



Fall 2015 Newsletter

MINNESOTA **STEM** NETWORK

POWERING STEM LEARNING AND INNOVATION ACROSS MINNESOTA

AN INITIATIVE OF **SCIMATH^{MN}**

Engaging stakeholders from
the broader community to advance
quality STEM education for all learners

Science - Technology - Engineering - Mathematics

See more below about:

Give to the Max (and SciMathMN) on November 12

Reflections on Recent NAEP Math Scores

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STEM Infographics and STEM Portal

Letter from the SciMathMN Executive Director

It seems like student success, or lack of success, in STEM is everywhere these days. First it was the 2015 Minnesota Comprehensive Assessment (MCA) test results, with little progress on overall tests scores. More recently the National Center for Education Statistics released the 2015 National Assessment of Educational Progress (NAEP) results showing similar experience both in Minnesota and nationally. While broadly speaking Minnesota still scores well in math, and many students are growing in their understanding of math, the big story in Minnesota education remains the persistent achievement gap between white students and students of color, English Language Learner students, and low income students.

So what do we as educators and those concerned with our communities and state do? We push and we pull and we build a culture of STEM opportunities for all Minnesota students. We push for more teachers trained and supported in research-based best practices for students. We also try to pull new students into a love of STEM-based exploration through their natural curiosity and inquisitiveness with more hands-on opportunities to explore their world.

Perhaps most importantly we all work to build a culture around students that challenges and supports them in developing and reaching their dreams. SciMathMN, its STEM Network, and key partners work together to build this cross-sector STEM culture for Minnesota students in and outside the classroom. Thanks for connecting with our community of practice, and supporting SciMathMN, as we face the challenges ahead.

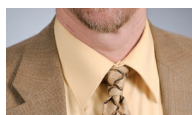
Jim Davnie
Executive Director
SciMathMN

SciMathMN advocates for effective, engaging, and rigorous STEM educational opportunities for all Minnesota students, preparing them for citizenship, career, and college.

Major initiatives include policymaker briefings, the STEM



briefings, the [STEM Teacher Center](#) online resource and the Minnesota STEM Network.



The Minnesota STEM

Network is an outreach initiative of SciMathMN which

- increases engagement in education
- builds community among stakeholders
- promotes STEM
- shares practices and resources and
- improves communications.

Learn more about the [Minnesota STEM Network](#).

Support SciMathMN in its advocacy for STEM



powered by **ICAZOO**

Communicating the Value of STEM to the Public

The Minnesota High Tech Association has developed these infographics for sharing with the general public.

Please download and distribute! [Why STEM Education](#) and [Girls in STEM](#)

Calendar Highlights

NCTM Regional Conference & Exposition November 11-13

Held at the Minneapolis Convention Center. For more information see <https://www.nctm.org/minneapolis/>

ZooMS Institute 2.0 December 12, 2015

Include SciMathMN on Give to the Max Day November 12, 2015

Your support for SciMathMN's activities--STEM Teacher Center, conferences, STEM Day, policymaker briefings, and regional meetings--is very important to the advocacy and outreach of this small non-profit organization. Please include a [contribution to SciMathMN](#) when you make your pledges on Give to the Max Day this November 12th!



Reflections on Recent NAEP Scores in Mathematics

The National Assessment of Educational Progress (NAEP) Test is often referred to as "The Nation's Report Card." It serves in that role because it is one of the few exams used in all 50 states. Since the Minnesota Comprehensive Assessments (MCAs) are unique to MN (and each of the other states have their own math, reading and science tests based on their own state standards), the NAEP serves as a common measure across all states to enable state-to-state comparisons.

In the current political climate where the overuse and misuse of standardized tests is being hotly debated, NAEP rises above the criticism in many ways. First, the NAEP test is not used at each grade; only grades 4, 8 and 12 are tested. NAEP also uses a random sampling approach in each state, so even at the targeted grades, only about 2500 students are tested at each grade level on each topic (MN has approximately 62,000 students at each grade). By using this approach, NAEP can establish a statistically accurate rating of each state in mathematics and reading, yet the vast majority of students will never be inconvenienced by having to take the exam. Finally, the NAEP exam in a given subject such as math is only administered every 2 years. Since the NAEP math test has been administered since 1973, it provides long-term trends.



Results for the 2015 NAEP mathematics performance at grades 4 and 8 were just released and the results for grade 12 will be released in 2016.

