

MnSTA Newsletter

Volume 63 No. 4 A Quarterly Publication of the Minnesota Science Teachers Association Inc. Summer 2022

Duluth Welcomes MnCOSE 2022

Are you ready to experience three dimensional learning and explore phenomenon based science teaching and learning? The MnSTA Conference on Science Education is back in person!! We're so excited to welcome you to join us in Duluth on November 3, 4, & 5 to experience MnCOSE22!

Our theme is "MnCOSE in 3D", as in Crosscutting Concepts, Disciplinary Core Ideas, and Science & Engineering Practices AND being together for real!

What a great place to gather together, on the shores of Lake Superior at the Duluth Entertainment and Convention Center. The DECC is close to restaurants, hotels, tourist shopping, and the iconic Lift Bridge. And - we're making plans to get you into the Great Lakes Aquarium to relax and unwind after a day of sessions.

We have secured Science Framework & NGSS writing team member Brett Moulding to present both our keynote and a Saturday Workshop to dig in deep to phenomenon based lessons. Brett has written books on phenomena-based instruction and is a national leader for 3D professional learning.

We need YOU not only to come, but to share your expertise and experience with each other! We will be accepting presentation proposals through the MnSTA website soon. Visit our conference website mnsta.org for registration information. Exhibitors are lining up to join us and provide their expertise to you! While this conference will be exclusively in person, we will continue to use Whova app as a tool to make us even more connected.

We are all eager to learn about new resources as we plan and implement our new Minnesota Science Standards (with full implementation by 2024-25)!

MnCOSE is the place to be for the latest updates, strategies, and networking!

MnCOSE22 Strands will include our traditional Core Idea focus:

- *Life & Environmental Sciences
- *Physical Sciences (Chemistry & Physics)
- *Earth & Space Sciences

as well as strands around critical areas in science education:

- *Implementing the 2019 MN Science Standards
- *Justice, Equity, and Culture in Science Education
- *Community and Global Impacts on Science Teaching plus an entire strand of "Exhibitor Sessions," presentations by MnCOSE exhibitors on products and services.

Reserve your professional development funds now...and start talking about #MnCOSE22!

Eric Koser
MnCOSE Coordinator



Brett Moulding will be the keynote speaker at MnCOSE

President's Message-Angela Osuji



We did it! Be Happy! Wow! What a year! Congratulations to all of you for successfully finishing this school year despite all the challenges we faced locally, nationally, and globally. Congratulations, also to the High School graduating class of

2022. Your joy at your commencement ceremonies belies all the struggles you went through and all the longings you did not get the opportunity to fulfill in high school during this global flux. Yes, you made it. Yes, we made it. We, your teachers and especially your science teachers, celebrate all that we accomplished with you.

We have often forgotten how to celebrate even the small victories in our science classes and schools. Throughout this year, I incorporated songs in my classes and was pleasantly surprised at the rate my students enjoyed them. From the serious ones like [Desiderata](#) and [Life Vest Inside](#) to the goofy [Boomerang](#) and to the chemistry concept-based ones like [Avogadro's song](#), [the mole song](#), [the periodic table](#), and even [Pharrell Williams' Happy Song](#). My students even urged me to play one when an administrator came to visit one of our classes.

Let us not forget to celebrate and be joyful despite the fatigue as we continue to advance the mission of the Minnesota Science Teachers Association (MnSTA) to "stimulate, coordinate, and improve science teaching and learning for all". In doing so, let's not forget to celebrate and be joyful. There will be time for us to reflect more deeply on this mission aligned with the National Science Teaching Association's (NSTA) strategic plan to equip and empower all educators to provide students access and opportunity to be successful in science. There will be time for us to continue our advocacy to raise the profile of science education to promote respect and ensure an investment that supports equitable, high-quality science education. There will be time for us to continue our learning on how to create a nurturing and inclusive community of science educators. There will be such a time as we gather to engage in communal learning at the [Minnesota Conference on Science Education](#) (MnCOSE 22 in 3D).

But for now, let your guards down. Be joyful. Be goofy. Enjoy the [science and engineering practices](#) (SEP), and the [disciplinary core ideas](#) (DCI) you explored this year with your students as you connected them with the [crosscutting concepts](#) (CCC) you taught this year. Do the happy dance with me and my students as we round up the school year, enjoy the summer, and look forward to the new school year in the fall. Just [because we are happy!](#)

Happy summer phenomenal Minnesota science educators. The MnSTA board is grateful for all the work you do to foster excellent science education in Minnesota for all.

Editor's Note:

Thank you Angela for your leadership during these past two years as our president. These past two years have been both difficult and challenging for our teachers and students but with your guidance we were able to stimulate and improve science teaching and learning for all. We now pass the torch of the presidency to Jill Jensen who will continue your work as an advocate for science education.



Jill Jensen will take over as president of MnSTA at the July 20th board meeting.

Teacher Feature-Jodi Hansen



Our featured teacher for this edition of the MnSTA newsletter is Jodi Hansen. Jodi teaches physical science, chemistry and AP chemistry at Worthington High School. She recently completed her 29th year of teaching.

Helping students develop a growth mindset and believing they can all accomplish hard things is her number one priority in the classroom! She uses the AMTA Chemistry Modeling curriculum to help students make sense of phenomena they observe together to build a conceptual understanding of chemistry. She wants them to understand why things work the way they do. She wants them to have a solid base to build on and if it takes some students a little longer or a few more tries to get to mastery, she gives them the room to get there. She states, "I love to help students discover new things and make connections between them."

