



Science Update

August 2020



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. Frequent updates and new events are posted on the MnSTA Facebook page and Twitter feed @mnsta1.

Teaching science
at-home or at-school

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 or substantially changed

This edition of the Science Update primarily focuses on Minnesota events that are still scheduled either in person or virtual. It also highlights Minnesota resources that could be helpful in the distance-learning environment.

News

Teaching Science for Social Justice



The events of this summer are raising the concerns for equity and justice in our consciousness and sense of urgency. Science educators are examining the role that our instruction can provide in addressing these issues. MnSTA and MDE provided a webinar on this topic in July and collected resources at this [MnSTA Equity in Science Education website](#). A recent NSTA blog suggests approaches and provides resources for [Social Justice in the Science Classroom](#). A good launching point for science instruction strategies is STEM Teaching Tool #67 [Focusing Science and Engineering Learning on Justice-Centered Phenomena across PK-12](#) and other tools it references.

*Guidance for science In-person and at-home instruction

The Minnesota Department of Education had developed several guidance documents for the [Student Instruction COVID-19 Resources](#) webpage including [Science Standards Support for Distance Learning](#).

The Council of State Science Supervisors (CS3 “CS-cubed”) to support science learning during distance and return to school, including advice for science leaders, teachers, families and students. Most recently, they have published [back-to-school guidance briefs](#) on instruction, assessment, curriculum, well-being and safety. They also produced a very helpful and practical [recorded lab safety webinar](#) by NSTA science safety consultant Ken Roy.

CS3 also published Equitable Home-Based Science Teaching and Learning

- Phenomena: Not just for the Classroom (for families)
- Continuing Science at Home with Science Notebooks (for families)

- Pass the Science Please: Science Talk Moves (for families)
- Teachers Guide: Phenomena, Science Notebooks and Science Talk Moves (for educators)

These are available at this [STEM Teaching Tools website](#).

*MnSTA collection of distance learning resources and lesson plans

MnSTA has developed a site where teachers can upload lesson plans to share and can access those that are posted. To view the lessons and to contribute go to the [MnSTA Resources for Teaching Remotely](#) webpage. You will also find other resources posted there, including suggestions for elementary teachers and links for remote learning resources.

MnSTA and MDE conducted a webinar on *Promising Practices for Science Distance Learning* in May. The recording of the webinar is at [MnSTA Resources for Teaching Remotely](#).

*District Science Leader Network

District-level staff who have responsibility for science education across their district are invited to participate in this network. Some examples are district curriculum coordinators, science coaches, TOSAs, and charter school/private school lead teachers. Meetings will be scheduled throughout the year, starting virtually. If you are not on the list and would like to receive announcements of the meetings, contact john.c.olson@state.mn.us.

Teacher Events and Workshops

Note: Check the websites and contact organizers to be certain that the events are still scheduled. Some organizations are waiting to see what changes happen for gathering of people during the pandemic.

*PLAYfest: A day of Wonder, Aug. 14, Online



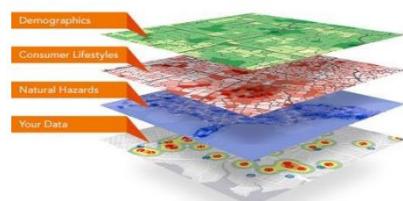
PLAYfest from the Playful Learning Lab is a daylong event (10 AM – 5 PM) for students and educators celebrating ideas and people. Four sessions of prepared talks will be augmented with hands-on interactive workshops (ranging from drawing to cooking to social activism) and discussion groups. Everyone is invited! There is no cost to attend PLAYfest, but registration is required. [More information](#).

NSTA Distance Learning Strategies and Assessment Webinars, August, Online

In the four-part web seminar series on *Distance Learning That Supports Student Sensemaking*, participants will explore ways in which they can continue to give students experiences with relevant, intriguing phenomena to create the need to engage in science learning using distance-learning strategies. The focus will be on synchronous and asynchronous online learning, but we'll also consider how to connect students to their learning communities through smartphones and local computers (no internet access). More information for [the August series](#). More upcoming and archived webinars are available at the [NSTA Learning Center](#).

