

Volume 74 No.1 A Quarterly Publication of the Minnesota Science Teachers Association Inc. Fall 2025

2025 NSTA National Conference November 12-15

Get ready to experience the charm of Minneapolis as NSTA presents the premier gathering for science and STEM educators. Bring your most innovative ideas, connect with fellow professionals and industry leaders, and leave with fresh insights and creative strategies to inspire imaginative learning and boost student engagement. Embark on your journey at NSTA Minn25 where future-driven knowledge and endless possibilities await!

Get ready to be inspired as we welcome this year's outstanding keynote speakers to the main stage! Each brings a powerful blend of personal experience, deep insight, and bold new perspectives you won't want to miss. Natalia Benjamin's topic is Rooted in Wonder: Identity, Culture and Inquiry for Every Student. Michael Houston's topic is The Heart of Education: Why Community Matters in the Classroom. Check out everything including session browsing at https://www.nsta.org/national-conference-science-education-minneapolis-2025

MnSTA is offering a "Pathway" of sessions during the conference, featuring Minnesota experts presenting on topics of local and national importance. Preview these opportunities on our Pathways page. We encourage vendors to sponsor refreshments and display their products and services during the Pathway. For more information, please visit the Sponsorship webpage.



Natalia Benjamin



Michael Houston



President's Message-Haley Kalina



Greetings:

I hope the fall season finds you launching forward for a great year ahead!

In his book Big Potential, Shawn Achor shares a phenomenon that fireflies (also known as lightning bugs) are able to synchronize their flashing with each other to increase their collective efficacy in attracting mates and in survival overall. In fact, he shares that "researchers Moiseff and Copeland (published in Science) found that when lightning bugs light up at random times, the likelihood of a female responding to a male...is 3 percent. But when the lightning bugs light up together, the likelihood of females responding is 82 percent." Wow! Community for the win! The synchronization of flashing also helped attract other fireflies to the group from far distances away. Achor closes this story with the statement, "This is true just as much for humans as it is for fireflies: The more you help people find their light, the brighter you both will shine."

In reading about this phenomena and the research that went with it, I couldn't help but think about us as a group of science educators and advocates. We could do this work alone, but we are more successful when we do our work in community, when we help others shine their light and allow ours to shine as well. In Minnesota, we are in year two of implementing the 2019 Science Standards. We have come a long way from when this transition started, but we are still in progress. The work to transition to this new way of teaching and learning takes all of us in the science community--preK-12 public, private, and charter schools, higher education, informal education, passionate advocates, and partner organizations. Your MnSTA board is working hard to create a community

of "lights" to support you and increase our collective work. This year, I encourage us all to consider how we might find others that can inspire us or that we can share our light and inspiration with.

If you are looking for a great opportunity to see a lot of "flashes of light" and inspiration in the science education community, set aside Nov. 12-15, 2025 to join us at the National Science Teaching Association Conference in Minneapolis! Go to https://www. nsta.org/national-conference-science-educationminneapolis-2025 for more information and to find resources to register for this great event. Educators and partners from all over the nation will be converging on Minneapolis to inspire and support each other. MnSTA will be hosting a pathway of sessions that is open to all but will highlight focused Minnesota-specific areas! If you aren't following MnSTA on social media, please do! So many updates, opportunities and announcements are shared there (Facebook=@ MnSTA1 & Instagram=@mnscienceteachers).

If you can't join us at NSTA, watch social media and your email for more information that will be coming about the monthly webinars this year and other events to support you and grow our community!

May you have a wonderful year ahead and may your light shine bright!



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Contact Us Today!

Teacher Feature-Bryce Hoppie

Our featured teacher for this issue of the MnSTA newsletter is Bryce Hoppie. Byrce was born and raised in Glencoe, Minnesota, a product of K-12 education in ISD 477 (where his father was the elementary schools principal). After high school graduation, he trekked west to the South Dakota School of Mines and Technology to pursue a career as a chemical engineer. That pursuit lasted exactly one semester of Chem I Lab in which he had a bench next to a huge window overlooking the Black Hills. In semester number 2, he changed his major to geological engineering so that he could find work that would put him in that nature as much as possible. And it did; however, after five vears with Shell Oil in Bakersfield, California, he found that knowing more about that nature (from how it was made to how it is evolves to how it is impacted by human activities) was more important than a paycheck and he left to go back to school. During those graduate studies at the University of California, Santa Cruz, he discovered the sharing his love of the natural world and what is needed to promote its conservation and preservation was what he was meant to do. Consequently, he chose to go straight from graduate school to Minnesota State University, Mankato and log 28 years of doing just that.

Bryce taught as a member of the faculty at MSU Mankato from 1996 until his retirement in 2024. Thereafter, he has been associated with the ESTEP group, offering online classes during fall and winter semesters and full week long workshops during the summers. His favorite instructional content is that which requires visual or graphical or other spatially-related methods to solve problems. From the stereoscopic orientation of molecules to the displacement of strata across faults, the whole spectrum of geological phenomena are in his areas of interest.

He uses as few closed-book tests as possible in his upper division courses. He states, "I worked in the real world for a major oil company and not once was I assigned a project that did not allow me access to my notes and examples of previously solved problems. The other aspect of my upper division classes that sometimes surprises students is that they all involve projects that require written letters or reports to accompany the actual work. That our work must always be supported by a narrative document was a lesson I learned previously

and now make sure my students take that skill with them when they leave the university."

Bryce has long held the belief that teaching teachers about how the world is made and how it operates would be the best avenue to further his personal passion for conservation and preservation of the natural world. He states, "I teach 1000 teachers. They teach 1,000,000 family and friends... now we're getting somewhere."

Bryce was known as the "dream killer" at the university because up to eight times a year, for 20+ years, he has had to tell members of the southern Minnesota community that their recently discovered 2-pound-meteorite that goes for \$35 per gram on the internet, is not a meteorite.

