Science Update  
December 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.

*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

*Workshops: Preparing to Implement the New Science Standards*

The 2019 K-12 Minnesota Science Standards envision new approaches to teaching and learning science. Learn about the pedagogy associated with the new standards, the timeline for implementation, and ways to prepare to teach the standards. This free workshop is targeted for K-12 teachers of science, administrators, professional development providers, and other science educators. John Olson, Science Specialist at the Minnesota Department of Education, will facilitate these 9 am – 3 pm workshops.

The workshops that currently have openings are:

- Redwood Falls – Dec. 4
- Mankato Dec. 6
- Fergus Falls – Dec. 9
- Thief River Falls – Dec. 10
- Staples – Dec 11,
- Mountain Iron – Dec. 12
- Albert Lea – Jan 8
- Roseville – Jan 10
- St. Cloud – Jan 14
- Eden Prairie – Feb. 1

[More Information and Registration](#) (Check back for additional dates that may be added.)

Teacher Events and Workshops

*Science Instruction Using Storylines, Dec. 4, Minneapolis*

This workshop is led by NGSS and Pearson Author Dr. Michael Wysession and will include a hands-on activity using problem-based learning and design thinking. It will be at the Surley Brewing company with sessions at 12-2 pm or 3 – 4:30 pm. [RSVP](#)

*Science Museum Educator Preview Dec 7, St. Paul*

Attend the Ominitheater movie *Superpower Dogs*, preview the exhibit *Race: Are we so Different* and view the Science Live performance *Race to the Finish Line*. This free event is 8:30 am – 12: 30 pm. [Information and Registration](#)
*Renewable Energy Educators Workshop, Dec. 7, St. Paul*

This workshop at Macalester College is intended to help you prepare to participate in the Minnesota Renewable Energy Challenge to be held on in the late spring of 2020. Check out this [video](#) or our website for more information about the [KidWind Challenge](#).

Educators will learn about the science and technology around wind turbines, blade design, solar energy and circuit design. The energy-based content combined with practical, standards-connected, classroom activities will make bringing renewable energy into your classroom engaging and exciting! [Register here](#)

**Earth Science Teaching Conference, Feb 7, Plymouth**

The Minnesota Earth Science Teachers Association proudly announces that registration for the upcoming conference is now open. Mark your calendars for Friday, February 7, 2020. Meteorologist Sven Sundgaard of KARE 11-TV will be the keynote speaker on “Climate Change by the Numbers.”

Breakout sessions will include Mary Colson on ways to meet the new science standards, Ken Fiscus on teaching moon phases, George Hudak on Circular Economy Concepts, and Phillip Schoeneberger on Soil Hydrology.

Breakfast, lunch, door prizes, and classroom resources are included with your registration. Optional Hamline graduate credit is available. Thursday’s pre-conference evening features the Como Planetarium and an optional dinner and networking at Granite City Food and Brewery.

Take this opportunity to connect and reconnect with your colleagues from across the state and enjoy spending the day learning with other Earth science enthusiasts. [Information and Registration](#)

**Schoolyard Gardens Conference, March 6, Chaska**

Schoolyard gardens are a successful, growing part of Minnesota schools, and provide an incomparable, hands-on opportunity for educators and students. Join us for this [annual conference](#) to:

- Learn how to meet academic standards through gardening
- Discover ways to engage with community partners and the school board to sustain your project
- Explore the latest research and best practices in agriculture, healthy eating, cultural competency, natural systems and more
- Apply innovative strategies for building, sustaining, and engaging diverse learners in a thriving schoolyard garden

**Computer Science Professional Learning, St. Paul**

Applications are open for the [Professional Learning Program](#) for middle and high school educators! If you’re interested in teaching computer science for the 2020-21 academic year, this is a great opportunity to explore CS curriculum and collaborate with educators of all experience levels to develop lesson plans and teaching strategies.

[Elementary teachers](#) can sign-up for a one-day workshop near you! Applications are not required for Computer Science Fundamentals workshops and take place throughout the country, year-round.
Middle and High School teachers will begin with a 5-day in-person workshop on Computer Science Discoveries and Principles in the summer, with quarterly meetings thereafter.

