

## Science Update

April 2019



Was the Bell Museum's Woolly Mammoth stolen on April 1st?

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 – Current status

The work of the Science Standards Review Committee is moving towards its goal of having the final draft completed by late May. In March the committee evaluated the feedback on the second draft from 470 responses on the feedback survey and about 50 email submissions, in light of the committee's goals for the standards. They decided to continue the organization of benchmarks for middle and high school that was in the second draft. They are currently using the comments to revise language of the standards and benchmarks to improve the progression of Practices, Core Ideas, and Crosscutting Concepts and to gain consistency.

At their most recent meeting, the committee decided to recommend to rulemaking that there be a four year period phase-in period so that the full implementation of the standards and the change in the MCA exam would occur in 2022-23.

The second draft of the science standards and information about the standards revision process is at the [MDE Science webpage](#). A series of articles on the science standards development, including the recent committee decisions, is at the [Minnesota Science Teachers Association standards page](#).

### Science Test Specifications Development

This summer the MDE assessment division will start the first steps toward designing the new MCA exam to reflect the new standards. They will train a group of teachers to be writers of test items to assess the three dimensions included in the new standards. That information will also be valuable for designing classroom assessments. Teachers and leaders are also needed to design the test specification. If you are interested in being involved in either activity, contact [Jim.Wood@state.mn.us](mailto:Jim.Wood@state.mn.us) or [Judi.Iverson@state.mn.us](mailto:Judi.Iverson@state.mn.us)

### \*Give your used textbooks a second life, in Africa

Your used textbooks and other books can help stem the drought of books in African schools and libraries. Books for Africa, based in St. Paul, collects, ships and distributed books to students of all ages. As a general guideline, books should be less than fifteen years old. You may drop off books at their St. Paul warehouse or ship them to the Atlanta warehouse. [Learn more.](#)



## Teacher Events and Workshops

### Green Schools Conference & Expo, April 8 -9, St. Paul



This national event brings together all the players involved in making green schools a reality. And it is coming to the River Center in St. Paul. This year GSCE is co-located with IMPACT, the leading event for sustainable development in the Midwest. The conference offers engaging educational sessions, case studies, hands-on workshops and lectures from today's green school experts. GSCE provides an unmatched opportunity for green school advocates nationwide to collaborate and learn from one another — all with a vested interest in making a positive difference in our children's futures. Check out the

[conference website.](#)

Here are an associated event.

- **Friends and Family Gathering**, April 7, Kick-off the Green Schools Conference and Expo by spending an evening with green schools friends and colleagues from across the country. A casual, buffet-style dinner will be served 5:45 – 8:00 pm. [RSVP link and info.](#)

### NSTA National Conference on Science Education, April 11-14, St. Louis



Astronaut Scott Kelly, who spent a year in space, is the keynote for the annual National Science Teachers Association conference. Hear from the leading researchers and practitioners of science education as they present engaging session. Learn teaching strategies that will support Minnesota's next science standards. Explore the very large exhibit area and look for instructional materials. Network with teachers from across the country and enjoy social events. This year the national conference is nearby and affordable.

.Strands

- Three-Dimensional Grand Slam
- Jazzing Up Science with Cross-Curricular Connections
- Phenomena: Gateway to Learning
- Confluence of Equity and Education

Featured Speakers

- Equity and Science Education
- Placed-based Phenomena
- Unlocking the Power of NGSS (Paul Anderson)



## Highlights

- NGSS@NSTA Forum focusing on instructional materials - Friday
- Three dimension instruction share-a-thon – Saturday
- Elementary Extravaganza
- Meet me in the Middle
- Linking Literacy Event

Click here for the [conference preview](#).