Other than curling, his time outside of working at the university is often spent doing investigations of environmental problems in southern Minnesota. From helping lake owner associations quantify the greenest of their water or well users identifying the sources of contamination in their water supply, he is happiest when he can put his spare time to good use in the community.

Bryce is a member of the Geological Society of America, The American Geophysical Union, The European Geochemical Association, the National Ground Water Association, and the Minnesota Ground Water Association.



Bryce Hoppie during the 2024 ESTEP workshop in Duluth.

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NSTA National Conference on Science Education



Innovating Science Education for All

The nation's leading science education conference where ideas, innovation, and community come together.

- Engaging Keynote Speakers
- Pre-Conference Professional Learning Institutes & Leaders Institute opportunities
- Hundreds of sessions and hands-on workshops
- Expo Hall featuring the latest innovations and solutions
- Special Events and Networking with thousands of passionate science educators







REGISTER NOW www.nsta.org/minneapolis25 Earlybird Deadline - October 3rd



IGNITE CURIOSITY INSPIRE THE FUTURE

Fields of STEM is a central location for free high quality instructional materials inspired by food and agriculture and a professional learning cohort with annual enrollment.

Scan for resources www.nsta.org/fields-of-stem





STEM educators can find:

- NGSS badged unit on the impacts of food production on earth's systems including pollution, greenhouse gas emissions and biodiversity.
- NGSS badged unit on how digestion, hydration, energy production and muscle repair are affected by exercise.
- Transfer Task assessments in earth science and life science around food fermentation, lactose intolerance, bacteria in food and new technology for water quality.



Powered by NSTA Fields of STEM with support from Midwest Dairy



Fall 2025

MnSTA Newsletter

SAVE THE DATE



Saturday October 11, 2025



More information, registration, found in Opportunities



Empowering Educators Inspiring Learners



Curriculum Launch

June 16-19, 2025 Green Bay, WI

einsteinproject.org/ose



Since 1991

Minnesota PAEMST Science Finalists



MINNESOTA PAEMST SCIENCE FINALISTS 2025



Monticello Middle School

CASIE MONSON

Totino-Grace High School, Fridley

ERIN SCHMIDT





Wayzata Central Middle School

KRISTINE SWARTCHICK:

You can learn more about this prestigious award at https://paemst.nsf.gov/.

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Department of Education

Science Standards & Instruction Resources

- You can access the current version of our Academic Standards in Science by clicking the first two links on our Science Standards Implementation page.
- MDE offers free, online science courses intended for science teachers of all grade levels. These courses support science standards implementation and are intended to be completed as part of a professional learning community. Visit our Online Science Courses from the Minnesota Department of Education page to register.
- A Framework for K-12 Science Education is the foundational document used to develop the 2019 Minnesota Academic Standards in Science. The appendices and supporting resources for the Next Generation Science Standards are also helpful resources for implementing the Minnesota Science Standards.

Science Assessment Resources

- Testing 1,2,3 Website contains many resources about assessment, data and reporting.
- You can view sample items from the MCA-IV using the Minnesota Questions Tool.
- More information about the test structure of the MCA IV for science is available in our Sci ence MCA-IV Test Specifications document. Or go to MDE home page > Statewide Test-

Test Specifications

- Pearson Access Next
- * Student Readiness Tool Information about test navigation, item types (including constructed response and simulations) and tools available on the MCA. Select 5th Grade, 8th Grade, HS Science, and Test Supports and Accommodations: All Grades. There is a lot here, so take time to look around.
- * Glossary and Translated word list (Found on Student Readiness Tool page, under "Preparing for Testing" dropdown) IMPORTANT: Please refer to the Guidance for Science Translated and Glossed Word List found here.
- Performance Level Descriptors describe the knowledge and skills students demonstrate at different performance levels of the Science MCA-IV.

Resources and Organizations for Additional Support

• The Contextus Task Library is a collection

- of assessment tasks organized by the PEs of the
- The Minnesota Science Teachers Association is a community of science educators and professionals in all content areas committed to improving science education in Minnesota. They also host free virtual professional development and teaching tools for members.
- The Minnesota Earth Science Teachers Association is a community of Earth science educators and professionals in Minnesota passionate about Earth Science education and supporting collaboration among educators.

Contact Information:

Angela Kolonich, Ph.D. | Science Content Specialist | Academic Standards, Instruction, and Assessment angela.kolonich@state.mn.us

Indigenous Science Standards Teacher Professional Development Project

Our friends at the University of Minnesota, along with other partners, have been working on a project with K-12 teachers, and are interested in expanding their program. They have developed a survey to gauge interest in participating in a professional learning community focused on the Minnesota Science Standards and Indigenous Science Knowledge. This survey is intended for science educators and curriculum directors, and is expected to take 10 minutes to complete. They have also included a project description, which I have included below. If you have additional specific questions, please contact Katie Johnston-Goodstar at john1906@umn.edu

PROJECT DESCRIPTION: Indigenous communities across Minnesota hold a wealth of traditional ecological knowledge and have a long history of engagement with environmental stewardship and sustainability, yet much of the education that informs Minnesota's approach to science and conservation omits this knowledge and perspectives. Recently, the Minnesota State Science Standards were revised to include a number of new benchmarks related to teaching about the science of MN Tribes & communities. While this represents a significant step forward in ensuring that traditional ecological knowledge and Indigenous ways of knowing are reflected in the teaching of Science for Minnesota youth, few teachers have been prepared to instruct their students on these topics. In particular, most teachers across MN have no formal training on Indigenous science philosophy, history,

Department of Education and Opportunities

or pedagogical methods, which makes instruction on the convergence of Indigenous science and integration into Western science discipline courses a challenge. To create an environmentally literate society that is equipped to protect Minnesota's environment, we must create and implement culturally-relevant educational resources that help learners make informed choices to support sustainable natural resource management.

