DEPARTMENT OF EDUCATION

Science Update

May 2021

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.

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 has been substantially updated.

News

*Science Standards Implementation Delay

To provide flexibility for districts in implementing new standards as the state emerges from COVID-19, MDE will be delaying the required implementation of the Science standards to the 2024-25 school year. The rulemaking process to allow flexibility for implementation needs. With science in therulemaking process, MDE will use that opportunity to update the proposed rule language to reflect the new implementation date. Since the MCAs are based on the standards, the Science MCA – IV will be delayed until the spring of 2025 for grades five, eight, and high school. Although districts are not required to begin work to implement the standards, MDE will continue to engage in test specifications and development to be prepared for the MCA – IVs in spring of 2025.

*Transition to the new Standards

With the delay of the date for full implementation of the new standards, districts and teachers will need to decide if they want to delay the transition timeline they may have developed. One factor they may be considering in that the MCA exam will not transition to the new standards until spring 2025. However the new standards and the shifts in pedagogy associated with them are likely to result in improved science learning and it would be wise to give students those opportunities as soon as is feasible. Plus the improved learning may help them perform better on the current MCA. Districts have several factors to consider in their transition plans, including staffing, curriculum materials, and time for planning. Read John Olson's article about the standards delay and planning for the transition.

*Rulemaking for the Science Standards

The Minnesota Rulemaking process makes the standards legally binding. The documentation by MDE and the Executive branch of the state government has been completed. They propose that the drafted standards become rule and be implemented by the 2024-25 school year. (Benchmarks are not included in the rule language.) The tentative next steps are the following:



Endangered Species Day, May 21

- A sixty day period for public comments on the proposed rules and requests for a hearing. This will be announced in mid-May.
- A possible hearing on the rules in the summer.
- A ruling by an administrative law judge.

Updates will be posted on the Science Standards Rulemaking page.

Flexibility for Out-of-Field Permissions for Science Teachers

A newly adopted resolution by the MN Professional Educator Licensing and Standards Board (PELSB) provides additional flexibilities for science teachers who will need an out-of-field permission (OFP) to teach in a science content area or grade level outside of the scope of their existing license(s) due to the impact of the proposed science standards.

Specifically, the resolution allows school districts to seek an out-of-field permission (OFP) for impacted Tier 3 and Tier 4 science teachers without needing to meet the OFP posting requirements. Additionally, these OFPs will not be counted toward the lifetime total for those Tier 3 or Tier 4 science teachers affected by the science changes.

This resolution will be in effect until the Board adopts new rules to determine long-term options for teachers impacted by the changes to the K-12 science standards. <u>Summary Document</u>, <u>Full Resolution</u>, <u>SPELSB statement on current science licensure</u>.

Input Needed: Understand Native Minnesota project



In October 2019, the Shakopee Mdewakanton Sioux Community launched <u>Understand Native Minnesota</u>, a campaign to improve the Native American narrative in Minnesota schools. Like with any project, we need to understand where we're at in order to set goals for where we want to be. This means hearing from folks around the state who are engaging in this work to learn what's working, where you need support, and how we can collaborate in the future to make learning better for all students.

We have created three surveys for stakeholders - <u>educators</u>, <u>curriculum</u> <u>leads</u>, and <u>education groups/non-profits</u>. Your thoughtful input is

appreciated in any or all surveys as appropriate. All data collected will be kept anonymous and entry to the giveaway at the end of the survey is optional. Surveys will be collected through June 15, 2021. Data collected will be compiled into a final report in Fall 2021 and be used to identify next steps for the campaign.

Teacher Events and Workshops

*Engaging Students in Science Investigations discussion, May 10 or 13 online

Brett Moulding, NGSS and NRC Framework writer, and Lee Schmitt will join us to discuss three dimensional teaching and lesson design using the framework of Gather, Reason and Communicate. This is a follow-up to the session Brett presented at MnCOSE in November, but you do not have to listen to the session to attend.

MnCOSE session recording for those that registered for MnCOSE

Registration Link for the discussion sessions. May 10, 7 PM or May 13, 3:30 PM

*Teach Outdoors! Minnesota virtual workshops, Wednesdays in May 3:30 – 4:30 Join experienced

environmental educators in Minnesota to learn how you can integrate opportunities to teach outdoors into your curriculum. All activities and lesson shared are connected to Minnesota Academic Standards. CEUs will be

included. Sessions will be recorded and available. <u>Registration.</u>

More resources for teaching outdoors!

