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2011 Spring Conference Highlights


Keynote speakers were NCTM President Mike Shaughnessy speaking on "Reasoning and Sense Making in Geometry: Representations Provide the Keys" and Karim Logue who had rapt audience attention with "From Hip-Hop to the iPad: Making Math Real".

Bill Eppright was awarded Honorary MCTM Membership in recognition of his contributions to mathematics education in Minnesota. Bill teaches at Northwestern College in St. Paul.

Conference participants enjoyed a great variety of sessions, many offering active learning and networking opportunities. There was also plenty of time to socialize, catch up with old friends, and make new acquaintances. New teachers and teacher education students easily mingled and were heartily welcomed by the seasoned veterans.

Some of the positive feedback provided by attendees on the evaluation forms included:

- Well organized. Fine facility. I really enjoyed it.
- I never know what sessions to attend and always end up with great stuff & new things learned.
- Best conference I have been to in the past 5 years.
- Great variety, loved all the tech stuff.
- As a first time attendee I am very impressed! I found plenty to choose from and each session I attended was worthwhile & gave me plenty of ideas to use & share with my colleagues.
- It was my first time at a conference and I would definitely recommend it to others and come again if possible.

I learned so much! I cannot wait to try so many new things in my classroom.

I have attended the national conference for the past 3 years. I have neglected to attend this conference. This has been better than the national. Kudos to all!

Enjoyed this conference a lot. Glad I came and I will come again every year from now on! Thanks!
Outgoing board members who completed terms at the close of the Spring Conference, April 2011.

Terry Wyberg, President
Lisa Conzemius, V.P. High School
Sara VanDerWerf, V.P. at Large
Joan Rustad-Huisman, District 1 Director
Mary Roden, District 4 Director
Jane Reck, District 7 Director
Paul Agranoff, NCTM Representative

**Goals of MCTM**

- To develop an active interest in the science of mathematics.
- To help provide opportunities for the exchange of ideas and materials regarding instruction in mathematics.
- To further the study of problems relating to the teaching of mathematics at the elementary, secondary, and college levels.
- To work for the improvement of mathematics instruction at the elementary, secondary, and college levels in Minnesota.
- To work for the improvement of employment and service of members of the Council and members of the profession in general.

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michele_luke@hopkins.k12.mn.us
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wyber001@umn.edu
VP Elementary
Judy Hansen
judy.hansen@knology.net
VP Jr. High/Middle School
Mary Jo Hughes
mhughes@waconia.k12.mn.us
VP High School
Paula Bengston**
pbengston@rushcity.k12.mn.us
VP Mathematics
Kay Wohlhuter
kwohlhut@d.umn.edu
VP Mathematics Education
Cathy Kramer
crame013@umn.edu
VP at Large
Lisa Conzemius**
leonzemius@detlakes.k12.mn.us

**District Directors**

District 1
Megan Oswald**
meoswald@rochester.k12.mn.us
District 2
Rhonda Bonnstetter
bonnst@myclearwave.net
District 3
Cheryl Tucker
tucker@bloomington.k12.mn.us
District 4
Karen Hyers **
karen.hyers@comcast.net
District 5
Seth Leavitt
seth.leavitt@mpls.k12.mn.us
District 6
Courtney LaRoche
courtney.laroche@wayzata.k12.mn.us
District 7
Sherri Kruger**
skruger@badger.k12.mn.us
District 8
Greg Geary
greg.geary@isd181.org

**Appointed Offices**

Executive Director
Tom Muchlinski
tmuchlinski@earthlink.net
Financial Secretary
Craig Rypkema
crypkema@paulbunyan.net
Recording Secretary
Patty Wallace
patty.wallace@isd181.org
Mathbits Editor
Teresa Gonske
tgonske@nwc.edu
Webmaster
Rich Enderton
enderton@minnehahaacademy.net
MDE Mathematics Specialist
Sue Wygant
susanygw@state.mn.us
NCTM Representative
Abe Schwartz**
aschwartz@bemidji.k12.mn.us
MinnMATYC Representative
Jim Foley
fol246@aol.com

**Newly elected or appointed office holder for 2011-2012.**
Thank you to all of you who presented at, contributed to, and participated in the success of our 2011 Ross Taylor Symposium for Mathematics Education and Leadership and the 2011 Spring Conference. Hopefully, during this summer season, you can take time to relax, rest and refresh yourselves.