Jodi's favorite activity to teach is the Mylar-8 which is a modification of Louis Mangione's invisible map. Mangione does seminars for the Bureau of Educational Research. The Mylar-8 is an imaginary table that she pretends is real and made of this revolutionary new material called "Mylar-8". It is transparent from the back, but semi-opaque from the front, it is stretchable & resizable. It can go from full wall chart size to credit card size so students can carry it with them.

When she introduces the periodic table for the very first time, She tells them she had the custodians install this special "Mylar-8" periodic table into the ceiling and proceeds to the wall to push the imaginary switch to lower it. She works from the back side and shows them where hydrogen is, then where helium is and goes on to the various families and features of the periodic table. She includes "sound effects"...the transition elements make a "swish-swish" sound and the metalloids make a "eek-eek, eek-eek eek-eek" as you go down the steps. It ends up looking a bit like a disco-dance from time to time and the students all look at her like she's on serious drugs, but even the

toughest cookies end up with a smirky smile by the end.

She then distribute a Mylar-8 chart to each student for them to keep. They can use it on every test for the rest of the year and even in future Chem/Bio classes. They have to set it up on their desks and point to the various parts of the table including sound effects as she does. She states, "They do really get into it...and it's always fun to have someone who was absent on the day I first cover this come back the next day and try to figure out what happened to everyone!"

As an assessment, she has them draw, with paper and pen, a periodic table showing the basic outline & labeling: metals, nonmetals, metalloids, transition elements, lanthanide/actinide series, alkali metals, alkali earth metals, halogens, noble gases, and correctly place at least 8 elements. They do surprising well and their Mylar-8 becomes perhaps the most REAL copy of the periodic table they will ever receive!

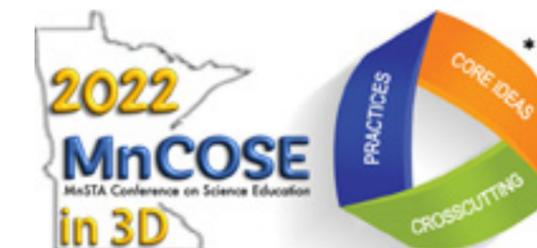
Jodi is very active in educational organizations! She is a former MnSTA board member, lifetime member of MnSTA, and a presenter at many MnSTA Conferences, including MnCOSE 2020. She is a member of the American Association of Chemistry Teachers and the American Chemical Society. She presented at ChemEd 2019 and the Biennial Conference on Chemistry Education 2022. She is a member of the American Modeling Teachers Association (AMTA). She is a Teaching and Learning Fellow with Quarknet and a member of the Minnesota Quarknet Group. She is Member of the Peer Alliance for Gender Equity in STEM, Science Museum of MN, President of Education Minnesota Worthington Local 7291 and member of Education Minnesota Governing Board and Executive Committee.

In 2017, Jodi became a National Board Certified Teacher, Science - Adolescence & Young Adulthood, Chemistry.

Jodi loves to travel, read and is very involved with Education Minnesota.



Jodi facilitating her students doing a colored precipitates lab which lead to learning about net ionic equations in Chemistry.



Online Master's or Graduate Certificate in Chemistry

The Master's in Chemistry will develop the ability to integrate advanced chemistry knowledge and critical thinking skills to effectively approach scientific problems grounded in chemistry.

The Graduate Certificate in Chemistry will advance secondary education instructors interested in teaching advanced chemistry classes or making salary increases.

- Designed for science teachers
- 100% Online
- Start anytime
- Complete on your schedule

css.edu/MSCChem



Minnesota Presidential Awardees



PAEMST Awardees from 2019 and 2020
Jessica Macken (Math 7-12), Eric Friberg (Science 7-12), Brian Hare (Science K-6), Abram Schwartz (Math K-6)

Imagine Learning's **Twig Science** is igniting breakthroughs for Minnesota's K-8 students and NGSS. Experience the phenomena!

Register for our FREE Webinars:

Webinar 1 - June 23, 2022 @9:00am
[Register Here](#) Link for June 23 Webinar

Webinar 2 - July 7, 2022 @ 12:00pm
[Register Here](#) Link for July 7 Webinar

 **imagine learning** Discover how at imaginelearning.com





Angie Kolonich is the science specialist for the Department of Education. She will keep us updated on science education in the MnSTA newsletter.

Boozhoo*/Greetings Minnesota Science Teachers!

Niibin/It's summer (finally). I hope that you all are having a wonderful end to the school year, and are looking ahead to an enjoyable break. In our home, we look forward to the summer solstice which is the longest day of the year, and also our anniversary! Each summer, we celebrate by exploring the outdoors, particularly along the shores of Gichigami/Lake Superior. With Giizis/The Sun shining brightly overhead, and the cool waves crashing on the shore, there is no better time to explore Aki/Earth! I am grateful for the longest summer day each year to celebrate, and I always look to see exactly how many hours and minutes of daylight we will have** One interesting thing that I've noticed over the years is that the length of day on the summer solstice is not always the same. In fact, on June 21st 2022, the length of day in Warroad Minnesota near the Canadian border is 16h 15m 21s, and the length of day in Elmore Minnesota on the Iowa border is 15h 28m 54s! That is a difference in amount of daylight of over 47 minutes! This makes me wonder why there is a difference in the length of day in these two Minnesota towns, and whether or not the day is always longer up north. Maybe this means we should travel even further north next year, I wonder how long the

day can possibly get! Maybe I will call some of my family up in Manitoba and see how long June 21st will be this year for them. I hope that this summer, you have the opportunity to get out and enjoy the sunshine, regardless of the length of day.

