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March 2011



REGISTRATION

**NOW
OPEN
FOR
APRIL
21st MEETING**



[Registration is now open](#) for the 2nd annual meeting of the Minnesota STEM Network to be held on Thursday, April 21st from 9am - 5pm. The Welcome will be held at 10am after a networking session to give attendees from greater Minnesota more travel time.

We thank Boston Scientific and its STEM Council for hosting this year's meeting. The [Maple Grove facility of Boston Scientific](#) is located at One SciMed Place which is just south of the Weaver Lake Road exit of I-94.

The program will feature plenary sessions on regional network development, public/private

An Update from the Minnesota STEM Network

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Welcome Dr. Sally Standiford, SciMathMN Executive Director

Richard Hudson, board chair of SciMathMN, and the board of directors welcome Dr. Sally Standiford to the position of executive director.

Dr. Standiford most recently held the position of Dean of Education at Winona State University and Executive Vice President of Academic and Student Affairs at Minnesota State College—South East Technical.

partnerships, strategic developments of the network. The meeting will also include multiple networking opportunities and two sets of breakout sessions on:

- Business engagement with STEM
- Program matrix development in K12 STEM
- Career pathways into employment
- Regional network development
- Research on P16 education
- Programs engaging girls and underrepresented students
- Website development

A poster session will feature programs and strategies to engage girls/women and underrepresented students.

More information on the program is available at www.mnstemnet.org

The network made great strides in 2010 and is poised to expand throughout the state in the next two years.

Please join us!

SciMathMN is a non-profit, statewide education and business coalition advocating for quality K-12 science, mathematics and technology education based on research, national standards and effective practices.

She holds a PhD in educational psychology with specialties in instructional applications of computers, mathematics education, and learning and instruction from the University of Illinois at Urbana-Champaign. Her Master's degree is in mathematics with a minor in education and a Bachelor's degree in mathematics with a minor in physics.

In addition to faculty and administrative roles in the University of Wisconsin and Minnesota State Colleges and University systems, Dr. Standiford has also worked in instructional design with Control Data Corporation, worked as an engineer for Western Electric, and taught high school math.

The board is excited to have Dr. Standiford's passion for STEM education and experience working in several STEM sectors.

Letter from the Executive Director

On behalf of the Board of Directors I welcome you to SciMathMN, a non-profit coalition advocating for quality K-12 education in science, technology, engineering and mathematics (STEM). We are committed to providing a reliable, non-partisan perspective on Minnesota education policy issues and to partnering with business and education leaders and policymakers to move forward K-16 STEM initiatives and practices that will benefit all Minnesota students.



In the past few years, SciMathMN coordinated the analysis of Minnesota's TIMSS (Trends in International Math and Science Study) test data and communicated results to our education, policymaker and business communities. Through this work, we have demonstrated the value of international benchmarking of standards and their essential attributes of coherence, rigor, and focus which Minnesota has achieved in its revision of standards.

We are currently working with Minnesota's Department of Education to design a Minnesota Mathematics and Science Resource Teacher Center (MMSRTC) and recreate Frameworks that guide the translation of the Minnesota Academic Math and Science Standards into K-12 classroom practice. Many of the state's best K-16 science and math teachers and faculty are currently involved in the Frameworks project to help teachers develop and organize their materials, instructional practices, and assessments at their local schools. We have provided more detail on Frameworks in an article in this newsletter.

Last year SciMathMN took an important step in reaching out to more STEM advocates across the state by adopting the Minnesota STEM Network initiative. This network of practitioners, providers and advocates of STEM education from business, education, government and non-profit sectors is beginning to collaborate in innovative ways.

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Mike Lindstrom, Minnesota
Technology and Engineering
Education Association

Jenny Manogue, Kelly Mitchell

We invite you to join us on April 21st at our annual community meeting to advance the STEM Network across the state of Minnesota.

Sincerely,
Sally Standiford, Ph.D., Executive Director

Minnesota STEM Network Goals

The Minnesota STEM Network is building a community of practice among practitioners, providers, and advocates for science, technology, engineering, and mathematics (STEM) education and workforce development across Minnesota. This community of practice spans several sectors: business, P-20 education, informal (outside the classroom) education, government agencies, professional organizations, community groups, and parents.

