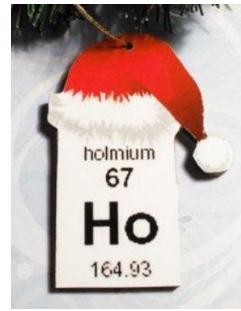




Science Update

December 2017



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This periodic update 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

*MDE Statewide Testing Teacher Newsletter

The Statewide Testing division at the Mn Dept. of Education has a newsletter for teachers. It includes news about new developments in assessments, hints for interpreting data from statewide tests, resources for teaching, and announcements of professional development and test development opportunities. To receive the Teacher Newsletter electronically, email mde.testing@state.mn.us.

Science and Engineering Practices in Action (SEPA)

A new series of Minnesota-developed web-enhanced science professional development modules are now available. These are designed for groups of teachers, such as PLCs or regional groups, to study together ideas for teaching science. The resources for group activities and discussions, including videos of classroom instruction, are delivered online and the groups can select members to be facilitators.

The SEPA modules are developed by Hamline University and are based on *A Framework for K-12 Science Education*, a compilation of current research that will likely influence on our next science standards. The first two sets of modules are available and more will be added during the year.

You can experience the SEPA modules at several free workshops being organized by the MnSTA regional directors. For more information about exploring and using the SEPA modules, contact

lee.m.schmitt@gmail.com

Preparing for the Science Standards review in 2018-19

Starting next summer a standards committee will be review our current standards and recommend any revisions. John Olson has written a series of articles for the MnSTA Newsletter that provide information about the review process and also describe ideas that may influence the next science standards. They are archived at the [Standards page at the MnSTA website](#). Here are direct links to the articles.

1. [When will we get new standards? Will we adopt national standards?](#) (December 2016)
2. [What are science teachers saying about our current science standards?](#) (March 2017)
3. [What new ideas about science learning might guide our next science standards?](#) (May 2017)
4. [What new ideas about science instruction might guide our next science standards?](#) (September 2017)
5. [What new ideas about science assessment might guide our next science assessments?](#) (Jan. 2018)

Note: Timelines that are mentioned in the articles, especially in the first article, are in flux.

Teacher Events and Workshops

***Climate Change and the Mississippi, Dec. 9, Bloomington**

Did you know we have a national park area in the Twin Cities? Attend Climate Generation's one-day workshop at Fort Snelling State Park to discover the science, impacts, and solutions of climate change happening right here along the Mississippi. You will hear from experts working in the field and engage in practical hands-on activities to take back to your classroom. Attendees may be eligible to receive bus stipends to support a climate change field trip for your class to Fort Snelling State Park! [More information.](#)

***Mn Earth Science Teachers Conference, Feb. 2, Plymouth**

Get to know your fellow Earth science teachers from across the state at the Minnesota Earth Science Teachers' Association Annual Conference. Concurrent breakout sessions feature master Earth science educators and noted geoscience professionals. Classroom resources will be given to all attendees. This conference supports the teaching of the MN Earth and Space science benchmarks articulated in the MN Academic Standards in Science. Find out about the keynote speakers, breakout sessions, and possible tours or register via hard copy form [here](#). More information can be found on the [MESTA website](#) as well.

***Project Learning Tree Workshops**

Through a suite of activity guides ranging from early childhood to high school, PLT offers award-winning lessons designed for indoor and outdoor classroom use. Interdisciplinary, hands-on lessons are designed to engage students in math, science, social studies, language arts, art, music, and P.E.



The only way to get PLT is to attend a workshop!

- [PLT K-8](#), Feb 3, Savage
- PLT Online Workshops: [Tremendous \(k-2\)](#), [Early Childhood](#), [K-8](#)

***Schoolyard Gardens Conference, March 2, Chaska**



Schoolyard Gardens provide an incomparable, hands-on opportunity for students to meet academic standards, engage with community partners, learn about agriculture, healthy eating, cultural competency, and connections with natural systems. Whether you are a beginner or schoolyard garden veteran, join us at the Minnesota Landscape Arboretum to learn innovative strategies for sustaining and engaging diverse learners in a thriving schoolyard garden. [Conference Webpage](#).