* You can learn more about Ojibwe language and access audio files of word pronunciation at The Ojibwe Peoples Dictionary – established by faculty at The University of Minnesota <https://ojibwe.lib.umn.edu/>
** Check to see how long the day will be on June 21st 2022 in your location at <https://sunrise-sunset.org/>

Minnesota Science Standards

Updates on the Minnesota Science Standards and Implementation Timeline The 2019 version of the Minnesota Science Standards have completed rule-making, and MDE is currently working on finalizing the current draft of the Minnesota Science Standards on our website. MDE is also currently working on a revised Potential Transition Timeline for the 2019 Science Standards to provide guidance to districts, which will be released on our website this summer. Please keep an eye on our [Academic Standards – Science page](#), and the [Science Standards Implementation page for updates](#). As a reminder, the updated timeline for full implementation of the Minnesota Science Standards is scheduled for the 2024-2025 school year. Students will take the newly developed MCA IV in 2024-2025.

MCA Science Assessment update

Get involved with the development of the Science MCA. Every year, through Educator and Community Review Committees, Minnesota educators and community members across the state bring invaluable classroom experience, perspectives from teaching diverse students, and engagement with Minnesota Academic Standards to the test development process. This committee participation ensures that the content and question type align closely with best practices in classroom instruction. Each committee is a separate entity that meets for two to four days. When the committee completes their specific review task, a new committee is formed for the next task in the test development process.

1. Sign up for [MCA Review Committees Database](#). Committee members are selected to participate in various meetings throughout the summer. Your input is vital in the development of items to the new science standards.

2. Preview sets of questions developed for the Science MCA-IV. [The Testing 1, 2, 3 MCA Content Resources](#) webpage under Science Resources now has released examples of Science MCA-IV items and Educator Guides. The purpose of these resources is to give Minnesota education professionals a few examples of phenomenon-based, multidimensional items aligned to the 2019 Minnesota Science Standards. The guides include information on benchmark alignment and student response data, to provide context for the online released items.

Congratulations Brian Hare - Presidential Awards for Excellence in Mathematics and Science Teaching Winner Announced

On February 8th, 2022, [President Joe Biden announced 117 educators](#) as recipients of the Presidential Award for Excellence in Mathematics and Science Teaching. The Minnesota Department of Education asks you to join us in celebrating Brian Hare, sixth grade physical science teacher from E-STEM Middle School in Woodbury Minnesota for receiving the 2020 Presidential Award! You can read about Brian Hare and his service to Minnesota students by visiting his profile on the [Presidential Award for Excellence in Mathematics and Science Teaching Website](#). In Brian's words: "The Presidential Award signifies that I am striving to teach my students at the highest level. Students of our nation deserve to be taught by teachers that create meaningful content that challenges them to become competent citizen-scientists. All students deserve this no matter where they are in the nation, who teaches them, or what school they attend. Receiving this award with all the other deserving nominees reassures me that students are receiving a great education in our nation."

Thank you, Brian, for your continued dedication to high-quality science education for all students, and for your continued service to education in Minnesota. Secondary science teachers, please consider applying for 2023! You can learn more about this prestigious award at <https://www.paemst.org/about/view>
Presidential Awards for Excellence in Mathematics and Science Teaching Finalists Announced

The review of the Minnesota applications for the Presidential Awards for Excellence in Mathematics and Science Teaching for 2022 is complete! This year the applications were for elementary teachers, and next year will be for secondary teachers. The applications include a video recording and a narrative about the practices in science content, instruction, assess-

ment, reflection and leadership. The applications of each finalist will be judged at the national level, and the White House will make the final selection for the 2022 Presidential Award Winner.

The Minnesota State Science finalists for 2022 are:

- Anna Edlund from Bluff Creek Elementary School
- Kimberly Menard from Lake Marion Elementary School
- Dawn Mueller from Independence Elementary STEM School

Please join us in congratulating our State Science finalists for 2022, and wishing them well as their applications proceed to the national level.

The Council of State Science Supervisors is Coming to Minnesota

Each year, science content specialists and assessment experts from each state gather to share the good work going on in their region, and collaborate on new initiatives to support K-12 science education. This June, the annual meeting of the Council of State Science Supervisors (CSSS, or CS3) will be held right here in our home state of Minnesota! The theme of this year's conference is Navigating the Seas of Complexity, and it will be the first in-person conference for many state science supervisors in a long time. Immediately following the conference this year, teams of state science educators will remain in Minneapolis to attend Building Capacity for State Science Education: Leveraging Freely Available Open Education Resources – An event focused on building capacity within each state to forward science education initiatives. MDE is excited to host science specialists from all over the United States in Minnesota this year, for the opportunity to share the great work going on in our state, and to learn about best practices happening in other states that we can bring back to Minnesota science classrooms. Please watch for our next update which will include a brief summary of topics shared during the conference.

Contact Information

Angela Kolonich, Ph.D. | Science Content Specialist | Academic Standards, Instruction, and Assessment

angela.kolonich@state.mn.us

Opportunities

Attention 6th grade and HS Earth Science Teachers (Current and Future!)

Due to some cancellations and changed assignments, there are now some open seats for ESTEP (Earth Science Teacher Education Project) THIS SUMMER! If you are/will be teaching the new EARTH AND SPACE SCIENCE standards in 6th grade or in high school - read on! Still a pre-service teacher, or working toward licensure? Join us!