### **\*Girl's STEM Institute, April 23, 2:30 PM, Online**

From the earliest age, Girls of Color should have their intelligence affirmed, brilliance celebrated, and interest in STEM cultivated. Equity Fellow Dr. Crystal Morton has provided such a space for the last five years. This unique virtual roundtable features a discussion with Girls STEM Institute participants and their parents/caregivers about the impact of the program has had on their lives. [Information and Registration](#)

### **\*Bell Museum Educator Open House, May 8, St. Paul**



We welcome educators and their families to join us for a FREE evening (6 – 8 pm) at the Bell celebrating National Teacher Appreciation Week. You'll get the whole museum experience at our building-wide open house! Explore our galleries, meet with our education team, and have some fun. Also check to see if the reported theft of the Woolly Mammoth on April 1 is true.

- Preview new labs, gallery experiences, and planetarium shows.
- Learn more about our specimen loan program, our ExploraDome traveling planetarium, and key program changes to meet new 2019-20 science standards.

[Information and registration](#)

### **\*Develop a Food Chemistry Course, May 15, St. Paul, and June 10 – 11, Willmar (tentative)**

MDE is looking for two person teams of a chemistry teacher and either a FCS or agriculture teacher from about six high schools to develop a chemistry course with a foods context that could meet the chemistry graduation requirement. Teams will receive funding for stipends and travel to participate in the work. Activities will be piloted next year and the course will be published for the following year. The application comes out April 5, there is an explanatory webinar on April 8, and the application is due April 25. To receive the application contact [john.c.olson@state.mn.us](mailto:john.c.olson@state.mn.us) or [maxine.peterson@state.mn.us](mailto:maxine.peterson@state.mn.us).

### **MN Codes Summit, May 16, Minneapolis**

Join us for a day of hands-on sessions that explore ways to empower ALL learners by integrating computer science, coding, and computational thinking into a variety of curricular areas, from K-12! The event will be 9 am – 4 pm at the University of Minnesota. The keynote speaker is Joan Freese of TPT/SciGirls. [Learn more](#).

### **Native Skywatchers Educators Workshop, June 10 - 11, Cloquet**

This two-day workshop at the Fond du Lac Tribal and Community College is designed for all educators & persons interested in increasing their knowledge of Ojibwe and D(L)akota Star Knowledge. A new focus this year will include: Earth and Sky, and interdisciplinary STEM connections. The workshop includes multiple hands-on activities so participants will be able to experience the culture and the science in the most authentic and meaningful way possible. [Learn more here](#).



### **\*Agriculture in the Classroom Teacher Tours, various dates and locations**

The Summer Teacher Tours are a fantastic opportunity to get first-hand experience with agriculture and explore FREE ag-themed, standards-based resources. We would love to have you join us for one or more tours this summer! [Learn more.](#)

**June 12: Feed, Seeds and STEM Teacher Tour in Carver County:** Stops include: dairy farm, seed company, Bongards Creamery

**June 27-28: Redwood and Renville County Teacher Tour:** Stops include: Grandview Valley Winery, Stony Creek Farm, The Shrimp Shop, Hilltop Harvest, Tiffany Farms Inc, Gilfillan Estate

**July 11-12: STEM in Agriculture Teacher Tour in Martin and Brown Counties:** Stops include: Avery Weigh-Tronix, Christensen Farms (Research Farm), Morgan Creek Winery, Eversman Farms (Solar Farm), Patsche Farm (Drone, GPS and other technology)

**July 30: Farmamerica Hands-on Learning with Hops and Hemp Teacher Tour in the Waseca area:** stops include: Farmamerica, Half Pint Brewery, Midwest Hemp Farms greenhouse, hops field, hemp extraction site

### **\*Teaching in the Outdoor Classroom Workshop, June 17-20, Fergus Falls**

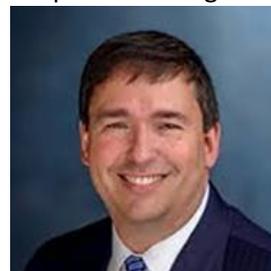
Explore innovative ways to use an outdoor classroom during this preK-12th immersion workshop at the Prairie Wetlands Learning Center. It is held concurrently with the Summer Explorers Biology Camp for youth entering 5th and 6th grades. Observe professionals and apply outdoor classroom methods by leading the same youth daily, outdoors, in a supportive, team-teaching environment. [Learn more.](#)