*National STEM Scholar Program, May 31 – June 6, Kentucky*

All-Expenses-Paid Professional Learning Opportunity for Middle School Science Teachers. Ten middle school science teachers will be chosen for a prestigious opportunity offered by The Center for Gifted Studies & the National Stem Cell Foundation. Scholars will engage in hands-on, minds-on science activities; connect with speakers and thought leaders in STEM education; learn with skilled science educators; and develop a creative Challenge Project for classroom implementation. Each Scholar will receive a Chromebook and funding for Challenge Project supplies and materials. [Information and Registration.](#)

*Modeling Instruction Workshops, July*

The Modeling Method has been intentionally developed to correct many weaknesses of the lecture-demonstration method of instruction typically seen in STEM classrooms. These weaknesses include the fragmentation of knowledge, student passivity, and the persistence of naive beliefs about the physical world. Instruction is organized into *modeling cycles* which move students through all phases of model development, evaluation and application in concrete situations — thus promoting an integrated understanding of modeling processes and acquisition of coordinated modeling skills.

- Physics introduction workshop, Winona State Univ. July 6 – 10, [Information and Registration](#)
- Chemistry workshop Tartan High School, Oakdale, July 13 – 17, [Information and Registration](#)
- Biology workshop, Tartan High School, Oakdale, July 13 – 17, [Information and Registration](#)

*CDC Science Ambassador Fellowship, July 13-17, Atlanta*

The CDC Science Ambassador Fellowship is a dynamic, educational program offered by Center for Disease Control for STEM teachers and educational leaders interested in bringing public health sciences into middle- and high-school classrooms. This competitive fellowship includes a 5-day interactive summer course at CDC headquarters in Atlanta, Georgia, and a 1-year distance-based professional development opportunity. Apply by Jan. 15. [Information](#)

**Teacher and School Awards and Opportunities**

**Presidential Awards for Science Teaching**

The Presidential Awards for Excellence in Mathematics and Science Teaching (PAEMST) were announce and awarded in October. Each awardee received a trip to Washington DC for the certificate from the President and $10,000. They were excited to be treated like the stars they are:

- 2017 Awardee (Secondary) – Stacey Bartlett, Stillwater High School
- 2018 Awardee (Elementary) – David McGill, Capitol Hill Elementary, St. Paul
Both are using their leadership skills as members of the MnSTA Board of Directors.

The Minnesota science finalists for 2019 are:

- Eric Friberg, biology teacher, Henry Sibley High School, Mendota High School
- Marta Stoeckel-Rogers, physics teacher, Tartan High School, Oakdale
- Cynthia Welch, life and earth science teacher, Cloquet Middle School, Cloquet

They were recognized at the MnSTA Conference on Science Education in St. Cloud November 8. Their applications will be reviewed at the national level by the National Science Foundation and the awardee will be selected by the White House.

**Nominations and applications for the 2020 award for K-6 teachers are now open** with a May 1 deadline. Support and mentorships are available. [Information](#).

**MnSTA Teaching Award**

Laura Unterholzner, a biology teacher at Rochester Century High School, received the 2019 Minnesota Science Teaching Award. She will receive $1000 for a classroom project.

**Green Ribbon School Award**

Apply for the US Department of Education Green Ribbon Schools award. This award honors public and private early childhood, elementary, middle and high schools; school districts; and institutions of higher education that are exemplary in all three of the following areas:

- Reducing environmental impact
- Improving health and wellness
- Providing effective environmental education

Awardees receive a plaque for the school, local recognition, use of the Green Ribbon School Logo on their website, and an invitation to the national award ceremony in Washington, DC. Applying for the award provides an opportunity to analyze energy and water usage, waste reduction, and transportation. Schools review the strategies that promote healthy practices by students and teachers. In addition, teachers examine their curriculum for instruction in environmental concepts, skills and careers. More information at [the Minnesota Department of Education Green Ribbon Schools webpage](#).

**Water Warrior grants available to High Schools**

The Race to Reduce “Water Warriors” competitive grant opportunity is available to Minnesota public school districts and charter schools for the purpose of implementing water conservation curriculum and projects in order to supporting the learning of water conservation concepts and leadership skills for students in grades 9-12. This grant is offered by the Minnesota Department of Education (MDE).