ESTEP for 6th grade Teachers

The ESTEP 6th grade professional development is a one week, bootcamp style, regional workshop that incorporates earth and space science content with teaching strategies to get you thinking about changing your teacher craft to help your students make sense of science. We'll walk you through investigations that you can use no matter where you are in your transition to the new standards - you'll learn about phenomena, storylines and 3-dimensional strategies by DOING the science! Cost is \$390.00.

There are a few openings left at our Alexandria boot camp August 8 - 12 at Alexandria High School. Optional college credit is available for additional cost. Apply [NOW HERE!](#)

ESTEP for High School Teachers

ESTEP is a fast paced, one week, bootcamp style, regional workshop that focuses on a specific set of earth and space science benchmarks AND the teaching strategies you will need to start making the shift to science sense-making with your students. This summer's content focus is geology and hydrology. Cost is \$390.00.

Deepen your understanding of earth science concepts through investigations!

Utilize 3-dimensional strategies by DOING the science!

Begin building confidence in your unit and lesson planning!

Collaborate and discuss how phenomena and storylines relate to particular investigations!

There is ONE opening left at our Mankato boot camp at Minnesota State University, Mankato June 27 - July 1, and FOUR left at our Moorhead boot camp at Minnesota State University, Moorhead July 25 - July 29. Optional college credit is available for additional cost. Apply [NOW HERE!](#)

Here is what last summer's participants had to say about ESTEP:

"Applying the SEPs with our various lessons throughout the week was so valuable. Having discussions with colleagues and having time to brainstorm how we can apply it in our own unique classrooms and limitations was very meaningful. I walked away from this week feeling like "I got this!," and when I don't, I have a community of other professionals and mentors who can help me and collaborate with me."

"I really enjoyed my week of learning. I loved the field experiences and all of the opportunities to collaborate with others. I also appreciated thinking from the student perspective and the teacher perspective. All of the modeling of the pedagogy was also amazing. I was able to pull out multiple strategies every day that I can easily share and utilize with my teachers and students."

"I have been teaching for 17 years. This was the best professional development I have ever had, by far, times ten. I came in with a sense of confusion and felt overwhelmed. This answered so many questions and gave me a sense of confidence moving forward."

"Being a newer teacher... and not having the content knowledge for a completely different science topic... this bootcamp was the perfect start for my progression in teaching 6th grade Science. I am even able to take what I learned from this bootcamp for my 5th grade Science. This type of bootcamp would be beneficial for any science teacher, not matter the content. The modeling and pedagogy works for all!"

Do you have questions? Contact Dana Smith at dana_smith@isd31.net or damedu2018@gmail.com

We would love for you to join us! Feel free to share this info with your staff/colleagues and others who would benefit from this professional development.

MnSTA/ESTEP Diversity, Equity and Inclusion Statement

We are committed to reflecting the diversity of Minnesota educators that participate in our programs. We are especially focused on teachers of BIPOC and underrepresented populations, alternatively licensed educators, and educational assistants working toward licensure.

Opportunities

Earth Science Data Use and Understanding in Grades 7 to 14

The Earth Science Information Partners (ESIP) Education Committee is planning for an in-person workshop with local educators from the Pittsburgh area combined with an online workshop via Zoom on the afternoons of Wednesday, July 20th and Thursday July 21st (1:30 pm to 5pm ET both days). Registration is FREE! All registrants will have access to both days of the workshop where ESIP members will share a resource and lead teachers through an activity using Earth science data to explore phenomena via different types of data. Tools and resources include the NOAA Climate Explorer, UNAVCO Velocity Viewer, NOAA CIMSS satellite data activities, NASA SEDAC Hazards Mapper and HazPop App, En-ROADS Climate Decision Model, and the Concord Consortium "Flood Risk and Impact" module. Participants will also be directed to the "Out 2 Lunch" archive of Earth Science webinar demos of data tools and resources.

If you attend in-person, you will receive \$200 to defray fuel and hotel costs. (Breakfast and lunch are provided and evening receptions include appetizers). Also, you have the opportunity to apply and compete for a FUNDing Friday project (up to \$3000).

If you attend online, you can participate without the hassle of travel.

Both in-person and online participants have the opportunity to apply for implementation grants the following school year.

Registration is limited to 50 participants so sign-up now! To register go to:

<https://web.event.com/event/e5fcb61-a693-4f0b-8ab7-8cd4bc19fcfb/regProcessStep1>

American Association of Chemistry Teachers

The American Association of Chemistry Teachers (AACT) has a Periodic Table Unit Plan using materials from the AACT Library. The unit includes lessons, activities, labs, projects, videos, simulations, and animations. [More information](#)

WaterWorks!: A Drinking Water Institute for Educators

August 1-3, 2022; Red Wing Twin Bluffs Water Treatment Facility; 1468 Pioneer Rd.; Red Wing, MN

Enrich your water curriculum, investigate drinking water quality, chemistry, engineering, community resources, and practice-based activities for your classroom. This three-day, hands-on workshop allows grade 4-10 teachers of science to gather

information from expert presenters about how safe, reliable drinking water is delivered to your community as well as drinking water issues facing Minnesota. Meals and resource folder provided. Choose between two graduate credits or stipend. Join the ranks of over 400 teachers that have participated in WaterWorks! throughout Minnesota over the last 20 years. Funded by the Minnesota Dept. of Health and the American Waterworks Association.