*GIS tools for back to school, Aug. 19, Online

This webinar from ESRI will give you a look into geospatial tools for any classroom environment: home, outdoors, school, or virtual. You'll learn from subject matter experts about their recommendations on how to keep any grade level enlightened and engaged and subject areas interesting using geospatial perspectives. [Information and Registration](#)



***Weather Related Phenomena Professional Development, starting Sep. 12, hybrid**

deCircle of Illumination Science Education invites 6th grade teachers in Minnesota who want to start prepping to teach weather-- as well as teachers in grades 3-5 who want to introduce their students to elements of weather in a phenomena-based approach -- to participate in a hybrid course. It will help them learn how to harness the power of a number of real-time web sites, access and manipulate data, while simultaneously deepening their own content mastery of earth and atmospheric science.

Possible phenomena to be covered will include relatively simple phenomena, such as day length and sun angle, but can also cover more complex phenomena such as the formation of dew overnight and the development of poor air quality associated with atmospheric inversions. There will be one socially distanced in-person meeting with rest of the course online. See the [Circle of Illumination website](#) or [Amy Lilienfeld](#) for more information.



Exploring Environmental STEM at the Blaine Wetland Sanctuary, Aug. 29, Blaine

Adventure in nature play and hands-on teaching strategies at a unique wetland site with this workshop 9 am – noon. Practice environmental STEM teaching strategies including: the 5E model; nature play; science activities for your site; and how to do field trips. Participants experience the 5E's...engage, explore, explain, elaborate, and evaluate...all at Blaine Wetland Sanctuary! We act out seasons, build different nests, create art connecting natural systems, investigate insulators, identify plants, and more.

The [Blaine Wetland Sanctuary](#) is an open space park that holds a special wetland called a fen, some of the rarest plants in Minnesota, and a unique mile-long boardwalk. The BWS park and the online curriculum are free to visitors. [Registration.](#)

***Minnesota State Centers of Excellence Teacher Training – Sep 16. – Dec. 2 - Online**

This is an interactive twice per month webinar series for STEM educators grades 5 - 12. Webinars will feature ready to implement activities and resources with guidance for implementing in virtual and distance learning settings. This series is designed to help educators inspire interest in students and set them on the right track to pursue career pathways that lead to high-demand (and high-pay in many cases) jobs in Minnesota. [More Information.](#)

***MN GIS Educator Day, Oct.9, Online**

Save the Date for this annual conference, which becomes virtual this year. Details will be available soon. The conference contact email is mngisk12@umn.edu.

***MnSTA Conference on Science Education, November 12 -17, Online**

Lower Cost, More convenient, Same great sessions!

The conference is going online this year! Sessions will be evenings Thursday, Friday, Monday and Tuesday plus unconference sessions on Saturday morning. Watch for an announcement of details and the call for presentations. Registration for exhibitors is now available. Information at the [MnSTA Conference website](#).



Accomplished Science Teaching: Building Student Understanding, online

This course from PBS TeacherLine is the first in the Accomplished Science Teaching course series. The courses for PreK-12th grade educators may be taken individually or as a series. [More Information.](#)

Teacher and School Awards and Opportunities

*2019 Presidential Awards Announced



Eric Friberg, science teacher at Henry Sibley High School, is the Minnesota science recipient of the 2019 Presidential Award for Mathematics and Science Teaching (PAEMST). He has taught biology, AP Biology and English Learners Biology since 2011.

Eric works to put students in a position to have a relevant, rigorous, and active science education. With his team, he redesigned the biology instruction to be tightly aligned to standards, relevant to students, structured for efficient learning, integrated with technology, and built on phenomena that connect to students' lives. These changes have led to both high levels of achievement and narrowed gaps. Seeing a need in his classroom, Eric led the creation of an EL sheltered science program that has increased engagement and access to science and English for immigrant students. Read Eric's profile at the [PAEMST Awardees page](#).

*MnSTA Science Teaching Award

Be rewarded for great teaching. Members of the Mn Science Teaching Assn. are encouraged to apply for the MnSTA Science Teaching Award. An elementary teacher and a secondary teacher will each receive a \$1,000 grant for use in their classrooms and they will be recognized at the MnSTA conference. Here are some projects that have received funding:

- Gardening
- Data collection devices
- Tradebooks
- Investigation materials
- Recycling stations
- Ecology materials
- Balloon launch materials

The application is relatively easy and is due October 7. The nomination and application information is available at [this link](#).



Watch for 2020-21 information about the following awards programs and consider applying.

- [Presidential Award for Excellence in Mathematics and Science Teaching](#)
- [Green Ribbon Schools Award](#)
- [National Board Certification for Teachers](#)
- [National Science Teachers Assn. Awards](#)

School Programs and Resources

This listing features Minnesota organizations offering resources for distance and in-person learning that were not posted in the spring. For previous listings, consult the [Science Update archives](#).