I love to read and I am always looking for new book titles. I am including a few here by category with a synopsis from the editors, if you are looking for something new to read this summer. If you have any others that you think are just great, let me know and I’ll include them in future editions of the Mathbits.

Mathematical Content Knowledge

The Developing Essential Understanding series from NCTM addresses topics that are crucial to student development, but are difficult to teach. Each book in the series gives an overview of the topic, highlights the differences between what teachers and students need to know, examines big ideas and essential understandings, connects to other mathematical ideas and includes questions for reader’s reflections.

- Number & Numeration, Pre-K-Grade 2
- Addition and Subtraction for Pre-K-Grade 2
- Rational Numbers, Grades 3-5
- Multiplication and Division for Grades 3-5
- Ratios, Proportions & Proportional Reasoning, Grades 6-8
- Functions, Grades 9-12

Extending Children’s Mathematics: Fractions and Decimals: Innovations in Cognitively Guided Instruction by Susan B. Empson and Linda Levi (Heinemann, 2011). Empson and Levi demonstrate how the intuitive knowledge and sense making that provide the basis for student understanding of whole number operations can be extended to fractions and decimals.

Mathematics Instruction

Number Sense Routines: Building Numerical Literacy Everyday in Grades K-3 by Jessica F. Shumway (Stenhouse Publishers, 2011). Shumway provides daily experiences building on students’ innate sense of number to develop and nourish number sense and facilitate student applications of number sense in a variety of situations and contexts.

Building Mathematical Comprehension: Using Literacy Strategies to Make Meaning by Laney Sammons (Shell Education, 2011). Sammons applies research-based reading comprehension strategies to the understanding of mathematics. She shows how to use approaches such as visualizing, making predictions, making connections, and vocabulary building to help students build conceptual understanding.

Motivation and Disposition: Pathways to Learning Mathematics, 73rd Yearbook (NCTM, 2011). The Yearbook explores a wide variety of perspectives on motivation and disposition as these concepts relate to mathematics teaching and learning. It examines such elements as the demographic composition of a school; the role of movies, television, and the Internet; and nontraditional pedagogy as means of promoting and influencing positive student and teacher dispositions.

General Interest

Teaching Boys Who Struggle in School: Strategies That Turn Underachievers Into Successful Learners by Kathleen Palmer Cleveland (ASCD, 2011). Cleveland suggests a framework called Pathways to Re-Engagement to help boys replace negative attitudes, reconnect with learning, rebuild learning skills and reduce the need for unproductive and distracting behaviors.
What Teachers Really Need to Know About Formative Assessment by Laura Greenstein (ASCD, 2010). Greenstein takes formative assessment from theory to practice emphasizing formative assessment application in secondary schools (also applicable to elementary schools). She includes many strategies for measuring student understanding and diagnosing learning needs before, during and after instruction.

Teach Like a Champion, 49 Techniques That Put Students on the Path to College by Doug Lemov (Jossey-Bass, 2010). This is a K-12 resource filled with concrete, specific, and action-able classroom teaching techniques. It includes a DVD with teachers demonstrating the strategies in their classrooms.

I am looking forward to the next two years as President. Please let me know if you have any interests, questions or concerns you think I should address.

Save the Date

2011 MCTM Fall Conference
Friday, October 21, 2011 at Maple Grove Senior High School
Theme: Standards & Curriculum

The Mathematics Education Trust
Mission: The Mathematics Education Trust (MET) channels the generosity of contributors through the creation and funding of grants, awards, honors, and other projects that support the improvement of mathematics teaching and learning.

Much helpful information can be found on the NCTM website under the Lessons & Resources tab by expanding the Grants & Awards category. [http://www.nctm.org/resources/content.aspx?id=198](http://www.nctm.org/resources/content.aspx?id=198)

Information includes:
- MET Award, Grant, and Scholarship recipients
- 2011-2012 MET Grant, Scholarship, and Award Proposal Abstracts
- Tips for Writing Successful Proposals for MET Grants and Scholarships
- Listing of active named funds and honorees
- MET Grant, Scholarship, and Award Summary (PDF)

Available Grants and Scholarships with 2011-2012 application deadlines:

**For Grades PreK-5 Teachers**
- May 4, 2012  
  School In-Service Training Grants
  PreK–8 Preservice Teacher Action Research Grants
  Program of Mathematics Study & Active Professionalism Grants