Application and information at: <http://www.hamline.edu/education/environmental/cgee/waterworks>

With questions, contact Sara Robertson at the Center for Global Environmental Education, srobertson01@hamline.edu

Science in the City Book Discussion

MnSTA will be hosting a virtual discussion of the book *Science in the City* by Bryan A Brown this summer. This book "examines how language and culture matter for effective science teaching," and provides a great opportunity to reflect on the scientific language used with students. The meeting will include discussing ideas for how to help students become fluent in the language of science.

The discussion will be held via Zoom and is scheduled for Thursday, August 11th. We will have one meeting at 12:00 PM for members that are available for a daytime conversation; a second conversation is scheduled for 7:00 PM for members that are available for an evening conversation; feel free to choose the time that works best for you. The link for the Zoom meeting will be posted closer to the date.

The book can be purchased from a variety of sources, including the options listed below:

Harvard Education Publishing: <https://www.hepg.org/hep-home/books/science-in-the-city>

Amazon: <https://www.amazon.com/Science-City-Culturally-Relevant-Education/dp/1682533743>

Barnes and Noble: <https://www.barnesandnoble.com/w/science-in-the-city-bryan-a-brown/1131422905>

We look forward to you joining us for this discussion!

Contact Jill Jensen with questions: Jill.jensen@district196.org

Department of Education-Opportunities

Free resources for teaching how science works

Decoding Science https://www.nap.edu/resource/25303/interactive/index.html?utm_source=NASAEM+News+and+Publications&utm_campaign=d18874372b-Eblast_Decoding_Science_Ed_2021_05_27&utm_medium=email&utm_term=0_96101de015-d18874372b-102201965&goal=0_96101de015-d18874372b-102201965&mc_cid=d18874372b&mc_eid=1e54d40e2e 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 <https://www.plt.org/curriculum/k-8-activity-guide-explore-your-environment/> directly from PLT's Shop <https://shop.plt.org/Shop/ProductDetails/k8guide>, from Amazon and other places where books are sold, or by attending a local PLT professional development workshop <https://www.plt.org/trainings/attend-a-training/> conducted by PLT's 50-state network of 75 coordinators and 1,000 facilitators across the country. Minnesota PLT site <https://www.dnr.state.mn.us/plt/index.html>

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 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 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:

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

Other Minnesota Links:

Minn. Dept. of Education Science Page <http://education.state.mn.us/MDE/dse/stds/sci/>

Minn. Science Teachers Association mnsta.org

Frameworks for MN Science and Mathematics Standards <http://scimathmn.org/stemtc/>

Get – STEM Connections between schools and businesses <https://getstem-mn.com>

Mn-STEM STEM programs and resources for families, schools and community <http://mn-stem.com/stem/>

Sharing Environmental Education Knowledge environmental education resources <https://www.seek.state.mn.us>

Minnesota Academy of Science: Science Fair, Science Bowl and other competitions <https://www.mnmas.org/>

Mn DNR Education website: Curriculum, professional development, posters, etc. <http://www.dnr.state.mn.us/education/index.html>

Youth Eco Solutions (YES!) – Statewide, youth-led program for hands-on eco related projects <https://yesmn.org/>

Opportunities

A Minnesota-focused Flipgrid activity about climate change

The State of Minnesota's Flipgrid Topic asks learners to imagine and describe Minnesota in the year 2050, the year that our state will be meeting—or exceeding!—its goals to reduce greenhouse gas emission by 80%. After reading short articles about climate change impacts and solutions on Our Minnesota Climate website, the activity asks the students to share: What are your ideas for climate action in Minnesota? What do you want Minnesota to be like in 2050?

If you are an educator in Minnesota and complete this activity before June 30, 2022, you are invited to email britt.gangeness@state.mn.us and we will arrange for a state leader to visit your grid as a guest, view the videos, and leave a video reply for your learners.

Learn more: <https://climate.state.mn.us/youth-envision-future>

Science and Engineering Practices in Action

This Hamline University-developed FREE workshop includes six self-facilitating modules to “raise awareness of the importance of the practices in science teaching and provide strategies for teaching science and engineering practices more directly and more often.”

The modules include:

- *Asking questions (for science) and defining problems (for engineering)
- *Developing and using models
- *Constructing explanations (for science) and designing solutions (for engineering)
- *Planning and Carrying Out Investigations and Analyzing Data
- *Arguing from Evidence
- *Evaluating and Communicating Information

Each module is designed for groups of science teachers, e.g., professional learning communities (PLC) or curriculum teams (CT), at any grade level or mixed grade levels, to review and discuss a single practice in a series of 20-30 minute sessions totaling about 10 hours of professional development per module. These modules provide a convenient, self-placed, teacher-focused set of professional development “workshops” in science practices and science teaching.

Information: <https://www.hamline.edu/education/cgee/sepa-workshop/>



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LOOKING FOR SUPPORT FOR ELEMENTARY SCIENCE?

Minnesota Science Teachers Association has an offer for you.



MNSTA IS OFFERING A \$75 BUILDING MEMBERSHIP TO COVER ALL TEACHERS IN YOUR BUILDING

All teachers receive access to the monthly newsletter and online resources as well as member rate for the annual conference.