To respond to the urgent need for statewide teacher professional development (PD), we are designing a series of Professional Development (PD) events and year-long cohort-based Professional Learning Communities (PLCs). These opportunities will introduce science teachers to Indigenous knowledge holders across tribal communities, geographies and topics. Interested teachers will attend one or more PD events and participate in a series of 4 virtual PLC's (which will include an educational presentation and an opportunity to meet for curricular support). Participating teachers will receive a stipend for their attendance at PD events and PLCs. They are also eligible to receive support (as eligible funds are available) for materials such as books, classroom supplies, media etc.

Angela Kolonich, Ph.D. angela.kolonich@state.mn.us

Resources Supporting Science MCA and Alt MCA Results Release

Student results from the new Science Minnesota Comprehensive Assessments (MCA) and Science Alternate MCA (Alt MCA) will be released later this fall First administered last spring, these assessments were developed to align with the 2019 Minnesota K-12 Academic Standards in Science, which districts and charter schools have now fully implemented. As you review results, keep in mind that each district's academic standards transition may affect Science MCA-IV/Alt MCA followed. Final student-level and summary asscores during the first few years of administration.

These assessments and the standards they measure are substantially different than the previous MCA-III and Minnesota Test of Academic Skills (MTAS) assessments, so results cannot be compared across the series. Fully implementing new standards and assessments takes time, and it may be several years before the benefits are seen as educators and students adjust to the shifts in curriculum and instruction.

Given these difference, educators and other district leaders, including curriculum directors and district assessment coordinators, should develop a plan to communicate Science MCA-IV and Alt MCA results to their school boards, administrators, staff, families, and the media.

When communicating assessment results, keep these points in mind:

Highlight key messages. Identify main points of your district's standards implementation process and assessment results. Keep the message simple, especially for sharing with a variety of audiences.

Explain the purpose. Describe the Science MCA-IV and the information it provides. Consider providing additional context using: Test specification documents for an overview of test structure and design.

Released test questions from the Minnesota Questions Tool as examples of how standards are assessed.

Performance Level Descriptors to explain the knowledge and skills students demonstrate at each level.

Be proactive. Outline your district's standards implementation process and explain how results in the first few years may be impacted by the transition.

Show how assessment results are used in the district and schools alongside other assessments and instructional data. Avoid defensive statements or making excuses for results.

Share support plans. Communicate how the district will continue supporting science standards implementation across all grades and content areas. Consider using supports available on the Science Standards Implementation page.

Though science results will be released later this fall, the typical reporting process is still sessment results are first available to districts in Assessment Secure Reports, beginning with District and School Student Results (DSR/SSR) files and then Test Results Summary reports. These results are embargoed, meaning districts and schools can review and use the results for planning and messaging but cannot share or discuss them publicly. Once MDE lifts the embargo, final assessment results are published publicly on the Minnesota Report Card and the Data Reports and Analytics page of the MDE website, and Individual Student Reports (ISRs) are provided to districts for distribution to families.

Questions around the release of Science MCA-IV and Alternate MCA results this fall can be sent to mde.testing@state.mn.us.

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Opportunities

Climate Generation

My name is Claire Cooke (claire@climategen.org). I am the Programs Coordinator at Climate Generation, a nationally recognized nonprofit providing interdisciplinary climate change education training and resources for over 19 years. We offer climate change education professional development opportunities for educators in science, humanities, and social studies, across grade levels as well as other interdisciplinary resources.

This fall, we have a series of virtual workshops around the best practices of climate change education and climate justice education. We invite you and your network to join our next virtual workshop to explore Climate Generation's Next Generation Climate curriculum for grades 6-8 which ties directly to the Next Generation Science Standards.

If you are interested in receiving alerts about similar events you can sign up for the Teach Climate Network. Members of the Teach Climate Network receive a monthly e-news featuring tips on teaching climate change and invitations to participate in climate change professional development opportunities like curriculum writing, review and piloting.

Teach Climate Network Workshop: Reintroducing Next Generation Climate

Wednesday, September 17th at 12:00pm-1:00pm CT

Register Here

Since 2015, Climate Generation's Next Generation Climate curriculum for grades 6-8 has provided a clear tie to the Next Generation Science Standards, serving as a resource for students and educators who want to understand climate science, impacts, and solutions. The new 2025 edition builds on the previous versions, now offering discussions of the root causes of climate change; more guidance for how to take climate action; and opportunities for reflection and mindfulness to support students' mental health. Whether you've used NGC for years or are just discovering the resource now, you can explore the "next generation" of activities from the curriculum and reflect on how to apply them to your setting!

Join the Teach Climate Network Sign Up Here

Start getting the tools, inspiration, and community support you need to deepen your climate education practice by joining the Teach Climate Network—it's free and built for educators like you! As a

member, you'll get automatic updates on upcoming programs and events happening all year long. From quick, one-hour workshops to in-depth fellowships, there's something for every teaching style and schedule.

Bring social impact game design to YOUR school!

THE GAMES FOR CHANGE STUDENT CHALLENGE, G4C Learn's flagship program, is an inclusive game design challenge that combines students' passion for games with digital learning and civic engagement. The G4C Student Challenge empowers youth, aged 10 - 25, as change-makers and supports the development of their future-ready skills, including coding, digital design, collaboration, communication, problem-solving, and systems thinking. The Student Challenge amplifies student voices, invites young people to imagine creative solutions to global problems, and enables them to see themselves as engaged citizens and changemakers.

THE CHALLENGE INCLUDES

Access to a variety of FREE virtual professional development courses to learn about the foundations of teaching game design.G4C's Intro to Game Design Curriculum – self-paced, adaptable, and user-friendly lessons for the 5-12 classroom.

Asynchronous webinars and courses for students on the principles of game design and how to use game-making platforms like Unity, Scratch, and Godot

Opportunities for students to develop video game industry career awareness through our Level Up video series, informal mentorships via our Discord server, and in-person interactions at Game Jams. Game design theme prompts, resources, and lesson plans inspired by the UN's Sustainable Development Goals, inviting students to improve their communities through impact game design.

Funding opportunities and facilitation support for hosting Game Jams, where students come together to rapid prototype social impact games An international game design competition with prizes to incentivize student participation, including a \$10,000 scholarship for the Game of the Year winners, culminating in our Awards Ceremony in May 2026.