### **Green and Sustainable Chemistry Workshop, June 18-20, Minneapolis**

The Center for Sustainable Polymers in partnership with the Minnesota Corn Growers Association are offering a FREE three-day workshop at the University of Minnesota to high school chemistry teachers on green and sustainable chemistry. The workshop was developed through the University of Minnesota Materials Research Science and Engineering Center (MRSEC) Research Experiences for Teachers (RET) program. A stipend, graduate credits and lab materials are available. Applicants from across the state of Minnesota are welcome. Applications are due March 15. [Learn more.](#)

### **\*Gifted and Talented Symposium, June 18 – 20, Austin**

The annual Hormel Foundation Gifted and Talented Education Symposium provides an opportunity for educators, counselors, administrators and parents to gain greater understanding of the unique needs of gifted and high potential learners. Participants attend in-depth sessions focusing on foundational knowledge, creativity, curriculum strategies, and social/emotional needs of gifted and high potential learners provided by the field's finest regionally, nationally and internationally recognized presenters. All are welcome to register and attend the symposium



The keynote speaker this year is Stephan Pruitt, who is well-known as the leader of the Next Generation Science Standards development. His inspiring presentation is *What 4 Words Changed Your Life?* (and the lives of the many students teachers change every day.) [Learn more.](#)

### **Minnesota Minerals Education Workshop, June 18-20, Grand Rapids**

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. The workshops have been held in various locations throughout Minnesota since its inception in 1997. The workshop is organized by the Minnesota Center for Mineral Resource Education. [Learn more.](#)

### **\*Implementing Integrated STEM in the Classroom, Minneapolis**

The NSF funded grant, *Design and Development of a K-12 STEM Observation Protocol*, includes a professional development program engaging teachers in learning how to implement integrated STEM in their classrooms. In a 5-day summer institute, teachers learn models and strategies for STEM integration through participation in model STEM activities, and are given opportunities to develop their own STEM units. In the 2019/2020 academic year, each participant will teach two integrated STEM units. These lessons will be observed and videotaped. Teachers will have the opportunity to reflect on their STEM teaching through classroom coaching sessions using their classroom video facilitated through a STEM observation protocol tool. The benefits include a stipend and a budget for classroom materials. The summer institutes are

- Elementary teachers: June 24 - 28
- Secondary teachers: July 29 – August 2

To register, contact Gillian Roehrig at the University of Minnesota, [roehr013@umn.edu](mailto:roehr013@umn.edu)

### **Become a SciGirls Strategies Trainer, June 25 – 28, St. Paul**

Twin Cities PBS (TPT) invites schools and school districts across Minnesota and Wisconsin to participate in *SciGirls Strategies: Gender Equitable Teaching Practices in CTE Pathways for High School Girls!* This National Science Foundation -funded Train-the-Trainer program provides high school-level Career and Technical Education and Science, Technology, Engineering, and Math teachers and district leaders a FREE four-day workshop on employing gender-equitable teaching strategies with the goal of attracting and retaining more female students in CTE/STEM classes.

This course will be held at Twin Cities PBS (TPT) studios in St. Paul and trains participants to provide professional development. Transportation and lodging will be reimbursed along with a stipend and funding for implementation. For more information contact Alex Dexheimer, [adexheimer@tpt.org](mailto:adexheimer@tpt.org).

### **Rivers Institutes: St. Croix, June 24- 26; Mississippi, July 22-24**



Join us this summer as Hamline University's Center for Global Environmental Education (CGEE) presents its acclaimed Rivers Institute, a FREE, three-day, field-based professional development opportunity for educators.