TO LEARN MORE:

Metro:
Lee.Filipek@district196.org

Out-state
kandy.nolesstevens@smsu.edu



Teach OUTDOORS! Minnesota



“Teach Outdoors! Minnesota Workshop Series”
Join us for *FREE*, weekly Professional Development workshops on Teaching Outdoors via Zoom on Wednesdays @ 4:00 CST

teachoutdoorsminnesota.com
email: TeachOutdoorsMinnesota@gmail.com

To register for free workshops go to :<https://forms.gle/nBCc9o56bD79sVsz8>

FREE EcoTime 2.0 Workshop for elementary educators



Jeffers Foundation is proud to introduce the **newly revised EcoTime 2.0** written by Minnesota teachers for Minnesota teachers

Workshop participants will experience lessons from a student perspective and explore ways to effectively engage students in the NEW Minnesota K-12 Academic Standards in Science and the Three Dimensions of Science Instruction, with a focus on outdoor learning and using science journals.

Jeffers facilitators engage your participants with effective outdoor instructional strategies for using your schoolgrounds as a teaching resource!

EcoTime 2.0 includes 120 K-5 lessons organized in three related groups:

- **Greetings:** Building community and engagement in science concepts.
- **Science Activities:** Promoting investigation, analysis, and interpretation of data.
- **Interdisciplinary Lessons:** Extending science instruction to language arts, math, art, and engineering.



Participating teachers will receive:

- A FREE dynamic 3-Hour Workshop*
 - A set of 120 EcoTime 2.0 lessons
 - A Jeffers Journal.
 - Classroom teachers are eligible to receive a FREE classroom set of Jeffers Journals to use with their students.
- *Can be extended one additional hour to include grade-level teaching practicum with Jeffers facilitators

Connect with Jeffers at JeffersFoundation.org to request an EcoTime 2.0 workshop at YOUR school! Questions? contact: David.grack@jeffersfoundation.org

Environmental Stewardship Through Education

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ECOTime 2.0 IN 2022!

Jeffers Foundation is proud to introduce elementary educators to EcoTime 2.0



- Jeffers facilitators have redesigned the original EcoTime (2010) to focus on three dimensions of science instruction emphasized in the NEW Minnesota K-12 Academic Standards in Science: Science and Engineering Practices, Crosscutting Concepts, and Disciplinary Core ideas. Lessons written by teachers, for teachers
- EcoTime 2.0 includes Greetings, Science Activities, and Interdisciplinary lessons (120 lessons in total) that encourage outdoor learning while incorporating the use of science journals.
- This workshop aims to introduce teachers to lessons that build community and engagement in science concepts; promote investigation, analysis, and interpretation of data; and extend science instruction to language arts, math, art, and engineering. In addition to receiving a copy of EcoTime 2.0 lessons, participants will receive a Jeffers Journal to use throughout the workshop as they participate in several lessons.

Who: K-5 educators **Class size:** Limited to 30 participants

What: FREE teacher training sponsored by Jeffers Foundation

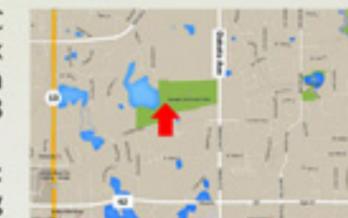
When: Thursday, July 21, 2022 **Time:** 9:00 am to 3:00 pm

Where: McColl Pond ELC, Savage, MN

Credit: Earn 6 CEUs. Registration opens April 4, 2022. Register by July 15, 2022 A registration fee of \$25 will hold your spot. This fee will be refunded upon completion of the workshop.

Cancellations after July 18 are not refundable.

McColl Pond, ELC
Savage Community Park
13550 Dakota Avenue South
Savage, MN 55378

