

Science Update

April, 2018



This periodic e-newsletter from the [Minn. Dept. of Education](#) (MDE) is sent to a few email lists, including the [Minn. Science Teachers Assn.](#) (MnSTA) and district/organization contacts. We encourage you to forward this to other teachers and science leaders. Archived editions are at [this MnSTA site](#). See MDE contacts at the end of this document.

Note: MDE does not endorse any resource or event that is not conducted by MDE.

* indicates an item that was not in the previous edition

News

*Science Standards Review Committee application is now available

The application for the Minnesota Science Standards Review Committee is now posted on the [MDE Science page](#). This committee will review current standards and recommend any changes. Committee members will represent teachers, administrators, professors, scientists, business and community. It will have geographic and racial diversity. We especially encourage you to recruit scientists and community members that could make a contribution. The deadline for submitting applications is April 23.

The committee will meet approximately monthly from August through April for full day sessions. Applicants will have to commit to the full schedule of committee meetings. Technical writing teams (mostly teachers) will meet more frequently and likely electronically. The committee schedule and assumptions guiding the committee work are posted at the same site. The review process and considerations are described in a series of articles at the [MnSTA Science Standards page](#). Contact John.C.Olson@state.mn.us for questions.

*Mn Finalists for Green Ribbon Award

The following schools are being nominated for the US Department of Education (US ED) Green Ribbon Schools Awards by the Minnesota Office of Higher Education and the Minnesota Department of Education. They have demonstrated exemplary practices of reducing energy and water consumption, promoting health and wellness, and providing quality environmental education. Their applications were forwarded to the US ED for selection for the national award, which will be announced in May.



- Gustavus Adolphus College, St. Peter
- Moreland Arts and Health and Magnet School, West St. Paul
- North Park Elementary School, Fridley
- River's Edge Academy, St. Paul

*Mn Frameworks Website Upgrade



The [STEM Teacher Center](#) website which houses the *Frameworks for the Minnesota Science and Mathematics Standards* is currently being refreshed for content and functionality. A grant from 3M is paying to bring the operating system of the site up to current software versions and make it handicap accessible. During the upgrade, the registration system is not operating and no content changes are being made.

Chemical Disposal program from the Univ. of Minn.

The [U of Minn. Chemical Safety Day Program](#) is again being offered during the coming spring, summer, and fall months. The program is designed to assist schools in disposing of unwanted chemicals and hazardous waste from science, art, industrial technology, and maintenance departments. The University will travel to your facility to collect the waste. For details and a schedule, contact Robbie Eiker at shuff001@umn.edu or 612-490-3689

Teacher Events and Workshops

*Science and Engineering Practices in Action (SEPA) Workshops

The regional directors of the Minnesota Science Teachers Association (MnSTA) are facilitating introductory workshops on new professional development modules that are intended for local groups of teachers, such as PLCs. The resources for group activities and discussions, including videos of classroom instruction, are delivered online and the group can select members to be facilitators. Most of the events are about two hours in an evening and FREE. Not only will you learn how to use these practices in your teaching, you will network with teachers from your region. Email the contact person for more information.

St. Cloud Area, TBD, karen.bengtson@isd742.org

Moorhead Area, April 13, tschmitt@barnesville.k12.mn.us (TJ Schmitt)

Twin Cities, April 18, Claire.hypolite@mpls.k12.mn.us

For information about implementing these modules in your school or group of teachers, contact lee.m.schmitt@gmail.com.

Engineering is Elementary, April 11 – 13, St. Paul



The Science Museum will be hosting a 3-day Institute for professional development providers to prepare them to facilitate Engineering is Elementary® (EiE) professional development workshops for teachers in their school, district, or state. You'll develop a deep understanding of the pedagogy and structure of the EiE curriculum. And you'll take away a large collection of valuable resources to help you facilitate your own EiE workshops. More information is at this [Science Museum site](#) and this [Eventbrite site](#).

***March for Science, April 14, St. Paul**

Join MnSTA and NSTA for this year's [March for Science](#) at the State Capitol (noon – 2 pm) and satellite cities. [March for Science Minnesota](#) is a non-partisan organization devoted to advocating for science as a tool for the public good and as a guide for the progress and sustainability of society.



***LinkEngineering Video Conversations, April 17, May 1**

These webchats will be live, scheduled, events from 4-5:00pm (EST) with lots of time for Q & A. A copy will be available for viewing on [LinkEngineering](#) and YouTube.