WHO CAN PARTICIPATE?

Teachers of any subject matter who teach students aged 10-25.

Educators in out-of-school settings (after-school

Opportunities

programs, libraries, etc.) who teach students aged 10-25.

Educators outside the US who teach students aged 10-25.

APPLY NOW

Reach out with questions to studentchallenge@gamesforchange.org

Please feel free to share this opportunity with your colleagues, including teachers of all subjects, guidance counselors, librarians, and afterschool educators! As always, if you have any questions, reach out to us at studentchallenge@gamesforchange.org

Stem on Tap

STEM on Tap is a workshop series that connects STEM teachers of Grades 6 through 12 with practitioners, resources, and each other. Each workshop takes place at a brewery in the southwest metro and features a different STEM practitioner and topic. Workshops stand alone—attend one or attend them all!

The registration fee of \$20 (\$15 early registration) includes food, 2.0 continuing ed hours, and access to the STEM on Tap Google Drive resource folder. Beverages (alcoholic and non-alcoholic) are available but not included.

This workshop series is sponsored by Nine Mile Creek Watershed District □ and Riley Purgatory Bluff Creek Watershed District.

STEM on Tap 2025-2026 Workshops (tentative) Registration coming soon!

- * Art and STEM Wednesday, October 8th
- *Genetic Counseling & Medical Genetics Career-Wednesday, Nov 12th
- *Phenology Wednesday, December 10th
- *Weather & Climate Change Wednesday, Jan. 14th
- *Prairies & Restoration Ecology Wed., Feb. 11th
- *Stormwater & Stormwater Design March 11th
- *Drinking Water Treatment Wednesday, April 15th *Schedule:*
- 4:30-5:00: Dinner and networking
- 5:00-6:00: Presentation
- 6:00-6:30: Questions and networking

Information and registration are available at https://www.rpbcwd.org/stem-on-tap. Sign up for the Mailing List at https://www.rpbcwd.org/stem-on-tap-updates.

Geofest

Registration is now open for Geofest! Come for a one-day conference exploring how teachers use digital mapping and GIS in the classroom. GIS can be used in any subject area - come learn how!

- October 11, 2025
- 8:30 3:15
- University of Minnesota Minneapolis cam pus
- FREE and lunch provided
- Register now: Registration is now open for Geofest! Come for a one-day conference exploring how teachers use digital mapping and GIS in the classroom. GIS can be used in any subject area come learn how!
- October 11, 2025
- 8:30 3:15
- University of Minnesota Minneapolis campus
- FREE and lunch provided
- Register now: z.umn.edu/geofest
- Questions? Contact Shana at scrosson@umn.edu
- Questions? Contact Shana at scrosson@umn.edu



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Opportunities-ESTEP

ESTEP 2.0 Teacher Professional Development Focuses on Multi-Disciplinary MN Science Benchmarks

ESTEP has been offering low cost, summer workshops and mostly asynchronous online courses for a few years now, but ESTEP 2.0 - again, generously funded by the Environment and Natural Resources Trust Fund - has a new focus: a multi-disciplinary approach to the MN Science Standards.

Think of it like this...

There's a little bit of earth science and biology in a few of the chemistry benchmarks, and by using Minnesota focused phenomena and a multidisciplinary approach, students can benefit from a local, relevant and authentic problem or question to investigate. The benchmarks align vertically, and are designed for students to continue to utilize their knowledge and skills as they dig deeper into these core science concepts. There are human impact and traditional knowledge benchmarks in every grade and content area. What better way to weave these skills and concepts together, than to use something right in your backyard as the phenomena students keep coming back to?

This summer, teams of teachers met in Virginia, Mankato, Winona, St Cloud, Alexandria and Spring Valley. Their focus was local phenomena that can be used to tie together a bundle of benchmarks. Teacher participants experience and learn three dimensional teaching and learning strategies, and have time to collaborate with their peers.

"This ESTEP workshop was immensely helpful in learning about local, Minnesota, earth science phenomena and stories to incorporate into existing curriculum and share with students."

- Soudan/Virginia participant

In St Cloud, upper elementary and middle school teachers visited Quarry Park and a working aggregate quarry. They improved their content knowledge and scientist skills by putting their 'student hat' on, and identified benchmarks that can use the local phenomena. Can't take your students to a quarry? Teachers made videos, took photos, and collected samples to create virtual trips to use in their classrooms. Teachers earning graduate credit created implementation plan for their peers so they could use their ideas and resources.

"I learned more about local phenomena to the extent that I feel confident guiding students in learning about it. I also gained the idea of creating virtual field trip experiences for earth science phenomena." - St Cloud participant

Middle and high school teachers in Winona spent

a week focusing on astronomy related benchmarks, and discovered that by integrating benchmarks about waves (physics), nucleosynthesis (earth/space) and properties of elements (chemistry), they could create a rich investigative phenomenon for students using solar telescopes and eclipse glasses to view and explain the properties of our own star.

"The time you get working with teachers acting as students, while being taught by people who are, or who have been long-time practicing educators, is better than any district PD "sit and get" I've ever been to. Everyone's willingness to ask questions, be vulnerable, and learn together is why I keep coming back to these events."

- Astronomy participant

Teachers in Mankato visited a local slump and then created an investigation to learn more about the movement and characteristics of sediment and soil. Some teachers looked at motion and forces, while others investigated particle size distribution or the effect of soil on water quality.

ESTEP 2.0 offers Minnesota teachers more than summer workshops. We offer FREE online, mostly asynchronous, graduate level coursework in content and pedagogy, specifically created for Minnesota K-12 science teachers! Some of our new courses include Traditional Environmental Science, Severe Weather and Natural Disasters, Teaching and Learning in 3D II, and Earth Science Essentials II (some require prerequisites). These courses are appropriate for teachers of all levels, as well as for high school teachers who are working to add a 9-12 Earth and Space Science license.