Percentage of students at or above proficiency in Mathematics	Minnesota	Nationally
Grade 4	53%	40%
Grade 8	48%	33%

So when the 2015 results show a plateau in growth in mathematics, or a one to two point drop (as MN experienced this year) it needs to be placed in that long-term perspective. MN, like the other states, has its challenges such as addressing the achievement gap, but also has much to celebrate in its long-term achievement

Designed for teachers who have previously attended the ZooMS Institute at the Minnesota Zoo, ZooMS 2.0 will expand your zoo knowledge of authentic STEM work with presentations from real Minnesota Zoo field biologists and conservationists. Engage in various STEM integrated lessons and to further equip you to challenge your students to be engineers for conservation.

Sponsored by 3M. To register or find out more about ZooMS Teacher Professional Development, visit <http://mnzoo.org/education/schools-teachers/stem-programs/>

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Post announcements on [MN STEM Network group](#) on



Post and Find STEM Programming at www.mn-stem.com

Find the Best Science on the Web via Sparticl.org



the achievement gap, but also has much to celebrate in its long-term achievement and state ranking. SciMathMN looks forward to partnering with MN education leaders to maintain and improve our K-12 mathematics performance.

For a more lengthy discussion of the recent NAEP results, go to scimathmn.org.

Student Spaceflight Experiments Program Mission 10 to the International Space Station Apply by December 11, 2015

The National Center for Earth and Space Science Education and the Arthur C. Clarke Institute for Space Education announce Mission 10 to the **International Space Station**. This STEM education opportunity immerses students in grades 5-16 across a community in an authentic, high visibility research experience, where student teams design and propose real microgravity experiments to fly in low Earth orbit on the International Space Station.

Deadline for inquiry: All interested communities are asked to inquire by December 11, 2015; this allows schools and districts the time they need to assess interest with their staff and, if appropriate, move forward with an Implementation Plan.



Communities must be aboard by February 15, 2016 for experiment design and proposal writing phase from February 22 to April 22. The flight experiment will be selected by May 26. Launch of the Mission 10 to ISS "Casper" experiments payload is expected in Fall 2016.

More information: [SSEP Home page](#), which provides an Executive Summary of the Program and the Mission 10 to ISS Flight Opportunity. Of interest: SSEP was showcased in [Scientific American, February 17, 2015](#)

Questions?

Contact: Dr. Jeff Goldstein, SSEP Program Director; cell 301-395-0770; jeffgoldstein@ncesse.org

Regional Network Update

Northeast MN Third Regional STEM Network Meeting
Duluth Area: September 29
Iron Range Area: September 30



The leadership team of the Northeast Minnesota region hosted its third regional meeting in late

Minnesota Association for the Education of Young Children (MnAEYC) and the Minnesota School-Age Care Alliance seek workshop proposals

February 15-16, 2016

Conference:

"Expand the Circle"

The MnAEYC-MnSACA Annual State Conference is the premier event for professionals educating children and youth, with nearly 1,000 participants attending. Sessions should meet the professional and personal development needs of program directors & coordinators, teachers, and front-line staff. Breakout sessions should present best practices, innovative and evidence-based strategies, research and resources in a variety of topic areas.

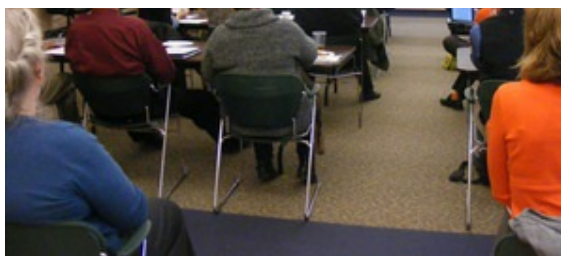
[Link to more information.](#)

Advancing Quality STEM Learning in Afterschool

Ignite Afterschool, Minnesota's afterschool network, has been awarded a 2-year grant from the Noyce

Foundation and CS Mott Foundation to build stronger STEM-Afterschool systems of support in Minnesota. Ignite and the STEM Network will engage STEM and afterschool stakeholders across the state in providing feedback to shape Minnesota's Framework for Quality Afterschool STEM Learning.

This Framework aims to bring STEM and afterschool stakeholders together around a shared language and set of effective practices for doing quality STEM learning in afterschool programs. It is essential that it reflects the best wisdom from both STEM and afterschool stakeholders and leaders



September. A total of sixty attended the Duluth and Iron Range Area meetings.