- May 5 Creating Pollinator and Rain Gardens
- May 12 Nature Journaling
- May 19 Monarch Butterflies
- May 26 Get Ready to Start Your New School Year Outdoor Learning

*STEAM! Webinars May 11 & 13, 12 - 2PM



with

Information and

When did STEM become STEAM, and why? Incorporating the arts into traditional STEM learning means exploring the design thinking process that is central to engineering and other innovating careers. How can you expand STEAM in your 21st CCLC programs with limited time, budget and content knowledge? Join the Department of Education's You for Youth Technical Assistance Team to learn a concrete process for planning and implementing problem-based design thinking. We'll work through how you can prepare your mind and your environment to develop high-quality activities that will propel your students into careers of the future. No prior knowledge necessary! This session is for experts, newbies and those inbetween! <u>Registration</u>



*Crosscutting Concepts: NSTA Professional Book Study, starting May 13

During this four-part NSTA book study that starts on May 13, speakers Jeffrey Nordine, Okhee Lee, and Tricia Shelton will explore the crosscutting concepts as one of the three dimensions described in the *Framework for K-12 Science Education* and the *Minnesota Science Standards*, and their critical role for science teaching and learning. Particular attention will be given to how the crosscutting concepts can serve as tools to make sense of phenomena and design solutions to problems, and how they can broaden access to science for all students. <u>Information and Registration</u>

*Computer Science Workshops, May 15, online

Code Savy and CSTA MN are offering a morning of workshops centered on a variety of computer science education topics. This event will feature 6 different workshops to choose from, or you can buy an all-access pass in order to have access to recordings from all the workshops. Each workshop is a deep dive into a CS education topic and lasts the full 2.5 hours. Workshops run from 9:00am - 11:30am. You can purchase an All-Access Pass to gain access to recordings from all the workshops. CSTA MN members qualify for a free pass and membership is free at this CSTA link. Workshop information and Registration.

3D Printing for STEM Educator Pedagogy and Workforce Preparation, May 20, 10:30 AM - noon, Online

The Minnesota State Engineering Center of Excellence and select Minnesota State faculty are proud to provide an engaging and interactive FREE educator conversation and explanation to demystify 3D printing for pedagogy, workforce preparation and provide solutions for industry. <u>Information.</u>

Illustrating the Impact of Air Masses on Weather, for 6th grade teachers, May 22, noon-2 PM



The unusually hot weather we had over Easter weekend—and the precipitation and dramatic drop in temperatures that subsequently occurred -- are a great illustration of the powerful role that air masses have on our weather. Such dramatic changes are also often the basis of atmospheric inversions which contribute to the deterioration of air quality. But what can be more thrilling than to be able to correlate such phenomena with real-time data and/or maps—including satellite imagery-- that can be found on the Internet? Dr. Amy Lilienfeld, President and Founder of Circle of Illumination Science Education,

invites 6th grade teachers in Minnesota to participate in a webinar that will help them learn how to harness the power of such web sites to track such changes while deepening their content mastery of atmospheric science and helping them get ideas for many hands-on activities in data collection and visualization. For more information, Amy Lilienfeld <u>amy@circleofillumination.com</u>

* NAEP Science Test Results, May 25, noon – 1:15, online

Join the National Assessment Governing Board and the National Center for Education Statistics (NCES) for a virtual event with discussion and analysis of the 2019 National Assessment of Educational Progress (NAEP) Science results for grades 4, 8, and 12. <u>Register</u>

What IS Social Justice Teaching in the Science Classroom? NSTA virtual Miniseries, June 5, 12, 19, 26



Join NSTA for this special four-part, interactive, virtual miniseries, which is jointly hosted by the Association for Multicultural Science Education (AMSE) and NSTA's

Committee on Multicultural / Equity in Science Education. Scheduled throughout the month of March, this miniseries is your source for resources and strategies for motivating and enhancing the participation of traditionally underrepresented students in science through the lens of equity and social justice. All sessions are Saturdays 10:30 – 1:00 Central Time. Information

- June 5: Designing for Rightful Presence in K-12 Science Teaching and Learning
- June 12: Critical Affinity Spaces for Science Educators
- June 19: Toward Field-Based Science Education that Contributes to Just, Sustainable and Culturally Thriving Worlds
- June 26: Defining Social Justice in our Science Classroom

Compass to Nature: Teaching in the Outdoor Classroom, June 9 – July 21, 2 – 4 PM, webinars

This weekly distance learning series features the innovative <u>Compass to Nature</u>, a proven-effective method to teaching outdoors. Join us as we explore the four cardinal directions for the Compass to Nature: place-based education, phenology, journals, and naturalists, plus the magnetic force of the sense of wonder, through indoor presentations and outdoor field exercises to build or enhance your skills. We will also examine impact to teachers, students, and families; school curriculum and academic standards; and distance education options for outdoor classrooms. The series will culminate with the opportunity to reflect, plan, and share how you can apply the Compass to Nature to your site. Presented by the Prairie Wetland Learning Center in Fergus Falls. Information and Registration.

