

## Science Update

March 2018



Starting the Science Standards Review

This periodic 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 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 applications available soon

The application for the Mn Science Standards Review Committee will likely be posted on the [MDE Science page](#) on **March 26**. 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 diversity distribution. We especially encourage you to recruit scientists and community members that could make a contribution.

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 will be posted at the same site. The review process and considerations are described in a series of articles at the [MnSTA Science Standards page](#). The deadline for submitting applications is April 13. Contact [John.C.Olson@state.mn.us](mailto:John.C.Olson@state.mn.us) for questions.

### Science MCA item writing

Apply to participate in the process of developing scenarios and items for the Science MCA and receive compensation for your work.

- Attend five required training/work days June 19 (virtual), June 27-28 and July 17-18 in Roseville, MN.
- Work independently on scenario and item writing between June 19 and July 18.
- Edit work independently and submit final Science MCA scenarios and items online before August 17.

#### Benefits

- Collaborate with science colleagues from across the state to create quality assessments that impact 60,000 students per grade.
- Receive training on skills and practices that support strong classroom assessment.
- Receive compensation and Continuing Education Units (CEUs).

To apply complete this short [questionnaire](#) by March 16. For more information contact [jim.wood@state.mn.us](mailto:jim.wood@state.mn.us) or [dawn.cameron@state.mn.us](mailto:dawn.cameron@state.mn.us)

### **\*Chemical Disposal program from the Univ. of Minn.**

The U of M Chemical Safety Day Program is again being offered during the coming spring, summer, and fall months. The program is designed to assist schools and colleges 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](mailto: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.

NE Minn, TBD, [jgagner@proctor.k12.mn.us](mailto:jgagner@proctor.k12.mn.us) (Jenny Gagner)

St. Cloud Area, TBD, [karen.bengston@isd742.org](mailto:karen.bengston@isd742.org)

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

Montevideo, March TBD, [jbrady@montevideoschools.org](mailto:jbrady@montevideoschools.org) (Jeremy Brady)

Twin Cities, TBD, [Claire.hypolite@mpls.k12.mn.us](mailto: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](mailto: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](#).

### **\*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 2018 Code.org 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](mailto: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.

**\*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.

**Driven to Discover: Citizen Science 2018, June 25-29, July 9 – 13, St. Paul and St. Peter**

Immerse yourself in authentic field science with University of Minnesota scientists and deepen your classroom practice for full scientific investigations including analyses and communication. We use established citizen science projects as springboards to engage students in ecology research that inspires unique investigations. Work with scientists with expertise in dragonflies, pollinators, birds and phenology.



\* Week 1: June 25- June 29 (Monday June 25 at University of Minnesota St. Paul campus, 4 days/ 3 nights at Gustavus Adolphus College in St. Peter, MN June 26-June 29)

\* Week 2: July 9-13 University of Minnesota St. Paul Campus

\* School-year meetings and follow-up

You will receive a stipend or credits, field equipment, school-year support, and opportunities for student projects. Go to this [Univ. of Minn. site](#) for more information.

**\*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.

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.

### **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.

### **\*Shipboard Science on Lake Ontario, July 9 -15, New York**

The workshop from the [Center for Great Lakes Literacy](#) begins when you board the ship in Buffalo, NY on July 9th and ends in Youngstown, NY on July 15th. Educators from Great Lakes states who work with kids at any level from 4th through 12th grade are encouraged to apply. Deadline for applications is March 14, 2018.

### **Minnesota Modeling Instruction Workshops, July 9-20, Shokopee**

Shokopee High School will host three different Modeling Workshops this summer:

- Mechanics – Jim Reichling and Eric Gettrust
- Chemistry – LeeAnn Richardson and John Vaden
- Biology – Anita Schuchardt
  - July 16-20 only

Contact Casey Rutherford [crutherford@shakopee.k12.mn.us](mailto:crutherford@shakopee.k12.mn.us). For more information go to the [Workshops website](#) or [Modeling Instruction website](#).

### **\*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.

### **ZOOMS teacher workshops, August 6-9, Apple Valley**

Through the [Minnesota Zoo's Math and Science \(ZOOMS\) Program](#), students and teachers discover just what it takes to engineer a modern zoo.

ZOOM Institute August 6-8: This institute will engage teachers in utilizing animals and the Zoo as a tool to integrate engineering concepts into their curriculum, based on the Minnesota State Science Standards. Sessions focus on Engineering BY Animals, Engineering FROM Animals (biomimicry), and Engineering FOR Animals using hands on activities, zoo staff presentations, and behind-the-scenes tours.



ZOOMS Institute 2.0 August 9: Through expert talks and behind the scenes experiences, see how STEM is being used by field biologists, conservationists, and zoo staff to help protect and conserve species

both in the zoo and in the wild. Learn ways to engage your students in activities that help make a difference within the context of engineering for conservation.

### \* 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.

Having worked with over 40 school districts across five states, several departments of education, governmental agencies, and non-profits, our team is experienced. Our comprehensive program evaluation evidences that our professional development brings about personal and collective transformation. Our work is about making the world more just and engaging the full humanity of people with whom we work and for whom we serve.