In 2010, leaders in STEM education and advocacy formed the Minnesota STEM Network to address a critical need to bring coherence to our work. As a convener of Minnesota practitioners, providers and advocates for STEM education, the Network will:

1. Share among our members innovations and best practices in STEM education, using a variety of information sharing methods
2. Promote the value of STEM to students, parents, and community through large promotional events and online resources
3. Develop an inventory and map of STEM learning and employment opportunities at all levels throughout Minnesota
4. Act as a facilitator for coordinating initiatives to improve STEM learning in schools, colleges and the community and assist Network members to obtain funding for those initiatives
5. Facilitate the formation of groups in Minnesota's geographic regions in order to customize Network activities to the needs of different communities
6. Engage formal and informal educators, students and community leaders in a process to identify communities that need additional STEM resources or that can demonstrate leadership in STEM
7. Communicate and collaborate with STEM networks and alliances in other states in order to improve STEM learning in Minnesota and throughout the United States.

SciMathMN Receives Frameworks Grant

SciMathMN receives a \$742,500 grant from the Minnesota Department of Education to update Minnesota's Math and Science Frameworks

In October 2010, the Minnesota Department of Education awarded a \$742,500 grant to SciMathMN to update



Group

Brad Meeks, Farmington Public Schools

Len Mrachek, University of Minnesota

Tom Muchlinski, Minnesota Council of Teachers of Mathematics

Greg Mueller, H.B. Fuller

Beth Murphy, The Bakken Museum

John Olson, Minnesota Department of Education

Doug Paulson, Minnesota Department of Education

Taylor Pettis, MyMN

Becky Rennie, Perham Dent High School

Matt Richey, St Olaf College

Pat Ridgely, Medtronic Inc.

Colleen Sauter, Colleen Riley Sauter Consulting

Patty Simpson, St. Cloud State University

Sally Standiford, SciMathMN

Cathy Summa, Wellesley College

Cassandra Svendsen, Society of Women Engineers

Julie Tangeman, Teacher-in-residence, The Bakken Museum

the Math and Science Frameworks. Frameworks are essential documents to enable teachers to fully understand how to effectively deliver all of the standards to the students in their classes. Teams of teachers across the state are developing model classroom experiences to implement the standards.

In 1998 the Minnesota state legislature established the Profile of Learning which included math and science standards based upon the key concepts in documents by the National Council of Teachers of Mathematics and the Mathematical Sciences Education Board of the National Research Council. During this time, SciMathMN developed a set of curriculum framework documents which translated standards into actual classroom practice.

Since the math and science standards were established in 1998, they have been updated in 2003 and 2007/09, but the frameworks have not been updated. In 2010 the Minnesota Dept. of Education directed its 2010-11 funding for the Mathematics and Science Teacher Academies to revise the frameworks. In October 2010 SciMathMN won a competitive grant to engage teachers and teacher educators across the state in the revision of the frameworks. The frameworks will be accessible online to all Minnesota math and science teachers, and will serve as a primary resource for staff development. These dynamic documents will be linked to future content standards.



These frameworks will become the first service of the Minnesota Mathematics and Science Resource Teacher Center (MMSRTC), a new initiative delivering resources to the MN Teacher Centers and teachers throughout the state through the Mathematics and Science Teacher Academy (MSTA). The MSTA is made up of nine statewide regional Teacher Centers located throughout the state.

The ultimate goal of the frameworks is to enable students to effectively and efficiently gain the knowledge, skills and attitudes in the essential content of K-12 math and science in order to be well prepared to enter the workforce of tomorrow, be competitive in a global marketplace and make educated decisions as citizens.

The original Frameworks for [Math](#) and [Science](#) may be found on the SciMathMN website.

The Frameworks project will result in a new website in June 2011.

STEM Day at the 2011 State Fair Slated

The Minnesota STEM Network will present



Nancy Walters, Minnesota
Office of Higher Education

Carolyn Williams, St. Cloud
State University

Susan Wygant, Minnesota
Dept. of Education

Get Linked in

Join the MN
STEM



Network on Linked in. Post news and events so everyone in the network can stay up-to-date on STEM activities and news in Minnesota.

[Hurry- Join us today.](#)

Twin Cities Metro STEM Inventory



Last year, STARBASE Minnesota began working with Wilder Research to learn more about what programs currently exist to support and foster continued STEM learning, achievement, and career exploration after elementary students complete STARBASE programs. In June, 2010, Wilder Research sent the inventory questionnaire to more than 180 representatives of STEM organizations in the Twin Cities who had previously participated in a STEM Community of Practice meeting. As of February 2011, STARBASE

exhibits and programs in Carousel Park on Thursday, August 25th, opening day of the 2011 Minnesota State Fair. A committee of the network led by Katie Staub of Seagate is planning the program.



An e-mail announcing exhibitor opportunities is expected in early April. Proposals will be due by April 29th.

Social Networking

September Social

At the 2010 Minnesota High Tech Association Spring Conference, David Rhees, executive director of The Bakken Museum, recommended that we organize a series of informal opportunities to network. By knowing one another better, we would become more accustomed to collaborating on common projects.