"ESTEP has done a lot to build my confidence as a teacher. The courses deepen my knowledge, give strategies for how to teach in three dimensions, provide resources for those strategies, and give me practical experience conducting investigations just as my students will in my classroom." -

ESTEP multi-program participant

NEWESTEP 2.0 will be offering Saturday Seminars and Webinar Short Courses during the school year, and we are building an open-source repository of Minnesota science resources for all teachers! Keep an eye on your emails from MnSTA to stay on top of all the new opportunities ESTEP 2.0 has to offer, and please share with anyone in your sphere of influence who might benefit from our programs participants don't have to be an MnSTA member to participate! Check out all ESTEP 2.0 has to offer at https://www.mnsta.org/cgi/page.cgi/ESTEP 2 0.html Have questions? Contact Dana Smith, ESTEP Coordinator at estep@mnsta.org

MnSTA Newsletter

Opportunities-ESTEP



ESTEP 2.0 is for

ALL 3-8 GRADE and HIGH SCHOOL



MINNESOTA SCIENCE TEACHERS

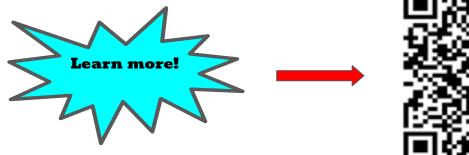
of all DISCIPLINES!

MnSTA is proud to announce that the development and implementation of ESTEP 2.0 has been fully funded at \$643,000 through a generous grant from the Environment and Natural Resource Trust Fund. This funding is for programming beginning July 1, 2025 and goes to June 30, 2027.

This grant extension will provide Minnesota science teachers the following professional development opportunities over the next two years for *little to no cost*!

- 12 summer workshops (Low cost! Stipend or graduate credit for participants)
- 18 online, mostly asynchronous, 3 credit graduate courses (FREE!)
- 12 in-person Saturday Seminars at various school sites (participants earn a stipend!)
- 16 online short course workshops on specific topics, *including a series of courses specifically* designed for elementary teachers (participants earn a stipend!)
- Develop an online repository of earth and cross-disciplinary 3D resources with FREE access for all Minnesota science teachers!

ESTEP 2.0 will continue to support the implementation of earth and environmental themes into school curricula while supporting continued use of Minnesota natural resources as phenomena for investigation. ESTEP 2.0 is intentionally designing programs that include environmental benchmarks that progress through the upper elementary and middle school benchmarks, as well as from the life, earth and space, chemistry and physics high school benchmarks.





ESTEP 2.0 Website: https://www.mnsta.org/cgi/page.cgi/ESTEP 2 0.html

Funding for this project was provided by the Minnesota Environment and Natural Resources Trust Fund as ENVIRONMENT recommended by the Legislative-Citizen Commission on Minnesota Resources (LCCMR). TRUST FUND

Opportunities-ESTEP

ESTEP 2.0 Online Courses

Our online, mostly asynchronous, FREE graduate courses are available for MN science teachers in any discipline!

REGISTER HERE!

Elementary and Middle School Teachers! Dive in and improve your content and pedagogy knowledge in earth and environmental science areas! Our courses are designed for TEACHERS and will be invaluable as you continue to develop your science classes, and develop your student sense-making approach!

High School Teachers! ESTEP 2.0 is for teachers of all disciplines! We have many courses that are intentionally interdisciplinary so be sure to look at our syllabi to see which benchmarks from life, earth and space, chemistry and physics will be covered in each course! There is something for every Minnesota science teacher in this new series of courses!

Do you want to pick up a 9-12 Earth and Space Science License? New legislation states that all students must complete one credit of Earth and Space science in high school to graduate. These courses will help deepen your understanding of the key content areas and 3-dimensional pedagogy. Along with our summer bootcamps, these courses will help those of you working toward passing the required content MTLE exam to add additional licensure in 9-12 Earth and Space Science.

Fall 2025 ESTEP 2.0 Online Courses

Our courses are offered through the Continuing Studies Department at Minnesota State University Moorhead. Each 3-credit, graduate level course is facilitated by expert instructors who are leaders in their fields and based in Minnesota at NO COST to you!

Please note that these are 3 credit, graduate level courses, and while mostly asynchronous, each require approximately 4-8 hours of work per week, per course.

CONTENT COURSES

GEOS 599: **Rocks and Natural Resources** ALSO requires your attendance at a 3 hour, Saturday morning, synchronous virtual meeting, and the completion of a required Final Pedagogy assignment in all content courses.

GEOS 599: Rocks and Natural Resources - Dr. Kate Pound

Link to Syllabus

GEOS 599: Earth Science Essentials - Dr. Russ Colson

NOTE: This course is required to take GEOS 599: Earth Science Essentials 2

Link to Syllabus

PEDAGOGY (TEACHING) COURSES

Pedagogy (Teaching) courses require up to 3 synchronous meetings, set by the instructor.

*If you are enrolled in a pedagogy course AND a content course in the same semester, you do NOT have to adhere to the above CONTENT COURSES requirements for synchronous meeting and final pedagogy project.

!!!NEW!!! GEOS 599: Traditional Environmental Science - Dr. Hillary Barron THIS COURSE IS FOR APPROPRIATE FOR K-12 TEACHERS OF SCIENCE.

Link to Syllabus

!!!NEW!!! GEOS 599: Teaching and Learning ES in 3D II - Marlene Schoeneck

NOTE: Prerequisite of GEOS 599: Teaching and Learning ES in 3D required to take this course.

Link to Syllabus

IMPORTANT DETAILS

ALL online courses are designated as blended. This means that the courses are offered in an asynchronous style, with scheduled assignment turn in dates and assessments. Professors will be available for questions, etc via office hours or scheduled appointments. In order to earn a passing grade and credit for the course, participants MUST commit to both asynchronous AND synchronous requirements. A final pedagogy assignment is also required for all content courses.

REGISTER HERE!

Questions? Email Dana Smith at estep@mnsta.org

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Opportunities

ARE YOU TIRED OF...