*Teaching Climate Actions, starting June 14, online

Led by 2811 and Young Innovators Climate-KIC, the <u>Climate Action Academy</u> is an interactive online certification designed for educators who seek to empower youth with the knowledge and skills to transform climate concern into action. Participants receive resources about education for climate action, are guided to accelerate climate action in their schools, join an international network of sustainability-minded teachers, and earn a certificate from Climate-KIC. There are 10 hours of online modules over the course of 4 weeks on:

Understanding the climate crisis globally and locally

- Trends in climate education •
- Tools and activities for climate action
- Climate action lessons and project integration

*Three-Dimensional Instruction Workshops

These free workshops are provided by Activate Learning, a curriculum publisher, for Minnesota educators.

Three-Dimensional Learning to Promote Student Engagement, June 16, 8 – 10 AM, online. Led by Joe Krachik, Framework writer and IQUST curriculum author. A Framework for K-12 Science Education provides a new vision for science teaching and learning that focuses science teaching on helping students figure out phenomena and design solutions to problems. Classrooms incorporating three-dimensional learning will have students build models, design investigations, share ideas, develop explanations, and argue using evidence. Teachers will develop a deeper understanding of three-dimensional learning and the value of figuring out phenomena. Registration

Implementing Three-Dimensional Learning: A Curriculum Coordinator Viewpoint, June 21, 8:30 – 10 AM,

online. Led by Michelle Tindall, K-12 Coordinator for Math and Science. A well-articulated science program that promotes three-dimensional learning and building understanding over time can help transform science instruction and promote students' science understanding. She will share the changes that occurred when teachers incorporated three-dimensional learning into classroom instruction. She will illustrate using a lesson from Activate Learning's IQWST curriculum. Registration.

*Exploring Biotech and Biofuels, June 17-18, NDSU, Grand Forks, in-person

The Exploring Biotech and Biofuels Nourish the Future workshop introduces teachers to the ways biotech skills are incorporated into agriculture through bioscience and biofuels labs. In this 2-day workshop, participants will:

- create and test biofuels
- learn about plant science and pollination •
- examine GMO facts, myths, and modern methods •
- perform DNA extraction and PCR •
- work through a water quality bioinformatics case study •

Day 1 will conclude with a dinner where participants can interact with industry experts to learn more about modern agriculture and its connections to biotech and biofuels. Day 2 includes field trips to National Ag Genotyping Center and Tharaldson Ethanol. Participants will receive \$350 worth of supplies for classroom use. Hotel room and meals will be provided.

*KidWind Virtual Recharge Academy, June 24, online.

The REcharge Academy is an educator training program focused around renewable energy. The intensive training blends lectures from experts and tours of energy facilities with replicable hands-on K-12 lessons to give educators content as well as context. Everyone participating must attend the virtual launch on Thursday, June 24th. After that, you can choose your own adventure by attending full day elective sessions based on your own interests and availability.



We have lots of scholarships and support for this event so if you are interested apply now! All scholarships will be distributed by May 15th. Information.



Community Resilience to Climate Change workshop for educators, July 5 – 29

NOAA Planet Stewards, Artist Boat and the NOAA Flower Garden Banks National Marine Sanctuary welcome you to join us during the month of July 2021 from anywhere you can Zoom for an interdisciplinary 70% independent learning/self-paced virtual workshop; The event is meant for all educators. It will focus on climate change impacts to human and natural communities, and the actions you can take to build resilience in light of these impacts. More Information and Registration

*Engaging Students in Investigation using GRC, elementary July 12 – 13, secondary July 14-15, online

Join us for two days of professional learning that will model effective science instruction that is consistent with research about how students learn. These sessions, based on the *Gather, Reason, and Communicate* framework, will model effective ways to engage students and teachers in doing science Investigations in person and virtually, which leads to deeper science knowledge using instructional strategies consistent with the new Minnesota Science Education Standards.