- Nov. 11, 2011  
  Emerging Teacher–Leaders in Elementary School Mathematics Grants
  Teacher Professional Development Grants
  Using Music to Teach Mathematics Grants
  Improving Students’ Understanding of Geometry Grants
  Classroom Research Grants
  Mathematics Course Work Scholarships
  Future Leader Initial NCTM Annual Conference Attendance Awards

**For Grades 6-8 Teachers**
- May 4, 2012  
  School In-Service Training Grants
  PreK–8 Preservice Teacher Action Research Grants
  Program of Mathematics Study & Active Professionalism Grants (PreK-6)
  Professional Development Scholarship Emphasizing the History of Mathematics

- Nov. 11, 2011  
  Teacher Professional Development Grants
  Engaging Students in Learning Mathematics Grants
  Equity in Mathematics Grants
  Improving Students’ Understanding of Geometry Grants
Teachers Awarded MCTM Foundation Grants to Attend Spring Conference

The MCTM Foundation supported two teachers this year to attend the MCTM Spring Conference in Duluth. The recipients of the Conference Support Grants were Amber Neale, who teaches at Journey Montessori School in Apple Valley, and John Triscari, a teacher at Sanford Middle School in Minneapolis. Each teacher wrote a brief report to the Foundation Governing Board after the conference.

John Triscari wrote in detail about a particular session he attended.

Teachers from North Branch, MN shared their lesson ideas derived from the once-popular television show “Minute to Win It.” The tasks put before students include spoon flipping, noodle hooking, and tower building. None of the students can predict who will be the best at a particular activity, and every student has a chance to participate. Competitive nature takes over. Once students have engaged in the activities, they genuinely care about what statistics can tell them. … Everything from standard deviation and modeling to mean, median, and mode can be fitted to one or more of the classroom-ready activities from the show, at almost no cost to the teacher in most cases.

Amber Neale gave an overview of her conference experience.

I was very impressed by all of the sessions that focused on geometry and making math real for students. I found materials and ideas that I could incorporate into my classroom right away Monday morning. I do not have many colleagues at my school, so attending the conference had the added benefit for me of getting to meet and network with other teachers and professionals. I really enjoyed talking with other teachers about what they are doing in their classrooms, what challenges they face, and getting advice about things I can try in my classroom.

The Spring Conference Support Grants are one way that the MCTM Foundation uses the earnings on its investments to help Minnesota mathematics teachers. In Amber’s words, “I want to take this opportunity to thank everyone on the foundation board and everyone who has made a donation to the foundation for this amazing opportunity.”

You can contribute to the MCTM Foundation on the MCTM website, when you renew your MCTM membership, or when you register for an MCTM conference. Watch this column for announcements of future grant opportunities.

(Continued from page 4)

Examples of Proposals

Without Music, Geometry is Pointless! (Todd C. Mensch, Wappingers Central School System, Wappingers Falls, New York)

“How Long Can a Rocket Stay in the Air” (Judy L. Brown, Dayton Regional STEM School, Beavercreek, Ohio)

The Little Teacher Who Said, “I Can, I Can, I Can… I Can be the Catalyst to Help My Students Make the Connections!...I Can I Can I Can!” (Ann E. Tarascio, Swampscott Middle School, Swampscott, Massachusetts)
Communication

Be is resolved that MCTM investigate approaches to improve communication to and among membership. Examples may include but are not limited to:

1. Be it resolved that MCTM pursue providing an electronic link on the MCTM website for information pertaining to legislative action on bills pertaining to mathematics education. Assigned to the Technology Committee.

2. Be it resolved that MCTM include, whenever provided with permission, email addresses for presenters in both spring and continue in the fall programs. Assigned to Fall and Spring Conference Committees.

3. Be it resolved that MCTM investigates setting up an online professional network so that teachers can share resources and ask questions. Assigned to the Technology Committee.

