics and computational thinking as part of their decision making.

Presenters: Ryan King, Elementary Science Teacher Leader, Madison Metropolitan School District

Sarah Adumat, Elementary STEM Coach, Oshkosh Area School District

Middle School Physical Science Workshop

Don't Fear Physics

How do you respond when a student asks a question that you don't know the answer to? No need to fear! In this workshop, you'll get to explore the fundamentals of Newton's Laws, electromagnetism, sound & light. We'll share with you some of our favorite activities for teaching these concepts and discuss how to build a conceptual understanding of physics at the middle school level.

Presenters:

Rob Young, Physics Teacher, Edgewood High School

Katie Klitzke, former Middle School Science Teacher, Edgewood Campus School

Geoscience Workshop

Analog Models of Groundwater

Learn how to use the sand tank groundwater model. Participate in a session that demonstrates of how this interactive tool shows how water and contaminants flow through different types of materials. You will see groundwater in action and we will discuss how this model could be used in your classroom. Help build a shoe box model in this workshop that will let you model some big ideas in hydrogeology: groundwater comes from precipitation; groundwater flows through the pores between the grains (no underground streams or lakes); and, groundwater and surface water are connected. Take home a list of supplies and a lesson plan so that you can build your own model. Use our model of a karst landscape to see the results of fracture flow (and underground streams).

Presenter: Carol McCartney, Wisconsin Geological and Natural History Survey

Biology Workshop

Using Case Studies to Teaching Biology

Case studies are a great, low-cost way to engage students in scientific inquiry and introduce scientific thinking skills. In this workshop, participants will have the opportunity to do one of our favorite case studies and discuss how we use case studies in biology classes. Resources will be provided.

Presenter: Brenda del Moral, Associate Professor of Biological Sciences, Edgewood College

Chemistry Workshop

Chemical Demonstrations Workshop

Would you like some guidance with using safe, cost-effective chemical demonstrations to instruct and inspire in your classroom? Participants in this workshop, which will take place in the chemistry labs at Edgewood College, will get hands-on experience with preparing and performing chemical demonstrations, as well as tips for using these demonstrations to help students understand chemical concepts.

Presenter: Jim Maynard, Senior Instructional Specialist and Director of the Demonstration Lab, University of Wisconsin – Madison Department of Chemistry