Brett Moulding and Peter McLaren, NGSS and Framework writers, will lead this workshop, live online. Participants will receive a copy of the book *Engaging Students in Science Investigation Using GRC* and the materials to do the investigations during the PD. The book describes how to engage students in doing three-dimensional science investigations aligned to standards. The book and professional development provide insights and recommendations for how to effectively use a set of over 360 investigations to teach to the new standards. The investigations were developed by teachers working in collaboration with Brett Moulding and presented in a useful lesson plan format. For background on the GRC framework and to see lessons go to <u>Phenomenal GRC Lessons</u>

- Elementary: July 12 & 13, Online 8:30 PM 3:30PM, Registration
- Secondary: July 14 & 15, Online 8:30 PM 3:30PM, <u>Registration</u>
- Fee: \$250 includes workshop investigation materials and a book mailed to you.

*Outdoor Classroom Workshops from Jeffers Foundation, in-person

Engage students in science content using 3-dimensional teaching as suggested by state and national standards throughout the year to develop students' ability to observe, investigate, and make claims from evidence, while learning outdoors! Information.

- Advanced Hands-on, Multidisciplinary Training, July 12 13, Savage
- Ecology Institute, June 28-30, Maple Lake
- Patterns in Nature Institute, July 19 23, Maple Lake

6th grade Earth Science Professional Development for the new standards, in-person

This will be a one week, bootcamp style, regional workshop that incorporates earth and space science content of the new standards, as well as teach you how to develop three-dimensional units. We'll help you choose phenomena, write storylines and lessons, and walk you through investigations that you can use to engage your students. We will provide ongoing support as you begin your journey and create regional cohorts so you aren't doing it alone. There are a few openings for each date

- Bemidji, July 26-30
- Metro area, August 2 6
- Metro area, August 9 13 (new session added!)

The workshop is organized by the Minnesota Science Teachers Association and led by well-known Minnesota earth science teachers and professors. Article introducing the program. Workshop Information and application.

For other workshops and programs that teach earth science concepts see this collection.

Mississippi River Institute, July 26-28, Online/hybrid

Join us from home this summer, as the Hamline Center for Global and Environmental Education presents its acclaimed <u>Mississippi River</u> <u>Institute</u> as a hybrid model combining online content and outdoor handson investigations close to home.

The virtual River Institute is a live, interactive three-day professional development opportunity taking place **July 26-28**, with modules online



and outside from 8 am - 4 pm. It inspires, educates, and prepares 3rd - 8th grade teachers to engage students in STEM disciplines through experiential, inquiry-based investigations of local watersheds.

Full scholarships are provided for teachers admitted to the program, as well as 18 CEUs, classroom resources, and the option to purchase two graduate-level credits at a reduced rate. <u>Information and registration</u>.

Summer Institute for Climate Change Education: Regrounding in Truth, July 28-30, online



Gain the skills, tools, and resources to teach climate change in all subject areas. This three-day experience from Climate Generation will include networking with a national audience, as well as one full day dedicated to working, planning, and learning with regional cohorts. On-screen time will be segmented, with the opportunity to choose which sessions you would like to attend. Information and Registration

Equity in STEM education professional development

The IDEAL Center at the Science Museum of Minnesota invites school and district leadership teams to apply for the <u>2021–2022 PAGE District Leadership Program</u>, which will be offered virtually this year. PAGE is dedicated to addressing achievement disparities in STEM education on the basis of gender, race, class, ethnicity, disability, language, and sexual orientation at a systems level. PAGE is an 11-day program with a five-day online institute during the summer of 2021, and three two-day online Colloquia during the 2021–2022 school year. Information and registration

*Mexico: Whale Ecology and Marine Research, January 2022

The waters of Baja, Mexico are home to more than a third of the world's marine mammals. Travel to the Gulf of California and the shores of the Pacific to study two of the most charismatic - the grey whale and the humpback. Work with researchers to collect acoustic recordings, DNA samples, and behavioral data on these immense animals.