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. [Learn more.](#)

### **ArcGIS Mapping Training, July 20 and 27, online**

Geographic Information Systems (GIS) helps people understand the world and make informed decisions. Teachers Teaching Teacher in GIS (T3G) is for educators committed to helping other educator use GIS The T3G focus is on teaching and learning -- not "how to do GIS better" but "how to help other educators grasp why and how to teach with GIS, and how to learn more." The T3G training is two days (4 hours each) of synchronous interactive online training from ESRI the leading provider of GIS resources for education and industry. [Learn more.](#)

### **ChemEd Conference, July 21 – 25, Naperville, IL**

Join hundreds of people who love chemistry and STEM education at North Central College for [ChemEd 2019](#). Registration is [now open](#). This is your chance to connect and share ideas, discover and learn new labs and activities, and network with other science educators. The 2019 ChemEd Conference will be applicable for STEM educators from K-12 and college.

### WaterWorks! A Drinking Water Institute, August 5-7, Oakdale

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 400 teachers that have participated in *WaterWorks!* throughout Minnesota over the last 18 years. Funded by the Minnesota Dept. of Health and the American Waterworks Association. [Learn more.](#)

### Summer Institute for Climate Change Education, August 5-7, Washington DC



Climate Generation has offered the [Summer Institute for Climate Change Education](#) for the past 14 years as a way to give educators the tools and confidence to integrate climate change into their classroom. This summer, we are focusing on integrating climate change into social studies, humanities; and ELA at our Summer Institute in Washington D.C. August 5-7. We are so lucky to have partners Frank Niepold, NOAA's Senior Climate Education Program Manager, and Natalie Stapert of the Lowell School helping us plan a fantastic agenda. [Registration](#) is open and [scholarships](#) are available.

### Minnesota Zoo: ZOOMS INSTITUTE for Teachers: August 5-8, Apple Valley

See the Zoo in a whole new way! This four day workshop 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. Through hands on activities, expert talks and behind the scenes experiences, see how STEM is being used by aquarists, conservationists, and zoo staff to help care for and conserve wildlife both in the zoo and in the wild. [Learn more.](#)



### Code.org Computer Science Workshops, St. Paul

Designed to support middle and high school teachers before and during their first year teaching [Computer Science Discoveries](#) or [Computer Science Principles](#), the Code.org [Professional Learning Program](#) begins with a five-day, in-person summer workshop followed by four additional sessions throughout the year. Best of all? No previous experience teaching computer science is needed.

We welcome elementary school teachers to sign up year-round for our no-cost, high-quality [one-day professional development workshops](#) for Computer Science Fundamentals courses from an experienced computer science facilitator.

Full scholarships are available for all Minnesota teachers. Contact [Hadi Partovi](#) for details.

## Teacher and School Awards and Opportunities

### Presidential Award for Mathematics and Science Teaching

Celebrate great teaching! Nominate a colleague or yourself for the Presidential Award, which brings state and national leadership opportunities and \$10,000. Two teachers from each state receive this award from the White House. This year applications are sought from secondary teachers with a deadline of May 1. [Information and nomination site.](#)



School Celebration for Jim Schrankler

## School Programs and Instruction

### \*Climate Education Week, April 15 – 20

The Earth Day Network is provides Climate [Education Week resources](#) which includes a range of curricula, lesson plans educational activities, and video. The [Toolkit for 2018](#) is a web-based, cross-disciplinary resource coordinated with the network's End Plastic Pollution campaign.



Climate Generation: a Will Steger Legacy offers a suite of grades 3 – 12 [curriculum resources](#) in the form of curriculum guides, as well as online modules that can be downloaded for free.

### Wolf 10, videoconference

My, what big ears you have! Join us as we look at the physical and social adaptations wolves use to survive in their environment. Students will be given an opportunity to observe our ambassador wolves utilizing these amazing tools. This is one of six videoconferencing programs offered by the International Wolf Center. They also offer a Wolf Discovery kit for classroom use. [Learn more.](#)

### Eyes on the Wild: Citizen Science for your classroom:



Research scientists at the U of M are trying answer a number of biological questions such as "whether simulated wolves induce a behavioral response in prey that is strong enough to trickle down and affect plant and soil communities" using the Cedar Creek Ecosystem Science Reserve in East Bethel, MN as their laboratory. To answer questions like this, they have divided the reserve up into a grid and placed trail cameras throughout the property to capture wildlife activity. They have enlisted the help of citizen scientist volunteers to go through the hundreds of thousands of pictures that have been taken and help them identify the wildlife in the pictures.