*Picture a Scientist movie

This award-winning movie follows the lives of three female scientists revealing their experiences dealing with gender discrimination and harassment in academic science. You may preview the movie Aug. 14 – 16 at this [registration link](#). You can schedule a screening for your class at the [movie webpage](#).



*Water Guardians

The Water Guardians program is a free, web-based curriculum designed for grades 5-8. It contains a set of 5 lesson plans and culminates with a student-led service-learning project. Whether teachers are starting the school year back in the classroom, with online distance learning, or somewhere in between, Water Guardians is designed to fit a variety of settings and needs. Learn more by checking out the [Water Guardians website](#),

*Solar Energy Opportunity

A dramatic drop in the cost of solar panels, combined with new financing choices, has now made solar energy widely available. Additionally, schools are incorporating the solar array into their curriculum. Learn about the financial opportunities (including third party ownership), the educational benefits, the environmental impact, and the community leadership roles. [Clean Energy Resource Teams](#) is a not-for-profit organization that provides tools and services for implementing solar energy for schools.

Just for Kids – Minnesota Valley Wildlife Refuge

Enjoy the Outdoors at Home. The US Fish and Wildlife service is offering distance learning packets for outdoor exploration at home, at the refuge or a neighborhood park. The elementary grade-banded packets feature videos from the refuge and hand-on activities. [More Information](#).

Minnesota Zoo Distance Learning Teacher Resources

Elementary grades: “Operation: Curiosity and Wonder” are sets of lessons and activities that can be used by schools and families at home. These daily lessons involve exploring natural phenomena. Activities support learners with a range of technology needs. Students explore their outside environment and make connections about the natural world.. [Kindergarten to Second Grade Resources](#) [Third, Fourth and Fifth Grade Resources](#)



Middle School: [The 6-8 ZOOMS Mini-Engineering Design Challenges](#) offer opportunities for students to be inspired by nature and use this to engineer a solution to a problem, much like our zookeepers do at the Minnesota Zoo. Show Us Your Mussels lessons are designed to support middle school teachers in teaching students about water quality and how to save endangered native freshwater mussels in Minnesota..

High School: [The 9-12 ZOOMS Mini-Engineering Design Challenges](#) offer opportunities for students to be inspired by nature and use this to engineer a solution to a problem, much like our zookeepers do at the Minnesota Zoo.

Project WET Distance Learning and Online Resources

Project WET provides water education curriculum supplemental activities that focus on watershed dynamics. Normally teachers receive access to the materials by attending a workshop through the MN Department of Natural Resources. Now the training is available through an online format. By using the online training resources

and completing an assignment, teachers will receive the *Project WET Curriculum and Activity Guide*. The [Making a Splash with Project WET](#) website describes the method to accomplish this training.

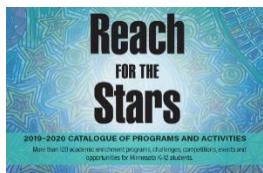
Project WET also has a suite of free and discounted resources that educators, partners and children can use to learn about water while meeting standards in math, language arts, science and fine arts. Go to [Home and Distance Learning Resources](#).

Student Programs, Awards and Competitions

Science and Engineering Competitions

Check out the follow program for your classes and individual students.

- [Science Bowl](#) – middle and high school
- [Minnesota Science Olympiad](#) – middle and high school
- [Science and Engineering Fair](#) – middle and high school
- [FIRST Lego League, FIRST Tech Challenge, FIRST Robotics](#)- All grades
- [Supermileage Challenge](#) - High school
- [Real World Design Challenge](#) - High school
- [Toshiba/NSTA ExploraVision](#) - Classroom based for all grades
- [NSTA Angela Award](#) – girls grades 5 – 8
- [MN Scholars of Distinction](#) – high school
- [National Youth Science Camp](#) – two high school seniors are selected as 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](#).

MDE Science Contacts:

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[Jim Wood](#), Science Assessment Specialist

[Judi Iverson](#), Science Assessment Specialist

[Sarah Carter](#), STEM and Computer Science 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](#) a.k.a. STEM Teacher Center

[Get – STEM](#) Connections between schools and businesses

[EE Portal @MAEE](#) environmental education resources

[Minnesota Academy of Science](#): Science Fair, Science Bowl and other competitions

[Mn DNR Education website](#): Curriculum, professional development, posters, etc.

[Youth Eco Solutions](#) (YES!) – Statewide, youth-led program for hands-on eco related projects