Leadership team members proposed a digital inventory of STEM

programs and resources in the region and sought feedback from attendees about its implementation and use. Moe Benda, a chemical engineer, UM Duluth faculty member and co-chair of the leadership team, presented an overview of his *MoeZone* STEM challenges. These bimonthly challenges are based on life in Northeast Minnesota and published in the Iron Range's *Hometown Focus* newspaper and online.

Each challenge is drawn from everyday experiences with STEM. Each one has a theme and three connected challenges at varying levels of difficulty: Elementary, Advanced (high school), and Professional. Two weeks later, he explains the challenges and poses a theme. So far Moe has created 30 challenges.



Benda's effort in creating the challenges aligns with the region's first success marker in its [planning document](#): Raise Awareness of STEM and Its Importance in Northeast Minnesota, and the action step "Show children and youth that STEM is fun and exciting and present in all aspects of daily life."

Attendees discussed how the challenges could be used in classrooms and afterschool programs, and how teachers and STEM professionals could contribute to developing more challenges.

The leadership team's co-chairs are [Moe Benda](#) and [Nancy Litman](#).

Kay O'Keefe to Receive Lifetime Achievement Award Presented by the MN High Tech Association

Kay O'Keefe, SciMathMN Vice-Chair and longtime member of the MHTA Foundation board, will receive a well-earned Lifetime Achievement Award from the Minnesota High Tech Association at their annual TEKNE Awards gala on November 18.

After receiving her Ph.D. from the Ohio State University in educational research and evaluation, O'Keefe taught at both the University of Pittsburgh and the University of Maryland. She arrived in Minnesota in 1992 and led the science education work of the Medtronic Foundation for 15 years. Additionally O'Keefe served on the boards of the Triangle Coalition for STEM and the National Association of State Science and Math Coalitions.

The TEKNE Awards are given annually by the MHTA to innovators and leaders in Minnesota's broad technology community. This year's award ceremony is November 18. Congratulations, Kay!

in Minnesota.

STEM stakeholders interested in shaping this effort are welcome to provide feedback that will shape the final publication.

Regional STEM-afterschool input meetings will take place in late winter, with dates and locations still to be announced.

Contact [Brandon Tice](#) if interested in becoming involved in this effort.



November 1st. Congratulations, Holly!

Lifetime Achievement Award to Holly Pellerin Presented by the Geoscience Alliance

Holly Pellerin, an instructor of native dance at Fond du Lac Tribal and Community College, and program director of the gidakiimanaaniwigamig (Our Earth Lodge or gidaa), received an award for Lifetime Achievement by the Geoscience Alliance on August 19th at a celebration at Fond du Lac Tribal and Community College.

Over five decades, Holly has mentored Native American students to engage in and appreciate STEM. Many students have earned recognition in regional and state science fairs, national AISES science fairs, and the Intel International Science Fair.

For the past 12 years, Holly has been a central figure in the collaboration between Fond du Lac Tribal and Community College (FDLTCC) and the University of Minnesota's National Center for Earth-Surface Dynamics in implementing the gidaa weekend science camps for Native middle- and high school students. A number of students have participated in these programs for many consecutive years, and are now majoring in STEM in college.



The [Geoscience Alliance](#) is a national alliance of individuals committed to broadening participation of Native Americans in the geosciences.

Congratulations, Holly, and thank you for decades of service to the STEM community!

Record Attendance at STEM Day at the Fair

An estimated 7,000 Fairgoers enjoyed exhibits and presentations at the 6th annual STEM Day celebration in Carousel Park on August 27. This attendance is nearly double any attendance in past years. This year SciMathMN also had an app programmed to feature STEM Day exhibitors and presenters. This app, www.stemdaymn.org, is a quick and easy way to stay connected to major STEM providers in Minnesota.



SciMathMN again thanks 3M, Boston Scientific, MTS, HB Fuller, and Thomson Reuters for their support for STEM Day, and to MTS for making the mobile app possible.

STEM Grant Opportunity for Independent Schools

Grant guidelines and application forms will be posted on December 1

The Minnesota Independent School Forum (MISF) will open its annual STEM Grant opportunity in December for MISF member schools. Since the inception of the STEM Grant program, MISF has awarded 127 grants totaling \$666,579 to schools across the state. These grants have supported the development of an integrated, three-year middle school STEM curriculum team taught by three teachers, a trebuchet and catapult design/build program culminating in an all-school (grades K-6) pumpkin chunkin event, and a high school forensics science course.

More information: www.misf.org or Margo Berg, MISF STEM Program Manager, 612-720-2857 or mberg@misf.org. The MISF STEM Program is supported by grants from 3M Foundation, Schott Foundation, and Xcel Energy Foundation.

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