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 [this Science House website](#).

## Teacher and School Awards and Opportunities

### Presidential Award for Elementary Math and Science Teachers



Nominate exemplary science teachers (including yourself) for the Presidential Award for Excellence in Mathematics and Science Teaching. This is the most prestigious award in this field and includes recognition activities in Washington DC and a \$10,000 award. **This year, teachers of grades K-6 are eligible to apply.** The application describes content understanding, instructional strategies, assessment practices, professional development and leadership. The process of preparing the application provides professional growth. The application is due May 1. For information go to the [PAEMST website](#).

### 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

### \*Science Teacher in Space



This month, [Astronaut Ricky Arnold](#) will return 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.

### \*Solar Possible Kick-off March 14, Falcon Heights

Solar Possible, a new Clean Energy Resource Teams (CERTs) initiative, is a bulk buy initiative aimed at enabling state agencies, local governments and schools to utilize solar for their own facilities. Collaborative procurement is an effective approach to reduce barriers, learn together, and drive projects to successful completion. This initial effort will be geared toward jurisdictions in Xcel Energy territory.

Attendees will learn more about the opportunity being proposed; how to participate; expected benefits and challenges; and next steps for interested local governments and schools. [Register here](#) and call 612-626-0555 for details.

### \*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 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](#).

### \*School Gardent Grants

The Jeffers Foundation is again offering \$500 [School Garden Grants](#) to schools and organizations interested in "starting" a school garden project during the 2018-19 school year. Applications are due March 9.



### FREE Project Wet book for Minnesota

Minnesota Project WET is offering a new book for educators, *Water Ways: A Minnesota Water Primer and Project WET Companion*. This book is specifically designed for use by classroom teachers, informal educators, and anyone interested in learning about water in Minnesota.

*Water Ways* is a 150 page book with content on water science basics, Minnesota's rivers, lakes, groundwater, wetlands, life in water, human use of water, challenges to water resources, and water

policy. Each chapter includes suggested Project WET Activities, career profiles, classroom activities, field-trip suggestions and resources. You can download the complete book as a PDF file at [this link](#).

### **\*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](mailto:cdavis@wolf.org)

### **\*ExploraDome Water Stories Program**

Teachers of grades 5-8 within 40 miles of the Bell Museum are invited to participate in a pilot for their ExploraDome program Minnesota Water Stories? The pilot includes



- One free school-day ExploraDome visit in April 2018 including 6 sessions
  - At least three (3) classes of grades 5, 6, 7, or 8 will be the pilot groups to receive the 45 minute Minnesota Water Stories presentation.
- Host an event for families, school staff, and/or community members after school to see Minnesota Water Stories, with two showings of 50 people total (25 each) and participate in evaluation of the program

For more details contact Sally Brummel ([sbrummel@umn.edu](mailto:sbrummel@umn.edu)), 612-624-8146.

### **\*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**

### **\*Challenge Students in solving global hunger issues**

MN Youth Institute challenges high school students in researching solutions to global and local hunger issues. Students present this via a 3-5 page paper (due April 10, 2018) and in person on the St. Paul campus of the U of M on Monday May 21, 2018. All students who participate are awarded a \$1000

scholarship to CFANS within the U and are eligible for paid internships, access to the World Food Prize, and global travel.

### **\*Next Gen Engineers, April - May**

[Next Gen Engineers](#) is a 6-week program that meets on Saturday afternoons at The Works Museum. Each session will introduce 6<sup>th</sup> and 7<sup>th</sup> graders to the real world of engineering through fun activities that develop collaboration, persistence, and problem solving. For the Spring Session, the club will meet from 1-4 p.m. on April 14, 21, 28, May 5, 12, 19, 2018. Applications for the Spring Session are due March 29.

### **\*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](#).

### **Materials Camp at U of M, June 19-22, Minneapolis**

The [MN ASM materials camp](#) will provide a hands-on experience into the world of materials science and engineering for students entering their junior or senior year in high school. The four day camp is under the direction of industry and education based “Materials Mentors.” Students receive free meals, tuition, knowledge and entertainment. This is a competitive application process for students with basic knowledge of algebra, chemistry and physics and an interest in applied science. The application is due March 31.

### **EX.I.T.E Camp for girls, July and Aug dates, Bloomington.**



The [EX.I.T.E. Camp](#) (EXploring Interests in Technology and Engineering) is a 5-day summer STEM camp for girls with disabilities who are entering grades 6-9. It’s a fun, dynamic, educational program that provides a supportive environment for girls to focus their abilities in the areas of science, technology, engineering, and math. Camp encourages future engagement with these subjects and helps girls discover the range of possibilities that exist through amazing experiments, activities, and mentors. Campers learn how fun these subjects can be and many make friendships that last beyond camp.

This year’s camp dates are July 30, August, 1, 3, 7 and 9, 2018. Please contact Tina Hanson at [tina.hanson@pacer.org](mailto:tina.hanson@pacer.org) for more information. They are also seeking to fill teacher positions.

### **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](#).

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### **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.