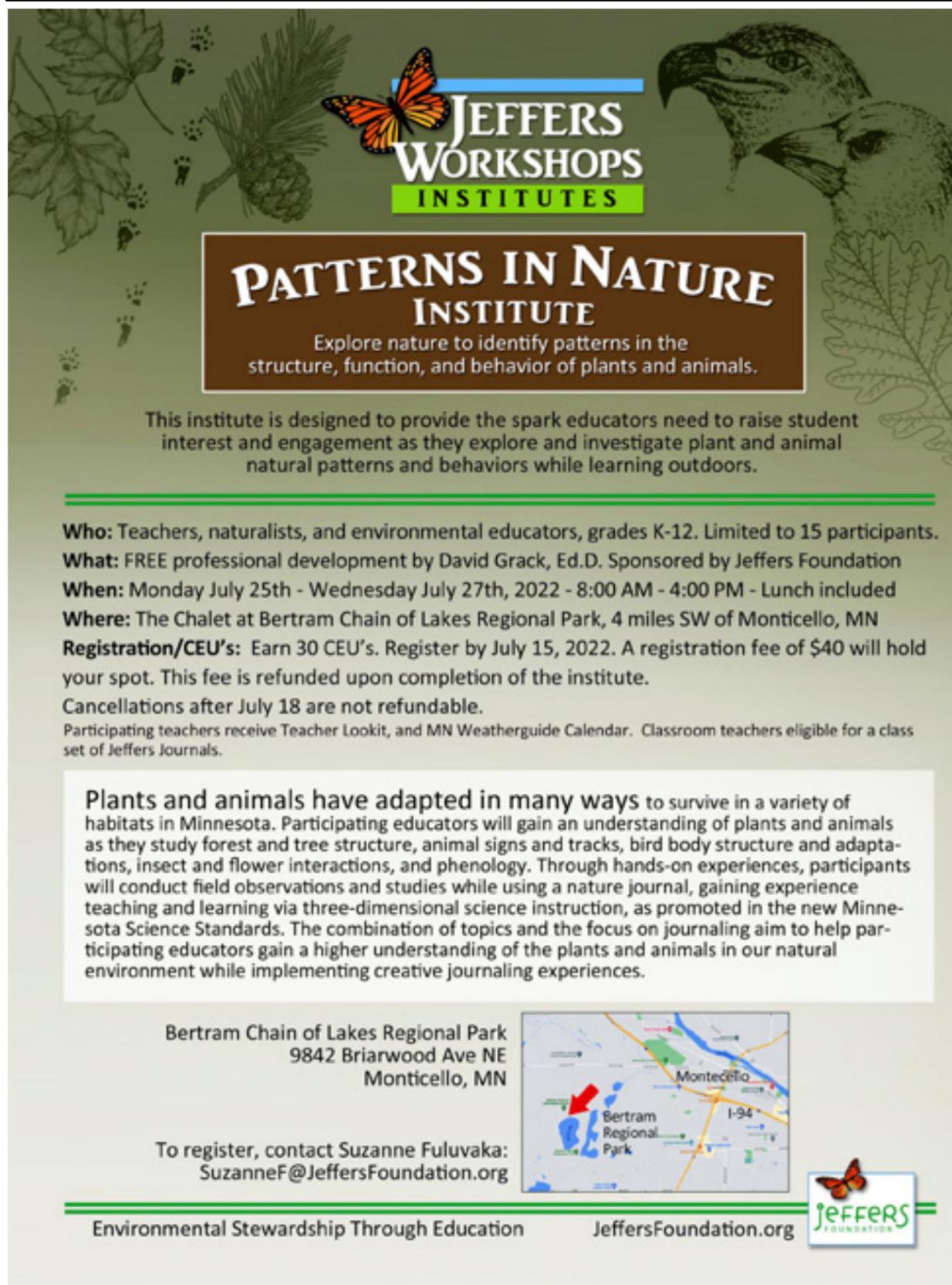


To register, contact Suzanne Fuluva:
SuzanneF@JeffersFoundation.org

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JEFFERS WORKSHOPS INSTITUTES

PATTERNS IN NATURE INSTITUTE
Explore nature to identify patterns in the structure, function, and behavior of plants and animals.

This institute is designed to provide the spark educators need to raise student interest and engagement as they explore and investigate plant and animal natural patterns and behaviors while learning outdoors.

Who: Teachers, naturalists, and environmental educators, grades K-12. Limited to 15 participants.
What: FREE professional development by David Grack, Ed.D. Sponsored by Jeffers Foundation
When: Monday July 25th - Wednesday July 27th, 2022 - 8:00 AM - 4:00 PM - Lunch included
Where: The Chalet at Bertram Chain of Lakes Regional Park, 4 miles SW of Monticello, MN
Registration/CEU's: Earn 30 CEU's. Register by July 15, 2022. A registration fee of \$40 will hold your spot. This fee is refunded upon completion of the institute.
Cancellations after July 18 are not refundable.
 Participating teachers receive Teacher Lookit, and MN Weatherguide Calendar. Classroom teachers eligible for a class set of Jeffers Journals.

Plants and animals have adapted in many ways to survive in a variety of habitats in Minnesota. Participating educators will gain an understanding of plants and animals as they study forest and tree structure, animal signs and tracks, bird body structure and adaptations, insect and flower interactions, and phenology. Through hands-on experiences, participants will conduct field observations and studies while using a nature journal, gaining experience teaching and learning via three-dimensional science instruction, as promoted in the new Minnesota Science Standards. The combination of topics and the focus on journaling aim to help participating educators gain a higher understanding of the plants and animals in our natural environment while implementing creative journaling experiences.

Bertram Chain of Lakes Regional Park
9842 Briarwood Ave NE
Monticello, MN



To register, contact Suzanne Fulvaka:
SuzanneF@JeffersFoundation.org

Environmental Stewardship Through Education JeffersFoundation.org



LAST CALL to sign up for ESTEP!

Attention 6th grade and HS Earth Science Teachers (Current and Future!)

Due to some cancellations and changed assignments, there are now some open seats for ESTEP (Earth Science Teacher Education Project) THIS SUMMER! If you are/will be teaching the new EARTH AND SPACE SCIENCE standards in 6th grade or in high school - read on! Still a pre-service teacher, or working toward licensure? Join us!

ESTEP for 6th grade Teachers

The ESTEP 6th grade professional development is a one week, bootcamp style, regional workshop that incorporates earth and space science content with teaching strategies to get you thinking about changing your teacher craft to help your students make sense of science. We'll walk you through investigations that you can use no matter where you are in your transition to the new standards - you'll learn about phenomena, storylines and 3-dimensional strategies by DOING the science! Cost is \$390.00.

There are a few openings left at our Alexandria boot camp August 8 - 12 at Alexandria High School. Optional college credit is available for additional cost. Apply NOW [HERE!](#)

ESTEP for High School Teachers

ESTEP is a fast paced, one week, bootcamp style, regional workshop that focuses on a specific set of earth and space science benchmarks AND the teaching strategies you will need to start making the shift to science sense-making with your students. This summer's content focus is geology and hydrology. Cost is \$390.00.

*Deepen your understanding of earth science concepts through investigations!

*Utilize 3-dimensional strategies by DOING the science!

*Begin building confidence in your unit and lesson planning!

*Collaborate and discuss how phenomena and storylines relate to particular investigations!

*There are TWO seats left at our Moorhead boot camp at Minnesota State University, Moorhead July 25 - July 29. Optional college credit is available for additional cost. Apply NOW [HERE!](#)

Here is what last summer's participants had to say about ESTEP:

"Applying the SEPs with our various lessons throughout the week was so valuable. Having discussions with colleagues and having time to brainstorm how we can apply it in our own unique classrooms and limitations was very meaningful. I walked away from this week feeling like "I got this!," and when I don't, I have a community of other professionals and mentors who can help me and collaborate with me."