***Talk Climate Institute, March 12 – 13, St. Paul**

Join Climate Generation: A Will Steger Legacy for this two-day intensive workshop designed to empower people to talk about climate change. Understand the powerful factors that shape opinions, gain the practical skills needed to influence behavior, and inspire commitments to solutions.

Participants will have the opportunity to:

- Learn about climate change and how to decipher credible sources
- Understand what influences people to make decisions and how to communicate effectively to inspire solutions
- Cultivate your own personal climate story and learn how to use it as a tool to build understanding
- Learn about innovative solutions and commit to taking action on the individual and community level

More information at [this link](#).

***Amazon Rainforest Workshop, July 1-11, Peru**

Scholarship and grant funding is available for the Educator Academy in the Amazon Rainforest. This is a cross-curricular workshop for formal science educators. Highlights include:

- Service Learning “sustainability” Global Education
- A specialized track for HS bio and environmental science educators featuring field work with the indigenous community
- Citizen science projects and field research
- Rainforest canopy walkway



Get details at [this website](#).

***CDC Public Health Fellows, July 16-20, Atlanta**

The Centers for Disease Control and Prevention (CDC) is recruiting teachers and educational leaders to bring public health into middle and high schools across the United States and beyond. Selected fellows tour CDC's state-of-the-art facilities and work with CDC scientists to design innovative lessons using today's emerging public health topics. Apply now by January 15, 2018. For more information, visit the [program's website](#).

Teacher workshops at The Works Museum

The Works Museum offers professional development for elementary educators. Learn engaging ways to facilitate collaboration, creative problem solving, spatial thinking, and other engineering habits of mind

with students. These workshops introduce teachers to the engineering requirements in Minnesota's STEM standards and offer experience with hands-on engineering design challenges for the classroom. [Click here](#) for more information.

Teacher and School Awards and Opportunities

***Green Ribbon Schools Award, Webinar Dec. 18**

After a long delay the US Department of Education announced that it will again offer the Green Ribbon School Award for 2018. This award honors Pre-K-12 schools, districts, and higher education institutions that have accomplishments in all three of the following pillars:

- reducing environmental impact,
- improving health and wellness and
- providing effective environmental education.

Applying for the award helps the school community analyze and set goals for energy and water usage, waste reduction, nutrition programs, environmental instruction and other sustainable practices. The revised deadline for Minnesota applications is March 7. The application and further information are posted at [this site](#), although the applications have the previous schedule of dates. They will be replaced soon with the correct dates. For more information and to indicate your interest in applying, contact John.C.Olson@state.mn.us.

A webinar with information about the award and the application process will be **Monday Dec. 18, 12 pm**. Contact John Olson for login information.

Presidential Award nominations and applications are now available.



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](#).

***Summer Outdoor Recreation Teaching**

The Outdoor Recreation School of the Three Rivers Park District is seeking enthusiastic, professional and adventurous teachers with outdoor recreation experience to apply for Seasonal Outdoor Recreation Educator positions. Recreation Educators work with a diverse range of groups including summer camps, youth agencies, social clubs, adults and families. Contact ann.schinas@threeriversparks.org for more information.

School Programs and Resources

*Lights, Camera, Action for Antibiotics Video Contest

The Minnesota Department of Health invites Minnesota high schools and youth programs to help increase antibiotic awareness through the Lights, Camera, Action for Antibiotics Video Contest. Students will produce a 30-second video to spread the word about antibiotic resistance and good antibiotic use in human health care. MDH will purchase up to three winning videos to be used in public outreach initiatives. More information at this [MDH page](#). The deadline is December 22.



*International Wolf Center Virtual Fieldtrips – WolfLink Programs

Imagine your student's reaction if they came face-to-face with a wolf! Through two-way video conferencing, our educators and ambassador wolves will keep your students on the edge of their seats while learning about these mysterious predators in a LIVE program from northern Minnesota! You and your students will see our live wolves in their naturalized habitat while meeting interdisciplinary state and national education standards. 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 wolflink@wolf.org or call 218-365-4695, ext. 124.

*ExploraVision Competition

If you've been considering adding more project-based learning in your classroom, think about participating in ExploraVision, the world's largest science K-12 competition. Not only does it give your students an exciting, hands-on learning experience to develop new technology, but teachers who coach an ExploraVision team can use it as an opportunity to work toward the goals of the Next Generation Science Standards by engaging students in problem solving and critical thinking.