- endless online searching for classroom resources?
- never-ending PDF "lesson plans?
- materials that look good but hard to use?
- instructional materials that do not align with student needs?

JOIN THE WONDRUS EDUATORS COUNCIL.

www.surveymonkey.com/r/ WondrusEducators



Get paid to give feedback to science museums and research institutions on their classroom resources!





It is our mission to: stimulate, coordinate, and improve science teaching and learning for all.

Why Join MnSTA?

 Keep up with the latest developments in science education





Fall 2025

- Network with peers from around the state
- Help us advocate for science education at the district and state level

Join at mnsta.org

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Ready to Change the World Using the Power of Games? Join the 2025–2026 Games for Change Student Challenge

THE GAMES FOR CHANGE STUDENT CHALLENGE is a global game design program combining students' passion for games with digital learning and civic engagement.

WHAT DOES THE G4C STUDENT CHALLENGE INCLUDE?

- Free professional development in social impact game design for educators
- Self-paced game design courses for students
- · Student events and game jams for skill-building and career exploration
- Game design competition with prizes, including a \$10K scholarship

WHO CAN SUBMIT GAMES?

- Young people aged 10–25
- Young people anywhere in the world
- · Young people working solo or as part of an educational program or in-school assignment

March-May 2026

May 2026

· Game evaluation by industry experts

Finalist notification & awards ceremony

WHAT IS THE TIMELINE OF PARTICIPATION?

Sept-Dec 2025

- Program sign-up
- · Educator training
- Game design courses

Nov-March 2026

- · Game submission period
- Game jams

CICN LID TODAY

for Updates and Announcements about the Student Challenge 2025-26

https://bit.ly/SCApplication25-26



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Get more information and explore last year's student games: http://gamesforchange.org/studentchallenge

MnSTA Newsletter

Go to **Opportunities** for more information

Opportunities-Jeffers Foundation

St. Croix River

FALL FIELD EXPERIENCE FOR TEACHERS

Experience a day of learning on the St. Croix River

Sponsored by: Jeffers Foundation







This field experience for teachers, will develop a sense of place and enrich your teaching of science, literacy, and more.

Participating teachers will gather and document observations and learn about the local geology, biology, and cultural history of the St. Croix River and River Valley. Knowledgeable instructors will guide small groups of teachers as they embark on a canoe trip from Interstate State Park near Taylor's Falls to Osceola Landing. Educational programming and discussions at Interstate State Park before and after the canoe trip will provide methods and resources to help teachers engage their students in field experiences and journaling exercises that focus on not only the St. Croix River, but also their local environment and river ways.

Individual teachers, as well as teaching teams, are encouraged to join us for a day on the river!

Participating teachers will receive a Jeffers Journal to use throughout the day. They are also eligible to receive a class set of Jeffers Journals to use with their students this school year.

What: Field experience for teachers, canoeing from Interstate State Park to Osceola Landing. Distance: 7 miles. FREE Professional Development for Teachers (CEU's: 6 hours) Where: Interstate State Park Picnic Shelter. The Park entrance for the picnic area is about 1.5 miles south of Taylor's Falls on Highway 8 (same exit for boat launch and campground). A shuttle will bring the group back here after the canoe trip.

When: Saturday, October 4, 2025 9:30am-3:30pm (includes canoeing from 10:30am-3:00pm)

Cost: Free \$20 Deposit upon registration will be refunded upon completion of the experience. Lunch is included.

Entrance to the park: Participants will need to purchase a day-pass or annual pass for their vehicle.

Registration: Now open. Group size capped at 25.

Questions? Contact David Grack: david.grack@jeffersfoundation.org N

Interstate State Park - Taylors Falls, MN



Fall 2025

Environmental Stewardship Through Education JeffersFoundation.org



ATTENTION: SCIENCE TEACHERS GRADES 4-12!

Student scholarship opportunity for outdoor learning on the North Shore.

Thanks to funding partners, Wolf Ridge Environmental Learning Center, located in Finland, Minnesota, is offering scholarships to schools.

DOES YOUR SCHOOL QUALIFY?

Your school may qualify for scholarships at either the school-wide or individual student level. Scholarships can be used for tuition, lodging, and meals for 3 days/2 nights or 5 days/4 nights for students in grades 4–12, for groups from 15 to 350 people. School year and summer programming is available.

ABOUT WOLF RIDGE

Wolf Ridge is an accredited residential environmental school located on the North Shore featuring a nationally recognized curriculum that aligns with state academic standards, Common Core, and Next Generation Science Standards. Instructors involve students in the direct observation, inquiry, and exploration of wild forests, wetlands, lakes, and streams.

Features include:

- 2,000-acre classroom on the North Shore
- 68-acre field station on Lake Superior
- 18 miles of hiking and ski trails
- Multiple lakes and streams
- Dining hall with produce from our organic farm
- Indoor rock-climbing walls and outdoor ropes courses



INTERESTED?

Please reach out to Wolf Ridge K–12 Program Coordinator Emily Pavlisich (scheduling@wolf-ridge.org or 218-353-7414, ext. 107) with questions or to find out if your school is eligible for scholarships. Learn more at <u>wolf-ridge.org/programs/educators/k-12-class-trips</u>.



Osprey Wilds is an accredited Outdoor School in Sandstone, Minnesota. We provide K-12 residential and day-use learning experiences, including environmental, adventure, and team-building dasses!

OUTDOOR SCHOOL TRIPS

Overnight

- 3 days, 2 nights
- 6 two-hour classes
- 2 evening classes
- 7 meals

Day Program options available by request







CLASS SUBJECTS

Ecology Wildlife Stewardship Culture & History Adventure Education Naturalist Evening Programs & more!



Pending for E-12 Scholarships to provided by the Minnesots Restourness and Material Resources Tout Pend as communicated by the Legislative-Citizen Commission, on Minnesots Resources (LCCMII).