"I really enjoyed my week of learning. I loved the field experiences and all of the opportunities to collaborate with others. I also appreciated thinking from the student perspective and the teacher perspective. All of the modeling of the pedagogy was also amazing. I was able to pull out multiple strategies every day that I can easily share and utilize with my teachers and students."

"I have been teaching for 17 years. This was the best professional development I have ever had, by far, times ten. I came in with a sense of confusion and felt overwhelmed. This answered so many questions and gave me a sense of confidence moving forward."

"Being a newer teacher...and not having the content knowledge for a completely different science topic... this bootcamp was the perfect start for my progression in teaching 6th grade Science. I am even able to take what I learned from this bootcamp for my 5th grade Science. This type of bootcamp would be beneficial for any science teacher, not matter the content. The modeling and pedagogy works for all!"

Do you have questions? Contact Dana Smith at dana_smith@isd31.net or dasmedu2018@gmail.com We would love for you to join us! Feel free to share this info with your staff/colleagues and others who would benefit from this professional development.

MnSTA/ESTEP Diversity, Equity and Inclusion Statement

We are committed to reflecting the diversity of Minnesota educators that participate in our programs. We are especially focused on teachers of BIPOC and underrepresented populations, alternatively licensed educators, and educational assistants working toward licensure.

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
- MnSTA Facebook and Twitter pages (@MnSTA1)
- Weekly Digest of postings (sent via email)
- Monthly Science Update from MDE Science Specialist **Angela Kolonich** (sent via email)
- Quarterly Newsletter (availability announced via email)
- 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 Address, 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 Corporation, incorporated as a tax exempt, non-profit organization with the Minnesota Secretary of State. Donations and dues are tax deductible charitable contributions for itemized deductions on IRS form 1040 Schedule A. The newsletter is an exempt program service provided to the membership. A membership form is found on the last page

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	Karen Bengtson	St. Cloud Area School Dist. 472	1000 44th Ave N. St. Cloud MN 56303
	320-253-9333	karen.bengtson@isd742.org	
President	Angela Osuji	Washburn High School	201 W 49th St. Minneapolis, Mn 55419
	612-668-3400	Angela.Osuji@gmail.com	
President-elect	Jill Jenson	Scott Highlands Middle School	14011 Pilot Knob Rd. Apple Valley, MN 55124
	952-423-7581	jill.jensen@district196.org	
Treasurer	John Olson	Metropolitan State Univ.	700 E. 7th St. St. Paul, MN 55107
		johnolson98@gmail.com.	
DOE Science Specialist	Angela Kolonich	angela.kolonich@state.mn.us	

Discipline Directors:

Biology	Michelle Housenga	Minneapolis Washburn HS	201 West 49th St. Minneapolis, MN 55419
	612-720-5705	Michelle.housenga@mpls.k12.mn.us	
Earth Science	Dana Smith	Bemidji Middle School	1910 Middle School Ave. NW Bemidji, MN 56601
	218-333-3215	dana_smith@isd31.net	
Chemistry	Jose Morales Collazo	Worthington High School	1211 Clary St. Worthington, MN 56187
	507-376-6121	jose.morales777@gmail.com	
Elementary/Greater MN	Kanday Noles Stevens	Southwest Minn State Univ.	1501 State St. Marshall, MN 56258
		kandy.nolesstevens@smsu.edu	
Elementary/Metro	Lee Filipek	Southview Elementary	1025 Whitney Dr. Apple Valley, MN 55124
	952-431-8370	Lee.Filipek@District196.org	
Higher Ed	Rachel Humphrey	St. Cloud State Univ. Wick Science Bldg #160	720 4th Ave. So. St. Cloud 56301
	320-308-3232	rhumphrey@stcloudstate.edu	
Informal Ed	Caitlin Potter	Cedar Creek Ecosystem Science Reserve	2660 Fawn Lake Dr. NE E. Bethel 55005
		caitlin@umn.edu	
Alternative Ed.	VAcant		
Physics	Phillip Sexton	Minnetonka High School	18301 Hwy 7 Minnetonka, MN 55345
	612-401-5700	phillip.sexton@minnetonkaschools.org	
Private Schools	Steve Heilig	St. Paul Academy & Summit School	1712 Randolph Ave. St. Paul 55105
	651-696-1432	sheilig@spa.edu	

Region Representatives:

Region 1&2: North	Jennifer Aakre	TrekNorth Jr.&St.High School	2400 Pine Ridge Ave. NW Bemidji, MN 56601
	218-444-1888	jaakre@treknorth.org	
Region 1&2: North	Caitlin Djonne	Park Rapics Schools	501 Helten Ave. Park Rapids, MN 56470
	218-237-6312	cdjonne@parkrapids.k12.mn.us	
Region 3: Northeast	Nikki Ojanen	Cloquet Middle School	2001 Washington Ave. Cloquet, MN 55720
	218-879-3328	nojanen@isd94.org	
Region 4: Westcentral	Harrison Aakre	Alexandria Area High School	4300 Pioneer Rd. Alexandria, MN 56308
	haakre@alexschools.org		
Region 5: Northcentral	Miranda Graceffa	Crosslake Community School	36972 Cty Rd 66 Crosslake, MN 56442
	218-330-6154	mgraceffa@crosslakekids.org	