David offered that The Bakken could host the first social hour, and encouraged other organizations to host them as well. The first social hour was held on September 9th. About 60 individuals attended and toured the Bakken Museum. Learn more about [The Bakken Museum's exhibits and programs.](#)

Thanks to David Rhees and The Bakken staff for hosting the first networking session!

November Social



Drs. Gillian Roehrig and Tamara Moore, co-directors of the STEM Education Center in the College of Education and Human Development at the University of Minnesota, hosted the STEM Education Center's open house on Tuesday, November 30th. [The STEM Education Center](#) applies

interdisciplinary research in learning and cognition, STEM integration, instructor development, and evaluation and assessment to STEM teaching from early childhood through graduate education. Approximately 130 people attended the social hour and viewed research posters by the Center's graduate students.

If your organization is interested in co-hosting a social hour with the Minnesota STEM Network, please contact mnstemnet@scimathmn.org.

now has listings for 171 programs offered by 65 organizations. They plan to complete the study this month. STARBASE Minnesota anticipates sharing the inventory with the network for those entries where permission has been granted.

Check Out the MN Academy of Science Calendar

Find all your science events, activities and meetings, and speakers in one place.



[Go to the calendar today!](#)

Additional State Networks Established



The number of state networks is now 12—Arizona, California, Colorado, Indiana, Minnesota, New Mexico, New York, North Carolina, Ohio, Pennsylvania, Texas, Washington. Check www.mnstemnet.org for a summary document on STEM state networks with links to their websites.

Local News

The Minnesota High Tech Foundation received a \$750,000 grant from the ADC Foundation to be used for engineering



2010 STEM Annual Meeting

About 115 STEM professionals and educators gathered for the second annual network meeting on April 16th at the Medtronic World Headquarters in Fridley.

The event featured a keynote by Jan Morrison of the Teaching Institute for Excellence in STEM in Ohio. Ms. Morrison described the process of developing networks in other states.



Discussion groups focused on the issues of formation of the network such as vision, goals and strategies; regional hub formation; network communications, and engaging underrepresented students in STEM.

Highlights of STEM Day at the 2010 Minnesota State Fair

An idea to feature STEM at State Fair that germinated at the September 2009 STEM community of practice meeting came to fruition on opening day of the 2010 Minnesota State Fair. During the discussion of raising awareness and appeal of STEM, the discussion group thought STEM should be featured at the State Fair. Ron Bennett, then Executive Director of the Minnesota Center for Engineering and Manufacturing Excellence (MNCEME), and several board members made a presentation to State Fair officials later in the fall. The officials were excited about the proposal, as the original concept for the fair was to feature agricultural technology. In winter Ron presented the idea to the Network's leadership team, which was also enthusiastic. By spring 2010, MNCEME made a commitment to organize exhibits and feature programs in Carousel Park in front of the grandstand on Thursday, August 26th.



Throughout the day about 2000 families enjoyed a wide range of hands-on experiences presented by fifteen exhibitors, as well as the feature stage presentations by the University of Minnesota's Physics Force and chemistry demonstrations by the U of M's chemistry fraternity, Alpha Chi Sigma. In the afternoon, Senator Al Franken visited the booths of STEM Day at the Fair, trying out the hands-on activities and learning about the Minnesota STEM Network. Then he spoke to the audience gathered for the Physics Force about

scholarships, continuing STEM Summits across the state, and a STEM marketing campaign to demonstrate to students and parents the benefits of engaging in STEM.

the value of STEM to our society and state economy.

Stage Performances:

- University of Minnesota Physics Force
- University of Minnesota's Chemistry Fraternity, Alpha Chi Sigma

Exhibitors:

- Minnesota Planetarium Society
- HighTech Kids
- The Works
- Science Museum of Minnesota
- STARBASE MN
- Project Lead the Way
- 3M Visiting Wizards
- St Cloud State University
- MTS Systems
- National Center for STEM Elementary Education at St. Catherine Univ.
- Microsoft/MHTA
- TPT-SciGirls
- MSU-Mankato
- FIRST Robotics/FIRST Tech Challenge
- Minnesota STEM Network

A special thank you to:

- Ron Bennett, MNCEME board members, Anita Hall of General Mills, Dennis Harvey of MTS Systems for leadership and fundraising efforts
- Judith Evans of MNCEME for promotional efforts
- Debra Bultnick of the Dept. of Employment and Economic Development and Katie Staub of Seagate for excellent project management of STEM Day at the Fair

We also extend thanks to our State Fair exhibit sponsors:

- 3M
- ATK
- HB Fuller
- Microsoft
- MTS Systems

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