

## Science Update

March 2019

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.



Going to the Arch

NSTA's closest national  
conference in several years

**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

### Write items for the MCA Exam

We would like to invite you to apply to be part of *Building Capacity for Science Assessment: Science MCA-IV Item Writing Workshop* in the summer of 2019. The workshop will be 5 days total, starting with a virtual training on June 14 followed by in-person meetings on June 26-27 and July 15-16. Approximately 15-20 additional hours may be needed to complete the item writing assignments.

This item writer workshop is intended to train and support educators as Science MCA-IV writers using new 2019 Minnesota science standards. Emphasis will be given to unpacking the new standards and the writing of one cluster of items based on a phenomenon. In addition to providing training in assessment development and literacy, this workshop includes time for collaboration and feedback from your peers.

If you are interested in being part of this MCA-IV item writer workshop this year, contact us for more information or enter your information by March 15, 2019 at this location <https://www.surveymonkey.com/r/L3PJ9ND>. If you have colleagues that might be interested in participating, please share this information. For more information: [Jim.wood@state.mn.us](mailto:Jim.wood@state.mn.us) [Judi.iverson@state.mn.us](mailto:Judi.iverson@state.mn.us)

## Teacher Events and Workshops

### \*A curiosity-Driven Approach to Teaching K-12 Science, Online course starting March 13

This [online course](#) from PBS Teacher Line, explores ways to maximize young children's science knowledge and understanding – helping them to think, act, and talk like the scientists we know they are! Through this highly collaborative six week course, you will develop a firm understanding of inquiry-based, vocabulary-rich, connected learning, and culturally relevant approaches to build upon children's natural curiosities and strengthen their knowledge of essential concepts in the Next Generation Science Standards

### **\*Webinar: Thinking Scientifically in a Changing World, March 14**

The National Association of Geoscience Teachers (NAGT) is presenting a free webinar at 3 PM Central to help students evaluate connections between evidence and explanations of phenomena. [Information and registration.](#)

### **\*Terrestrial Project Wild, March 30, St. Paul**

The Terrestrial WILD and TAO (Taking Action Opportunities) workshop is a one day professional development day that includes the involvement of Professor Dawn Tanner and her expertise in using remote camera traps to ignite curiosity in phenomena based learning and connect learners to nature. It also includes a tour of the Scientific Specimen Research Collections where teachers will see some of the University of Minnesota's most extraordinary and exotic natural history specimens.

Participants will receive:

- Project WILD K–12 activity guide
- Minnesota WILD supplement
- Great resources and door prizes

This workshop is at the new Bell Museum 8:30 – 3. [Learn more.](#)

### **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.](#)



### **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.](#)

### **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.](#)



### **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.](#)

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

### **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.](#)

### **Geosciences Teacher Leadership Academy, July 7 – 12, Houston TX**

The academy will provide K-8 teachers with Earth science content, hands-on activities, educational resources, and real-world science experiences that they can use with their students in the classroom and with their colleagues in professional development settings. The program will be residential in Houston. Academy-related travel, lodging, and subsistence costs will be reimbursable through a grant from ExxonMobil. School administrators can nominate one teacher or teams of two to four teachers by emailing nominee names and email addresses to [jmcrowell@americangeosciences.org](mailto:jmcrowell@americangeosciences.org) using the subject line "K-8 Teacher Leadership Academy Nominee(s)"

### **\*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 Presidential Award, which brings state and national leadership opportunities and \$10,000. Two teachers from 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.](#)



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each

School Celebration for Jim Schrankler

### Outstanding Biology Teacher Award

The National Association of Biology Teachers (NABT) recognizes an outstanding biology teacher from each state. Nominees do not have to be members NABT. In addition to an application form, nominees will be asked to submit a video of their classroom teaching, an essay, and four letters of recommendation. For more information, go to the [NABT Awards website](#), download an [application form](#), download [video suggestions](#), or contact Jim Lane ([jim.lane@isd832.net](mailto:jim.lane@isd832.net)), Life Science Instructor at Mahtomedi High School. The deadline is March 15.

## School Programs and Instruction

### On-line AP Physics Course

This is an opportunity for high schools that are not offering Advanced Placement physics to enroll at no charge 1 – 8 qualified student in this AP Physics 1 program. Boston University and West Virginia University are seeking partner high schools for the National Science Foundation funded program called Project Accelerate. For further information have the building administrator contact Mark Greenman at Boston University [greenman@bu.edu](mailto:greenman@bu.edu)

## 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

### \*Discovery Days: Women in Science, March 9, Minneapolis

Youth, families, and adults are invited to the Bakken Museum 11 am – 3 pm to meet women working in the STEM field doing everything from conservation biology to genetics. The day will feature hands-on activities and education opportunities included with the cost of museum admission.

Attendees will be able to build their own model DNA molecule, learn how to track animals with radio telemetry, listen to book readings, and explore a soil station, and so much more! [Learn more.](#)

### \*Tech for Girls Club: Mad Scientist: All about Chemistry, March 16, Bloomington

Girls will become mad scientists in this Tech for Girls workshop! Join us to learn about chemical reactions, molecules, and atoms through hands-on experiments. Girls will also get to create slime! This is an activity of the PACER Center, for girls with disabilities, ages 11 – 18. [Information and registration.](#)



### \*Talk Climate Institute, March 25-26, Duluth

Climate Generation is hosting a two-day engaging workshop where you'll learn new ways to have conversations about climate change that build respect and understanding. Discover your own personal climate story, and learn how to use it as a tool to inspire solutions.

You do not need to be an expert on climate change in order to be a leader. Get empowered to make a difference in your community, family, neighborhood, and workplace. The Institute will be at the American Indian Community Housing Organization in Duluth, MN. [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!

Work with scientists, engineers and artists to explore the many ways you can engage with the environment and pursue your passions. 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

### **Materials Science Camp for High School Students, July 9-13, Minneapolis**

The University of Minnesota Materials Camp excites and engages young, aspiring minds. The camp is offered at no cost to students entering their junior or senior year. Industry professionals take great pride in influencing the next generation of engineers and scientists. Materials Camp utilizes hands-on learning principles of applied math and science; a truly unique, team-based problem solving experience that explores materials science and engineering principles. Applications are due March 31. [Learn more.](#)

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

### **\*Clean Tech Competition**

The [Clean Tech Competition](#) is an international research and design challenge for 15-18 year old pre-university students. It is a way for students to test their ideas against both a global issue, as well as competitors with very different experiences than their own. We have found students tend to choose to solve problems that affect their local region the most, and we encourage this! There are so many unique situations, and we want as many addressed as possible. The registration period is soon drawing to a close, so we suggest entering soon, but there is still plenty of time for students to work on their paper before the submission date so they have plenty of time if they are still undecided! The team registration deadline is March 15 and the papers are due April 12<sup>th</sup>. There is no fee involved.

The 2019 Challenge: “[Toward A Greener Tomorrow](#)” asks students to develop a clean technology solution to make our future more sustainable than our past. Teams of 1 – 3 students chose between two categories: Mitigating the Effects of Climate Change and Resource Preservation.

### **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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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.