Learn more online at OspreyWilds. org/schools



Contact us

schools@ospreywilds.org 320-245-2648











54165 Audubon Drive, Sandstone, MN 55072 | 320-245-2648

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Contacts and Resources

Free resources for teaching how science works

Decoding Science is a free interactive resource from the National Academies of Sciences, Engineering and medicine. It's all vetted by experts and ready to use in your classroom.

A 90-second video on how science works Clear answers to challenging questions Stories from real-life scientists

And more...

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

Student Programs, Awards and Competitions

Science and Engineering Competitions

- 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 Chal lenge, 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 MN delegates

Minnesota Programs and Competitions

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

MDE Science Contacts:

Angela Kolonich, Science Content Specialist angela.kolonich@state.mn.us

Jim Wood, Science Assessment Specialist jim.wood@state.mn.us

Judi Iverson, Science Assessment Specialist judi.iverson@state.mn.us

Sarah Carter, STEM and Computer Science Specialist sarah.carter@state.mn.us

Send submissions for the Science Update to Angela Kolonich angela.kolonich@state.mn.us

Other Minnesota Links:

Minn. Dept. of Education Science Page
Minn. Science Teachers Association mnsta.org
Frameworks for MN Science and Mathematics Standards

Get – STEM Connections between schools and businesses

Mn-STEM STEM programs and resources for families, schools and communitySharing Environmental Education Knowledge environmental education

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

Keep Your MnSTA Profile Up-To-Date

MnSTA does its best to keep you abreast of everything happening in science education in Minnesota. We do this via several outlets including:

	MnSTA Website www.mnsta.org
	Instagram @mnscienceteachers
	MnSTA Facebook and Twitter pages (@MnSTA1)
	Weekly Digest of postings (sent via email)
	Updates from MDE Science Specialist Angela Kolonich (newsletter)
	Quarterly Newsletter (availability announced via email)
П	Occasional email messages to all members

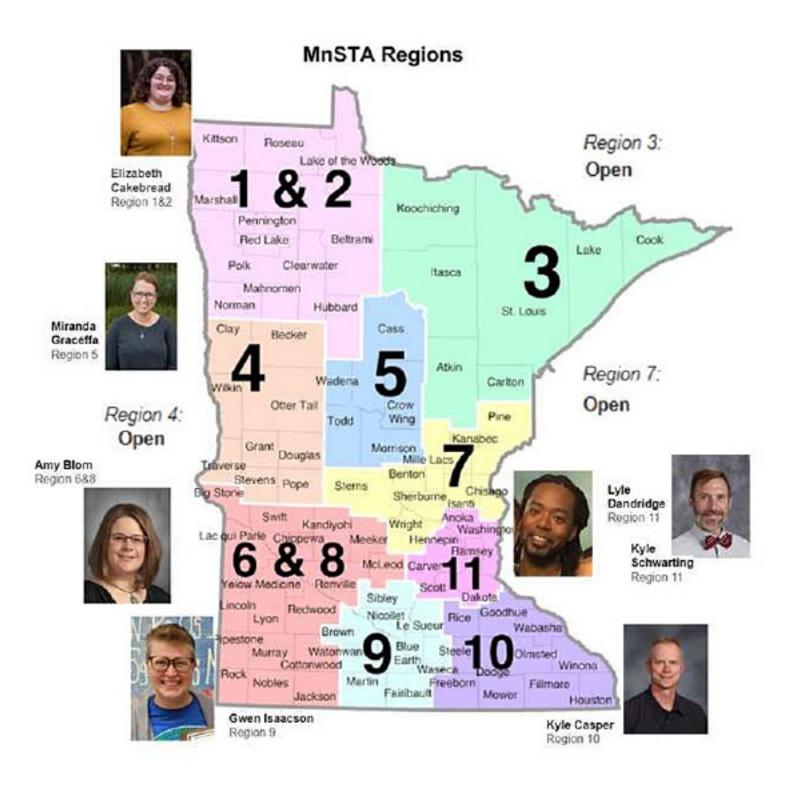
The best way to make sure you are receiving email notices and all of the above information, please make sure that MnSTA has your correct email address, mailing address, and your permission to send this information to you. Your profile also contains information about your school, disciplines you teach, and the grade levels you work with. These can all be updated at any time.

You can update your MnSTA profile by going to the MnSTA website (www.mnsta.org) and logging in. Click on the My Profile link. You will then see links to Update Profile, Update Addresses, Update Photo, and Change Password. If you have any questions about this, please feel free to contact MnSTA.

MnSTA, Inc. is an IRS 501 (c) (3) Charitable Educational Corpora-tion, incorporated as a tax exempt, non-profit organization with the Minnesota Secretary of State. Donation and dues are tax deductible charitable contributions for itemized deductions on IRS form 1040 Schedule A. The newsletter is an exemp program service provided to the membership A membership form is found on the last page

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MnSTA Board Region Representatives



MnSTA Board Directory

Below, you will find information about your MnSTA Board Members. The listing includes the board member's school (or organization), mailing address, work phone, FAX number, and e-mail address. The board wishes to make itself as accessible as possible for our members. Please feel free to contact your discipline representative, regional representative, or executive board members if you have ideas, concerns, or wish to help with the mission or operation of MnSTA. We are always looking for members who wish to serve MnSTA as Board Members, Non-Board Service Chairs or Members, and as Committee Chairs or Members.