Four to six high schools will be able to receive up to $2500 each to enable a team of up to five students to participate in two water summits in White Bear Lake and then work with students in their schools to design and implement student-led projects related to water use practices. Please see the grant instructions for the specific, allowable outcomes for this grant program at [MDE’s grant opportunity site](#). The application is due Dec. 13.

**“No Child Left Inside” grants from the DNR – Phase 2**

The Department of Natural Resources is offering a new grant program to help more children cast a fishing line, study animal tracks, hike or bike, or simply learn more about nature. Funding can be used for outdoor recreation equipment, transportation and related natural resource education expenses.
Phase 2 grants consist of larger grant awards with a more extensive application process, competitive review and longer project timeframes. These grants have a minimum request of $5,000 and a maximum request of $49,999. No match is required for Phase 2 grants but the amount of match provided by applicants will be considered in the evaluation of proposals. The deadline is Jan 9, 2020. For more information on the grant program and a link to the application, visit the grant website.

*President Environmental Award for Teachers*

The Presidential Innovation Award for Environmental Educators (PIAEE) from the U.S. Environmental Protection Agency (EPA) recognizes outstanding teachers for K-12 who employ innovative approaches to environmental education. Up to two teachers from each of EPA’s 10 regions, from different states, will be selected to receive this award. Teachers will receive a Presidential plaque and an award of up to $2,500 to be used to further professional development in environmental education. Winning teachers’ local education agencies will also receive awards of up to $2,500 to fund environmental educational activities and programs. Winners of next year’s awards will be invited to participate in an awards ceremony and poster session in Washington, D.C. in mid-2020, and their projects will also be highlighted on EPA’s website. Application is due Jan. 15. Information

**School Programs and Resources**

*Physics Force Demonstration Shows, January 13-17, Minneapolis*

Physics is fun! Please join us with your students to experience the fun first hand. The University of Minnesota's Physics Force will be performing its annual series of educational and immensely entertaining shows in January 2020. This year's shows are better than ever with live fire, lightning, a crushing barrel, and more! Information and free registration.

*The Human Element movie available free to teachers*

In an arresting new documentary from the producers of Chasing Ice, environmental photographer James Balog captures the lives of everyday Americans on the front lines of climate change. With rare compassion and heart, The Human Element inspires us to reevaluate our relationship with the natural world.

The film and segments of the film along with lesson plans are available FREE to teachers. For a preview and resource go The Human Element movie website.

**Student Programs, Awards and Competitions**

*Scholars of Distinction Award Program*

The Minnesota Scholars of Distinction program nurtures and recognizes distinguished achievement by highly motivated, self-directed students. Students may now complete the Intent to Apply Form for Scholars of Distinction Awards in Leadership, Mathematics, Science, Social Studies, STEM, and Theater Arts. For information about the criteria, timelines and application process for a 2020 award, visit the Scholars of Distinction page. All applicants are required to complete the Intent to Apply Form by December 16.
*Presidential Environmental Award for Students*

The Presidential Environmental Youth Awards (PEYA) from the U.S. Environmental Protection Agencies recognizes outstanding environmental stewardship projects from grades K-12, by promoting environmental awareness and encouraging community involvement. EPA will select up to two winners in each of EPA’s 10 Regions – one regional winner for grades K-5, and one regional winner for grades 6-12. Winners of next year’s awards will be invited to participate in an awards ceremony and poster session in Washington, D.C. in mid-2020, and their projects will also be highlighted on EPA’s website. All student projects must be sponsored by at least one adult over the age of 21. And, if the sponsor is not a teacher, the project must have a teacher as a co-sponsor. The application is due Jan. 15. [Information](#).

**World Series of Innovation**

The World Series of Innovation invites young people to get involved in solving the biggest challenges facing humanity today and help advance the UN Sustainable Development Goals. Pick from 9 challenges and submit your ideas. Open to ages 13 – 24. Deadline Dec. 15. [Information](#).

**More Science and Engineering Competitions**

Check out the follow program for your classes and individual students. - Classroom based for all grades – middle and high school

- **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](#).

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