All it takes is a teacher sponsor like you to encourage your students to participate and win prizes for their scientific innovations. More information is at the [Exploravision website](#).

*Clean Tech Competition

The Spellman High Voltage Electronics Clean Tech Competition is a unique, worldwide research and design challenge for pre-college youth. The program encourages scientific understanding of real-world issues and the integration of environmentally responsible energy sources. Each year, the Clean Tech Competition addresses an issue that is grounded in core technological competency areas and focuses on the next great engineering challenges. The competition is designed to foster a deeper understanding of STEM (science, technology, engineering, and math) related concepts, recognize outstanding talent, and prepare the next generation of globally competitive innovators.

The challenge for 2018 is “Solving Climate Change” and this will allow for a wide variety of problems and solutions. Any High School student 15-18 years of age is eligible to participate in teams of 1-3 people. There’s no registration cost; there’s a chance to win \$10,000 and a professional mentor! Visit the [competition website](#) for more details.

*Show Us your Mussels Challenge

High School students create original digital media campaigns to inform the public about the impact of water quality on native mussels. The school group that gets the message out to the most people will receive a FREE field trip to the Minnesota Zoo including bussing, admission, parking and interactive sessions with our Mussel Conservation staff.

The project is designed to meet state standards related to both Science and English Language Arts as well as the International Society for Technology in Education (ISTE) standards. Register by December 15, 2017 to receive more details. To register [click here](#) and complete the form at the bottom of the page.

Female STEM Role Models

SciGirls from TPT (Twin Cities Public Television) has produced a dozen video profiles of females in STEM careers that could be used in instruction and other activities. These engaging videos feature women in various careers from chemistry to aviation to welding. They are available at this [SciGirls website](#). These and many other women in STEM have a searchable biographical profile at the [FabFems website](#). There you can make contacts for classroom visits, video conferencing, or even lab visits.

Student Programs, Awards and Competitions

*National Youth Science Camp – Inform your Seniors

Two Minnesota students completing their senior year will spend three weeks in July in the mountains of West Virginia with **all expenses paid**. They will interact with students selected from all states and several countries as they explore many science topics, meet prominent scientists and collect field data. In addition they will have selections of canoeing, horseback riding, camping and other recreational activities. Teachers should encourage students with leadership qualities, an interest in science, and a love of the outdoors to apply. There are often few applicants. This award is coordinated by MDE. For information go to [this site](#) or contact john.c.olson@state.mn.us. The deadline is March 1.



***Minnesota Scholars of Distinction**

This Minn. Department of Education program nurtures and recognizes distinguished achievement by highly motivated, self-directed students. Each specialty area was developed through partnerships of educators, the business community and others. Students may apply for Scholars of Distinction Awards in Leadership, Mathematics, Science, Social Studies, and Theater Arts. All applicants must complete the Intent to Apply Form, available October 16 to December 16. For information about the criteria, timelines and application process for a 2018 award, [visit the Scholars of Distinction page.](#)



***Science of Agriculture Challenge**

Do you have students with strong interests in STEM, including bio energy, design, robotics, machinery, forestry, invention, structures, food security, materials, natural resources, geography, water quality, conservation, engineering, economics, food science, animal health, habitat, or any other food, fiber, agriculture or natural resources related subject?

Through the University of Minnesota Extension Center for Youth Development and Minnesota 4-H, youth in grades 6 through high school in teams of 3-5 (any age combination) can participate in the project-based Science of Agriculture Challenge. Winning team members can win up to \$1000 each in scholarships, and all teams will attend the Challenge event to be held at the University of Minnesota in June. More information is at [this link](#).

ACCESS STEM Scholarships

High achieving, low income students can receive scholarship of up to \$9000 for STEM study at St. Cloud State University and four partner community colleges. This NSF funded program also provides academic support services and help with career pathways, internships and jobs. Information is at this [SCSU website](#).

***Science and STEM Competitions**

This is the time of the year to organize your teams and inform your students.

- [Science Bowl](#),
- [Science and Engineering Fair](#),
- [Science Olympiad](#),
- [FIRST Robotics](#)
- [FIRST Tech Challenge, FIRST LEGO League, and Renewable Energy Challenge](#)
- [NSTA student competitions](#): Bright Schools, eCybermission, ExploraVision

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.