4. Be it proposed that MCTM provide an advertising blip when promoting the conference such as You-Tube or video attached to email, encourage members to watch instead of just read. Assigned to the Publicity Committee

5. Due to the limited number of people who vote through our present system, MCTM should investigate and implement an electronic voting process for electing board positions. Assigned to the Executive Committee

6. To save printing and mailing costs MCTM should investigate and make available the ability for members to opt out of receiving The Math Bits via mail, but instead get an email that indicated when it has been posted online. Assigned to the Mathbits, Technology and Publicity Committees

Achievement Gap/Equity

7. Be it proposed that MCTM focus a conference on closing the achievement gap: strategies, seminars, webinars, and sessions for teachers to share ideas. Assigned to the Executive Committee

8. Be it resolved that MCTM create a task force to address the issue of equity in mathematics instruction in Minnesota. The charge to the task force would be to identify those issues related to equity that impact the membership and have the potential to educate the membership. Assigned to the Executive Committee

Passing the Baton

9. Be it resolved that MCTM simplify opportunities for volunteering. This could be accomplished by:
   - Making the list of volunteering opportunities more accessible/easily accessible,
   - Matching talents to available opportunities
   - Incorporating electronic communication and conferencing to allow more participation from greater Minnesota.

   Assigned to the Membership Committee

Kudos

10. Be it resolved that District 1 wants to commend MCTM and its board for their leadership in hosting the phenomenal and professional opportunities for math teachers to attend and for MCTM’s continued support of pre-service teachers.
Some Spring Conference Photos
On Thursday, April 28, the night before the opening of the MCTM Spring Conference in Duluth, 140 preservice teachers, beginning teachers, college and university faculty, and MinnMATYC mentored students, together with CONNECT Committee members, attended the annual CONNECT Session. The event was hosted by the CONNECT Committee and the MinnMATYC Mentoring program, organized by Betty Johnston and emceed by Sara Van Asten. The evening featured a meal, a program led by Terry Wyberg and Anne Bartel which helped participants meet and talk with other new teachers, an orientation to the Conference program, a welcome from NCTM President Michael Shaughnessy and an arm load of free materials to take home. Most of the major exhibitors provided sample textbooks, support materials and calculators for participants to take along with about 20 additional door prizes. Teachers and college faculty also donated books and materials for the famous book giveaway (Remember us next year when you’re cleaning your book shelves!).

But the benefits of coming to Duluth early didn’t end on Thursday night for these teachers. They are now enrolled in the MCTM Virtual Mentoring program and have begun receiving biweekly emails from Ann Sweeney containing helpful websites, resources, teaching ideas and news of upcoming events. And if any of the participants or any other new teachers would like to communicate with an actual, live mentor all they need to do is contact Larry Luck at larryluck@aol.com to make arrangements.

The large turnout at the CONNECT preconference session was partly due to a renewed effort by CONNECT Committee member Ryota Matsuura to reach out to campus contact faculty at virtually all Minnesota colleges and universities who help prepare math teachers. Anyone on a campus which has not received one of our posters and periodic updates should contact Ryota at matsuura@stolaf.edu.

CONNECT Committee members will be working with the Fall Conference Planning Committee to ensure that there will be an ample number of sessions at that conference which will be of interest to beginning teachers. The CONNECT Committee will also be cooperating with the planners for the Winning Strategies Conference at Normandale Community College in the spring.

The CONNECT Committee has set a goal to have a greater outreach to beginning elementary teachers and to be successful we need the help of all MCTM members in this effort. Please let new elementary teachers know that MCTM has help and support available for them. Remember, CONNECT stands for Committee to Orient and Network New/Novice Educators into a Community of (Math) Teaching. MCTM makes it happen!
Dear Matt:

I am having trouble incorporating the statistics standards into my Algebra 2 course when there are so many other topics that I need to cover. Do you have any suggestions about how to get this done?

Struggling Second Year Teacher

Dear Struggling:

In the last issue of Mathbits we talked about dealing with the crowded algebra curriculum, so you may want to reread that first. But let’s talk about how to incorporate statistics today.

Oftentimes we don’t believe that statistics and probability are very important, especially when compared to the ideas of algebra. However, there is a lot of evidence that the study of statistics is one of the most useful applications of mathematics for all students. Those who enroll in post-secondary institutions will find that studying statistics is required in nearly every field of study. Students who progress to the workplace will discover that today’s careers often demand a good understanding of statistical processes. Responsible citizenship demands that everyone be able to analyze data, interpret likelihoods, and evaluate research studies presented to the public. In other words, we all need to understand statistics.