Executive Board:

Exec. Secretary/Datal	oase Tom Meagher	Owatonna Public Schools	
	507-210-4143	tmeagher@isd761.org	
President	Haley Kalina	Alexandria Public Schools	510 McKay Ave N. Alexandria, MN 56308
	320-762-7900	president@mnsta.org	
Past President	Jill Jensen	Scott Highlands Middle School	4011 Pilot Knob Rd. Apple Valley, MN 55124
	952-423-7581	jill.jensen@district196.org	
President-elect	Missie Olson	Becker High School	12000 Hancock St. Becker, MN 55308
	320-274-3341	molson@isd726.org	
Treasurer	John Olson	Metropolitan State Univ.	700 E. 7th St. St. Paul, MN 55107
		treasurer@mnsta.org.	
DOE Science Speciali	st Angela Kolonich	angela.kolonich@state.mn.us	

Discipline Directors

Discipline Directo	ors:				
Biology	Shelly Munoz	Brainerd Public Schools			
		shellymunoz316@gmail.com			
Earth Science	Dana Smith	Bemidji Middle School 1910 Middle School Ave. NW Bemidji, M	N 56601		
	218-333-3215	dana_smith@isd31.net			
Chemistry	Jillian Harvalls	St. Thomas Academy 949 Mendota Heights Rd. Mendota Heights .	MN 55120		
	651-683-1345	jharvalis@cadets.com			
Elementary/Greater MN	Robin Knutson 218-454-6123	Forestview Middle School 12149 Knollwood Dr. Baxter, N robin.knutson@isd181.org	IN 56425		
Elementary/Metro	Kim Benton	Garlough Environmental Magnet 1740 Chariton St. West St. Paul	55118		
	651-403-8172	kimberly.benton@isd197.org			
Higher Ed	Sarah Gibson	St. Cloud State University Wick Science Bldg. 720 4th Av. S. St. Cloud	56301		
	320-308-4083	szgibson@stcloudstate.edu			
Informal Ed	Felicia Leammukda	St. Cloud State University			
		felicia.leammukda@stcloudstate.edu			
Alternative Ed.	Jess Paulson	Sciences Academy 8008 83rd St. NW Maple Lake,	Mn 55358		
	952-852-0129	jpaulson@jgesa.org			
Physics	Jason Hall jhall@ahastars.org	Mound Westonka High School 5905 Sunnyfield Rd. E. Minnetrista	55364		
Indigenous Science	Hillary Barron	Bemidji State University 1500 Birchmont Dr. Bemid	ji, 56601		
	218-428-2689	hilliary.barron@bemidjistate.edu			
Private Schools	Mark Peterson	Benilde-St. Margaret's School 2501 Hwy 100 S. St. Louis Park MN 5	55416		
	320-420-5246	mpeterson@bsmschool.org			
Region Representa	tivos:				
		Ada Parun West School 604W Thorum Ave Ada MN ESE10			
Region 1&2: North	Elizabeth Cakebread	Ada-Borup-West School 604 W. Thorup Ave. Ada, MN 56510			
Danien 2. Neuthor-t	218-784-5300	elizabethc@ada.k12.mn.us			
Region 3: Northeast	Open				

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MnSTA Board Directory

Region 4: Westcentral Region 5: Northcentral	Open Miranda Graceffa 218-330-6154	Crosslake Community S mgraceffa@crosslakeki		36972 Cty Rd 6	66 Crosslake, MN 56442	
Region 6&8 Southcent	Amy Blom	Edgerton Public		423 1st Ave. W.	Edgerton, MN 56128	
	507-442-7881	ablom@edgertonpublic.com				
Region 7: Eastcentral	Open					
Region 9: South	Gwen Isaacson	Loyola Catholic School 145 Good Cour		15 Good Counsel	sel Dr. Mankato, MN 56001	
		gisaacson@loyolacatholicschool.org				
Region 10: Southeast	Kyle Casper	Rochester Public Schools		615 7th St. SW Rochester MN 55902		
Region 11: Metro	Lyle Dandridge	Washington Tech Midd	le School	1495 Rice St. St. Paul 55117		
		lyle.dandridge.jr@gma	il.com			
Region 11: Metro	Kyle Schwarting	ISD 196 3455 15	53rd St. W	Rosen	nount, MN 55068	
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	, ,	ashleynarmstrong7@gmail.com				
Conference Coordinato	r Eric Koser	Mankato West H.S.	1351 S. Rive	erfront Dr.	Mankato, MN 56001	
	W: 507-387-3461 x 322	F: 507-345-1502	e: ekphys@	gmail.com		

Events Calendar

If you have events you want placed on the calendar, send them to the editor - see page 2 for deadlines, address, etc.

Conferences / Workshops

NSTA Conference Minneapolis on November 12-15, 2025

Membership Application Form

MnSTA Membership Application Form Join the Minnesota Science Teachers Association (MnSTA), the professional organization whose primary goal is the advancement of science education. Mail this form along with your check to: MnSTA Treasurer, 24405 Iceland Path, Lakeville, MN 55044 Home School/Organization Name Name (First, MI, Last) Address Address City State Zip code Citv State Zip code Phone number Phone number Preferred email address School district # (enter "P" if Private, "A" if Alternative, "C" if Charter) Second email address Rates **Discipline and Grade Level** ■ Biology ☐ Elementary (PreK-2) ☐ Basic Membership\$25 ☐ Chemistry ☐ Elementary (3-6) ☐ First Year Teacher\$15 ☐ Earth Science ☐ Middle/Jr. High School (6-9) ☐ Retired Teacher\$15 ☐ Environmental Sci ☐ High School (9-12) □ Pre-service Student.....\$10 ☐ Life Science □ College/University ☐ Elementary School Building \$75 ☐ Physical Science ☐ Informal Ed Includes all teachers in the building □ Physics ☐ Life Membership: to age 35 \$400 age 36-50 \$300 over 50 \$200 MnSTA Photo Release Statement ■ New Member ☐ Renewing/Past Member By becoming a member of the Minnesota Science Teachers Association (MnSTA) or by attending any MnSTA-sponsored event, you are granting permission for the use of your image A joint MnSTA - NSTA membership is available through for MnSTA promotional purposes without compensation. If NSTA (https://www.nsta.org) you have questions regarding this policy, please contact membership@mnsta.org Teacher Leadership **Privacy Information** Who can view your School/Organization Profile? Members Administration only ☐ Please contact me regarding additional MnSTA keeps you informed about the events and issues impacting science education in involvement and/or Minnesota through its website and an email Digest of those website postings, and periodic potential leadership informational emails. opportunities with MnSTA Do you consent to receive email communications from us? Yes ☐ No

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