April 17 *Engineering Basics for Prek-12 Educators* with Cary Sneider. Cary was the engineering lead for the NGSS (Next Generation Science Standards) Writing Team. He has deep knowledge of engineering and how it can and should be implemented in PK-12 education.

May 1 *Playful Learning-Making Engineering Fun* with Ann Marie Thomas. Ann Marie co-directs the University of St. Thomas <https://www.stthomas.edu/CEE/> which offers engineering courses for P-12 educators and is a leader in the maker education movement. Her team launched [OKGo Sandbox](#), a collaboration with the OK Go band to provide STEM lessons explaining the band's popular videos.

***From Pinholes to Space Telescopes online workshop, starting April 26**



[From Pinholes to Space Telescopes: How Telescopes Work](#) takes participants through the basics of what optical systems such as cameras, telescopes, and our eyes have in common. This workshop explores the phenomenon of image formation using simple materials through a scaffolded instructional sequence including pinhole viewers, and lenses. The workshop culminates in participants building their own telescope, a Galileoscope, and receiving a class set of 24 shipped directly to their school. Live sessions are April 26, May 3, May 10 and May 29, 9 – 10 pm Central time.

***Climate Change College in the Schools Course Workshop, April 28, Minneapolis**

This workshop describes the content of a freshman-level course on combating climate change and associated laboratory course at the University of Minnesota, to promote them in high schools through our College in the Schools (CIS) dual-credit program.

The course has burgeoning enrollment as students realize that our use of fossil fuels is causing rapid changes in the climate, with consequences that are unimaginable. Beyond convincing students the cause and consequences of our changing climate, this call-to-action course provides them hope and the fundamental knowledge as a tool for enormous opportunities that lie ahead in selecting career pathways leading to meaningful jobs. [Agenda and Registration](#) with information about outstate travel support.

Teaching computer science workshop, June 17-22 + follow-up, Atlanta + St. Paul

Twin Cities PBS (TPT) is currently recruiting teachers to participate in FREE [Code.org professional development](#). This training prepares you to teach computer science courses at your school.

Secondary Teachers can participate in Code.org's Computer Science Discoveries (grades 6-10) or Computer Science Principles (grades 9-12). Teachers do not need a background in coding, math, or science to participate. The PD begins with a five-day, in-person summer workshop in Atlanta, with four additional one-day follow-up workshops throughout the 18-19 school year. If you are interested in learning more, please contact Program Manager Alex Dexheimer at adexheimer@tpt.org

Elementary School teachers can sign up for the no-cost, [one-day professional learning workshop](#) for Computer Science Fundamental courses from an experienced computer science facilitator.

***National Energy Center workshop, June 18 – 21, Bismarck**

The North Dakota Petroleum Council hosts a [Teacher Education Seminar](#) for educators to learn about the oil industry and take projects, lessons, and ideas back to the classroom. The seminar also helps educators relate their geology, geography, math and chemistry instruction to the oil and gas industry and careers. The seminar will be held at the National Energy Center of Excellence at Bismarck State College. The cost is FREE to attend and includes: all course materials; 3 nights lodging on the BSC campus; and most meals in conjunction with the seminar.

Minnesota Minerals Education Workshop, June 19-21, St. Joseph



[The MMEW](#) is a three-day workshop held annually for K-12 earth science educators that offers short courses and field trips focused on the geology and mineral resources of Minnesota. On the first day of the workshop, participants may choose between 9 different short course topics taught by professional geologists, academics, government scientists, and K-12 educators. Many of the courses introduce curriculum ideas for various grade levels. The second and third days of the workshop will involve field trips designed to familiarize participants with the geology and mineral resources in central Minnesota.

Participants will receive a variety of resource materials including rock and mineral samples, lesson plan ideas, posters, maps, videos, and other useful information. Upon completion

of the workshop, attendees will be provided with a certificate of participation indicating total contact hours.

***Teaching in the Outdoor Classroom, June 25-28, Fergus Falls**

The Prairie Wetlands Learning Center is hosting this free [workshop for K-12 teachers](#) concurrently with a biology camp for 5th-6th grade students. Teachers will observe professionals and apply outdoor classroom methods with the youth, outdoors, in a supportive team teaching environment. They will learn innovative ways to use an outdoor classroom and gain knowledge of prairie pothole ecosystems.

Rivers Institutes, St. Croix River June 25-27, Mississippi River July 23-25

Join us this summer as Hamline University's Center for Global Environmental Education (CGEE) presents its acclaimed [Rivers Institutes](#), a FREE, three-day, field-based professional development opportunity for educators, primarily elementary and middle school teachers. Participants receive and explore Waters to the Sea multimedia learning modules.