The course, hosted by Hamline University, will happen during J-term (January) of 2022, but the registration deadline is the end of September 2021. Please visit the <u>course website</u> and/or reach out to Patty Born, program director, with questions. <u>pselly01@hamline.edu</u>

Teacher and School Awards and Opportunities

*Presidential Awards Science Minnesota Finalists Announced

The review of the Minnesota applications for the Presidential Awards for Excellence in Mathematics and Science Teaching for 2021 has been completed. This year the applications were for secondary teachers, and next year will be for elementary teachers. The applications include a video recording and a narrative about the practices in science content, instruction, assessment, reflection and leadership. The applications of the finalists will be judges at the national level and the White House will make the final selection. There will be a Washington, DC celebration, possibly next spring. We are still awaiting announcement of the 2020 applications which were submitted over the summer. The Science finalists for this year are:

- Meagan O'brien, Biology teacher, at Washington Technology Magnet in St. Paul, presented an online class on Virology which includes a delivered kit and has students teach someone about viruses.
- Missie Olson, biology teacher at Becker Senior High School, presented an online experiment on homeostasis where the students groups directed the experiment.
- Anne Zielske, chemistry teacher at Harding High School in St. Paul, presented an online lesson using Lego blocks to model chemical formula ratios.

Other Awards

Check out information about the following awards programs and consider applying.

- National Board Certification for Teachers
- <u>National Science Teachers Assn. Awards</u>
- <u>National Association of Biology Teachers Awards</u>

School Programs and Resources

*Youth Envision the Future, May 5 – June 16



The Climate Change Subcabinet is providing a new opportunity for middle and high school youth across Minnesota to engage with state leaders about climate change through a classroom activity. The activity asks students ages 11-18 to imagine and describe Minnesota in the year 2050, when the state will be meeting—or exceeding!— its goal to reduce greenhouse gas emissions by 80% and record short videos using Flipgrid, an online video discussion platform. More information: Youth envision the future

*Beyond the pandemic: a virtual summit on innovation in STEM, May 12 -13, online

The summit is the capstone event of the STEM Meets the Challenge of the Pandemic project. Presenters from 3M, Medtronic, Bolton & Menk and the Minnesota Department of Health will highlight the innovative approaches and new connections that they are using to meet the challenge of the pandemic. Our speakers will also discuss what they've learned during the past 14 months, where they are headed, and how to continue working together to address the STEM needs in our state and beyond. The past year has spurred rapid innovation, collaboration, and a shifting of skill sets and priorities. That leads all of us to the questions of what's next for STEM education and hiring, and how will we continue to build a diverse and inclusive STEM ecosystem. STEM educators are invited to live stream and use the summit's content in their classrooms. Information and Registration.

*Lake Superior Youth Symposium, May 14, online

Students in 8th-12th grade are invited to attend the symposium with a teacher from their school who is registered for this event. The purpose of the symposium is to inspire and motivate teachers and students to become stewards of Lake Superior and the Great Lakes! Teachers and students will have options to attend live in the moment or view on-demand videos from the event at a later date. All the information you need to know and how you can register can be found on the <u>LSYS Website</u>. Registration is now open for teachers. <u>Register here</u>

*Endangered Species Day, May 21

Every year on the third Friday in May, thousands of people around the world participate in <u>Endangered Species Day</u> by celebrating, learning about, and taking action to protect threatened and endangered species. Wildlife refuges, zoos, aquariums, gardens, schools, libraries, museums, community groups, nonprofits, and individuals hold special programs or events for people of all ages. Some featured events:



- Youth Art Contest
- Chalk Art
- Worldwide Pollinator Party

*Vaccines! How can we use science to make decisions about vaccines?



Utilizing a transdisciplinary approach to learning, the <u>Smithsonian Science for</u> <u>Global Goals</u> project's newest community response guide, *Vaccines1* features 8 tasks that incorporate investigations and hands-on science to help students discover, understand, and take action. Students learn about the science of vaccines throughout history; understand the science of how vaccines work; learn about how vaccines are developed; examine issues of equity, access, and misinformation; and develop an action plan for addressing vaccine concerns in

their communities. A webinar on May 13 will support educators to use this content with their students. Information about the program and Registration for the webinar.

*Working River Online: A Virtual Journey to the Falls

Based on popular school field trips at historic St. Anthony Falls in Minneapolis, and associated with the Mississippi National River and Recreation Area, <u>Working River Online: A Virtual Journey to the Falls</u> engages students in grades 4 - 6 with four topics deeply associated with the upper Mississippi River: its geology, its role as a transportation corridor, its waterpower, and the continual effort of stewardship. Each topic consist of four sections:

- 1. National park rangers and park partners introduce each topic through video with related inquiry questions and vocabulary.
- 2. Learn It: Students explore and learn about the topic through slide decks, videos and readings.
- 3. Do it: Students work with a hands-on activity, product or project.
- 4. Know it: A short pre or post-quiz allows students to see what they know about each topic.