Click here if you would like to get involved in [this project](#), or other similar citizen science projects on the [Zooniverse website](#).

## Student Programs, Awards and Competitions

### \* Youth Climate Convening

The Climate Generation high school leadership teams have been working together for seven month in three Greater MN communities, learning about climate change and planning a convening on local solutions. Now, they're inviting you to join them! All events are free to attend, and all are welcome. No pre-registration required.

- [Forest Lake](#) | April 11, 3:00–5:30 p.m. Featuring MN climate scientist Sam Potter and youth storytellers, and workshops with the Cedar Creek Ecosystem Reserve and Apex Energy Solutions.
- [Fond du Lac](#) | April 12, 12:00–2:30 p.m. Featuring Fond du Lac Elder Rickey Defoe, Water Protection Coordinator Nancy Schuldt, and youth leader Cassie Defoe. Solutions workshops with Journey Garden, Lake Superior National Estuary Research Reserve, and Water Bar and Public Studio.
- [Red Wing](#) | April 25, 6:00–8:00 p.m. Featuring climate storytellers and local organizations and individuals offering ways to engage in climate change solutions.

### \*STEM Justice Innovation Design Challenge

Calling all artists, engineers, and innovators ages 14-25 who are passionate about social justice! Here's your chance to design a solution to a global issue related to water quality, variability, or scarcity. Enter the first annual STEM Justice Innovation Design Challenge hosted by the Kitty Andersen Science Youth Center for a chance to win \$1,000 and recognition at the Science Museum of Minnesota's Youth Science Day!

Six finalists will be awarded \$200 to create their proposed art piece, which will be displayed at the Science Museum. The grand prize will be \$1000. Submit a written proposal of your art piece by May 1. [Learn more.](#)

### \*Robot Day at the Works Museum, April 13



Every April, The Works Museum participates in National Robotics Week with a special day of robotics fun. Kids and families interact with robots of all shapes and sizes, as well as meeting engineers and students who build, program, and compete with their robots. Learn about how robots are used to teach, do science, and complete tasks with kid-friendly demos. Some of the robots can even be maneuvered by the kids! [Learn more.](#)

### Lake Superior Youth Symposium May 16-19, Duluth

Youth in grades 8-12 will experience the science, art, culture and challenges of protecting one of the greatest bodies of freshwater on the planet - Lake Superior. Activities will include hands-on workshops, research, field trips in the Duluth area, dynamic speakers and a final night pizza party and dance at the Great Lakes Aquarium! Internationally known speaker and 2013 CNN Hero Chad Pregracke is slated for the keynote address to talk about his career cleaning up rivers which started when he was 17.

Start planning now for your group to come to UMD and be part of this amazing experience. The registration fee is \$200 per participant and includes housing meals and activities. Scholarships to low-income students will likely be available. Visit the [symposium website](#) for more information

### \*EX.I.T.E Camp for Girls, July 29, 31, Aug. 2, 6, 8, Bloomington

EX.I.T.E. (EXploring Interests in Technology and Engineering) Camp at the PACER Center is a free summer STEM camp for middle school girls with disabilities. Camp encourages future engagement with STEM 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. Application deadline is May 31. [Learn more.](#)

### Science and Engineering Competitions

- [Minnesota Science Olympiad](#)
- [Science and Engineering Fair and Science Bowl](#)
- [FIRST Lego League, FIRST Tech Challenge, FIRST Robotics](#)
- [Supermileage Challenge](#)
- [Real World Design Challenge](#)
- [Toshiba/NSTA ExploraVision](#)
- [NSTA Angela Award](#) – girls grades 5 – 8
- [MN Scholars of Distinction](#) – high school
- [National Youth Science Camp](#) – two Minnesota Delegates



### Minnesota Programs and Competitions

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:

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[Jim Wood](#), Science Assessment Specialist  
[Judi Iverson](#), 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.