The Rivers Institutes are designed to increase teachers' science content knowledge and investigation skills and help area educators translate their professional experiences into meaningful, engaging classroom investigations.

* Geo-Inquiry Institute, June 26-28, St. Paul

The Minnesota Alliance for Geographic Education, along with National Geographic will offer a 3-day institute for middle school earth science and social studies teachers based on a new interactive geography education program: The Geo-Inquiry Process.

Geo-Inquiry is a process designed to guide educators and students through the phases of asking and answering geographic/environmental questions in order to make a difference in the world. [The Institute](#) will be at Macalester College and will provide 18 CEUs and a \$100 stipend. For further information contact Dave Lanegran (lanegran@macalester.edu).

Institute for Climate Change Education, June 26-28, Collegeville



Scholarships now Available: Through the contributions of several generous donors, thirty teachers will receive full-registration scholarships and limited funding for lodging and travel. Priority will be given to first-time attendees and grades 6-12 teachers with demonstrated need. [Scholarship Application site.](#)

Join a network of teachers from across the country dedicated to bringing science, critical thinking, and problem solving about climate change into the classroom! Visit the [Climate Generation workshop website](#) for more details and registration.

Astronomical League Conference, July 11-14, Bloomington

[The Minnesota Astronomical Society](#) is hosting this national conference of amateur astronomers will offer several interesting speakers and field trips to observatories and the new Bell Museum Planetarium. A special offering is the Friday night Star-B-Q with live music and viewing through telescopes.

*WaterWorks! A Drinking Water Institute for Educators, Aug 6-8, Rochester

Enrich your water-related curriculum, investigate drinking water quality and chemistry, learn about inquiry-based models for your classroom, and find water resources within your community. This three-day, hands-on workshop allows grade 4-10 science teachers to gather information from expert presenters about how safe, reliable drinking water is delivered to your community, as well as drinking water issues facing Minnesota. Meals and resource binder provided. Choose between two graduate credits or stipend. Join the ranks of over 350 teachers that



have participated in *WaterWorks!* throughout Minnesota over the last 17 years. Funded by the Minnesota Dept. of Health and the American Waterworks Association. [Information and Application](#). For questions, contact Lee Schmitt, lschmitt@hamline.edu.

STEM Equity Institutes at Science House of the Science Museum, St. Paul

Are you committed to making substantive change to improve educational outcomes for each and every student? At Science House, we are too. And we think that you will find that the level of professional development from Science House is unsurpassed. People in our programs consistently report that our intensive planning, attention to detail, and ability to create trusting professional communities are stand-outs in the field. Moreover, we are highly skilled in a variety of adult facilitation techniques, have synthesized research from a variety of fields into powerful PD experiences, and maintain a laser focus on equity, engagement, and relationships.

The programs include

- PAGE Institute for leaders in K-12 education
- RACE Institute for school based teams of educators

For more information and to register go to the [Science House website](#).

Teacher and School Awards and Opportunities

CDC Tomorrow's Disease Detectives, April 26-27, St. Louis MO

The [Centers for Disease Control and Prevention](#) (CDC) is recruiting teachers and education leaders to bring public health into classrooms across the United States and beyond. CDC is partnering with the Association of Schools & Programs of Public Health (ASPPH) to offer three, 2-day Science Ambassador regional training workshops **FREE OF COST**. Learn strategies to teach public health concepts and inspire interest in public health careers.

School Programs and Instruction Resources

***Earth Day resources**

This year the [Earth Day Network](#) is focusing on reducing plastic pollution by Reduce, Refuse, Reuse, Recycle and Remove. From poisoning and injuring marine life to disrupting human hormones, from littering our beaches and landscapes to clogging our waste streams and landfills, the exponential growth of plastics is now threatening the survival of our planet. The network has several resources for teachers and students, including a personal plastic pollution calculator. Earth day is April 22.



***Environmental Education Week resources**

The National Environmental Education Foundation is offering a variety of [resources for Environmental Education week](#) April 23 – 29. They have a new partnership with the National Hockey League to [Play it Forward](#). To encourage hockey fans everywhere to take environmental actions to ensure the sport of hockey thrives now and for future generations, the NHL worked with NEEF to create this [infographic](#) with tips for bringing some of the League's sustainability strategies to your life.