*PLT "Explore Your Environment" K-8 Activity Guide Released

Project Learning Tree[®] (PLT) released a new curriculum guide to engage kindergarten through grade 8 students in exploring their environment. Fifty field-tested, hands-on activities integrate investigations of nature with science, math, English language arts, and social studies.

Educators can obtain a copy of PLT's <u>Explore Your Environment: K-8 Activity Guide</u> directly from <u>PLT's Shop</u>, from Amazon and other places where books are sold, or by attending a local <u>PLT professional development</u> <u>workshop</u> conducted by PLT's 50-state network of 75 coordinators and 1,000 facilitators across the country. <u>Minnesota PLT site</u>.

*STARBASE STEM Kits: Surviving Mars, online and in-person resources

Fifth grade students become Mars explorers as they engage in hands-on STEM lessons to plan and prepare of a mission to Mars. Students experience all area of STEM as the determine the purpose of the mission, design a Mars Base, practice coding, program a robot, design a Mars lander, investigate the vacuum of Space, conduct experiments with a virtual rocket and more! Students will make observations, ask questions, conduct experiments, collect and analyze data, make predictions, and create and analyze designs. Connections to STEM careers are embedded throughout the activities. Free kits are available for each student. <u>Program preview</u> password: starbase. For information <u>starbase@starbasemn.org</u>



Choose a Living Pod Base

*Student Experiments on the International Space Station

The National Center for Earth and Space Science Education announces Student Spaceflight Experiments Program (SSEP) Mission 16 to the International Space Station. This opportunity gives students across a community the ability to design and propose microgravity experiments to fly in low-Earth orbit on the International Space Station (ISS). One experiment in each community will be selected to fly to ISS. Astronauts aboard ISS will operate the experiment 4-6 weeks before it is returned to Earth and the community's student flight team for analysis. **SSEP is not a simulation.** We are truly inviting your community to be part of America's Space Program.

The expectation is that a team of educators in a participating community will engage typically 300 grade 5-12 students (at least 100) over 9 weeks of experiment design and proposal writing spanning September 1 through November 3 2021. Launch of the Mission 16 flight experiments is currently projected for Spring 2022. Inquiry Deadline is May 31. <u>More information.</u>

*Project Invent

<u>Project Invent</u> is a national nonprofit empowering high school students to invent for social good. Since 2018, over 50 teachers have completed our fellowship and cultivated young inventors within their classrooms. Our applications are now open for the 2021-2022 school year, and we're looking for passionate high school educators to apply. Our educators lead their students to use design thinking, engineering, and entrepreneurship to tackle big problems in their communities. As a fellow, you will attend a weeklong summer training in design thinking and invention, receive support throughout the year from expert advisors, and give your students the opportunity to pitch to Silicon Valley investors. Information and Application

Student Programs, Awards and Competitions

*Biochemistry Camp for Young Women, June 15 – 17, in-person, Bethel University

This event is for young women who have finished 10th or 11th grade. The goal of this camp is to encourage young women to be confident in their laboratory experiences and motivate them to pursue a career in the sciences. Most students understand clinical research with humans or even laboratory animals such as mice and rats, but not many have been exposed to cultured cells or plant biochemistry. In a brand new state-of-the-art science facility, students will perform hands-on experiments such as: fluorescence microscopy, ELISA, flow cytometry, and GC/MS. This camp is a day-camp style structure with no overnight component. Cost \$300. Information and Registration.

Farm-to-Fork Sustainable Agriculture for Healthy Food and Environment, June 15- Aug 15



This program from Minnesota State, Mankato and South Dakota State University provides the following:

- Learn about sustainable agricultural principles and practices.
 - Develop skills on how to measure soil health and water quality.
- Farm visits and discussion with the owners of sustainable farms and farm-tofork establishments.

Information and Registration

*EX.I.T.E Camp for middle school girls, 5 dates July 26-August 5, online

EX.I.T.E. (EXploring Interests in Technology and Engineering) Camp 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. <u>Information.</u>

*TED talks to watch with Kids

Talks on a variety of topics with many science oriented. Playlist.

Science and Engineering Competitions

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

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





Minnesota Programs and Competitions

Many competitions, out-of-school programs and field trip opportunities are listed in the <u>Reach for the Stars Catalog of Programs and Activities.</u>

MDE Science Contacts:

John Olson, Science Content Specialist, 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 PageMinn. Science Teachers AssociationFrameworks for MN Science and Mathematics Standards a.k.a. STEM Teacher CenterGet – 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