Science Teacher in Space



[Astronaut Ricky Arnold](#) has returned to space, this time for a six-month stint on the [International Space Station](#). A former science teacher, Ricky will be taking part in [NASA's Year of Education on Station](#) initiative, sharing his love of STEM and passion for teaching.

As part of the Year of Education on Station, NASA has also developed [STEM activities](#) related to the station and its role in NASA's journey to Mars. K-16 teachers can do these activities with their students by checking out NASA's website. While on the ISS, Ricky will take part in "[STEMonstrations](#)", educational demonstrations highlighting specific topics—including water. Project WET will be working on a lesson plan to complement some of these resources. NASA has established the hashtag [#TeacherOnBoard](#) to follow for the latest information about ways educators and students can interact with the International Space Station.

Follow Will Steger's 2018 Arctic Expedition, March 21 – June 1

Polar explorer Will Steger, is embarking on a two-and-a-half month solo journey across the Arctic this spring. This is your chance to follow along with Will in your classroom! The impacts of climate change in this region are profound, and Will's weekly dispatches will share observations and reflections on how the Arctic has changed in his 50 years of exploration.



You'll receive two emails per week, including a GIS Story Map detailing his journey, classroom activities, and questions to prompt investigations and discussions in your classroom. For information and to sign go to the [Expedition webpage](#).

International Wolf Center Virtual Fieldtrips

Imagine your student's reaction if they came face-to-face with a wolf! Through two-way videoconferencing, our educators and ambassador wolves will keep your students on the edge of their seats while learning about these mysterious predators in a LIVE [WolfLink program](#) from northern Minnesota! You and your students will see our live wolves in their naturalized habitat. Six different lessons are offered that have been developed by wolf experts specifically for your grade level.

Teachers can also order a [Wolf Discovery Kit](#) – a big box full of hands-on wolf and prey artifacts like bones, fur, and more! For more information email cdavis@wolf.org

Wolf Ridge Field Trips

Bring students to [Wolf Ridge Environmental Learning Center](#) to address science standards and experience adventures in learning outdoors. Our 2000-acre campus overlooking Lake Superior gives students in-depth experiences exploring the lakes, forests, wetlands and streams of northeastern Minnesota.

Recognized nationally and internationally as a leader in environmental education, Wolf Ridge was the first environmental learning center in the nation to be accredited as a K-12 school. Learn how a 3-5 day field trip to Wolf Ridge can help you meet STEM goals and address state science standards.

Student Programs, Awards and Competitions

*Youth Climate Justice Summit, April 25, St. Paul

Middle-, high school-, and college-age youth are invited to join Youth Environmental Activists of MN and partners for the [Youth Climate Justice Summit](#) at the state capitol. Experience first-hand how to participate in government. Meet with Governor Dayton and our MN Senators and Representatives to talk about why you care about climate change and social justice. Join together with youth from across MN to meet each other and discuss how to make change in your communities. Apply for a [transportation stipend](#) for your school group. Need ideas on recruiting a group from your school to attend? Check out our [School Toolkit](#).

STEPS camp for girls, June 11 – 15, St. Paul



Girls currently in grade 6 and 8 are invited by the University of St. Thomas for a FREE one-day camp opportunity. STEPS stands for Science, Technology and Engineering Preview Summer. STEPS is a great opportunity for students to be on a college campus, build on their collaborative teamwork skills, think creatively, and have the opportunity to see and work with new technology. For information go to the [camp website](#).

Minnesota Competitions and Programs

Many competitions, out-of-school programs and field trip opportunities are posted at [the Mn-STEM website](#) and listed in the [Reach for the Stars Catalog of Programs and Activities](#).

MDE Science Contacts:

[Dawn Cameron](#), Science Assessment Specialist
[John Olson](#), Science Content Specialist, @JohnCasperOlson
[Doug Paulson](#), STEM Integration Specialist, @DPaulsonSTEM
[Jim Wood](#), Science Assessment Specialist
Send submissions for the Science Update to John Olson

Other Minnesota Links:

[Minn. Dept. of Education Science Page](#)
[Minn. Science Teachers Association](#)
[Frameworks for MN Science and Mathematics Standards](#)
[Get – STEM](#) Connections between schools and businesses
[Mn-STEM](#) STEM programs and resources for families, schools and community
[Sharing Environmental Education Knowledge](#) environmental education resources
[Minnesota Academy of Science](#): Science Fair, Science Bowl and other competitions
[Mn DNR Education website](#): Curriculum, professional development, posters, etc.