The Minnesota K-12 Academic Standards in Mathematics (2007) require that students in grades 3-5 begin displaying data in simple forms. Students in grades 6 and 7 begin the study of elementary probability. In grades 7 and 8, students extend their ability to display and interpret data. This prepares students for the many important components of the study of statistics and probability in high school.

There are three big ideas at the high school level: creating and using data, evaluating data, and using probability. Most of this content can fit very nicely into an advanced algebra course. Real data, often gathered by students, or taken from events from their lives, can provide the raw material for analyzing data, and using the analysis to predict or make recommendations.

A simple experiment in the classroom can provide the context and data for introducing the Five Number Summary and dual box-and-whisker graphs. This might be asking students, working in pairs, to record each person’s resting heart rate, and then their heart rates after exercise such as jumping jacks (or modified low impact jumping jacks). You could extend this idea to see what happens when they keep doing jumping jacks for several minutes, and plot each person’s heart rate every 30 seconds, starting before they jump, during two minutes of jumping, and for two minutes after they finish. Is it a function? If so, what kind? Can you find an equation describing it? Do all students’ graphs look alike?

The statistical functions on graphing calculators or computers also provide powerful tools for analyzing data and predicting trends and correlations. Integrating statistics into the algebra early in the course rather than simply appending one or several statistics units to the end of the course reinforces and connects understanding of both strands. A longer term project, where students work in groups over time on a question of interest to them can pull together their learning, and might integrate algebra and statistics.

Though your question does not address probability explicitly, the advanced study of statistics, which is begun at the high school level, includes inferential statistics, which incorporates probability into statistics, by analyzing how likely it is that a certain result happens by chance. Thus, students need to have a good grasp of basic probability in order to continue their work in statistics.

There are several good places to begin looking for resources. Be sure to match the goals of the materials you pick to the standards. For example, students should not need a lesson on
calculating the mean, but are expected to learn how to find summary statistics such as the Five Number Summary on their calculator.

As always, the National Council of Teachers of Mathematics has high quality resources, including Illuminations, an online data base of lessons, and the Navigations series, with booklets on both Data and Probability at the high school level. The 2006 Yearbook, Thinking and Reasoning with Data and Chance as well as the November 2008 Focus issue of Mathematics Teacher on Data and Probability are additional useful resources. A new resource includes both book and ebook, Focus in High School Mathematics: Statistics and Probability, and offers up to date support for teachers. See the catalog or website for more information.

The American Statistical Association has for many years used their expertise and resources to assist K-12 teachers with statistics. They have a comprehensive framework, Guidelines for Assessment and Instruction in Statistics Education (GAISE) that gives Pre-K-12 teachers an excellent overview and rationale for the study of statistics, as well as many specifics. Their website is replete with resources for teachers, including data sets and videos. One of their many resources is the Chance Project, a rich resource especially for current articles incorporating statistics that is especially helpful for evaluating statistical studies.

A computer resource is the Fathom statistical software published by Key Curriculum Press. In addition to the software, they publish books, often including blackline masters, to support teachers and students and also textbooks.

A wonderful source for interesting national, state and local data is the U. S. Census site. They produce many varied reports, and the newest report (March 2011) will be the basis of congressional redistricting.

A final resource is the Advanced Placement site. Since there is an AP Statistics course which is growing greatly in popularity, there are more and more resources on the AP statistics sites for teachers. Though the expectations for this course go beyond what is expected in the Minnesota standards, many components of the two overlap. And maybe as you incorporate more and more statistics in your courses, you will become so enthused that you can initiate an AP Statistics course in your school, if you do not already have one!

Happy Teaching! Matt
Measurement is one the most fundamental of all the mathematical processes. The Principles and Standards for School Mathematics (NCTM 2000) summarizes these requirements by stating students should be able to:

- understand measurable attributes of objects and the units, systems, and processes of measurement
- apply appropriate techniques, tools, and formulas to determine measurements.

The following lesson was taken from the Navigating through Measurement PreK-2 book. It was a lesson my class found helpful as the introduction to linear measurement.

**String Lengths** (p. 18) is a lesson activity where students estimate their height. A description of the lesson activity follows.

Have the students answer questions about relationships among the heights of their family members. Such question may include: *Do you have a taller brother or sister? Are you taller than someone in your family? Have you ever tried to make yourself look taller?* (e.g. stand on a stool, tiptoes)

Read the book Much Bigger Than Martin (Kellogg, 1976). Reinforce the idea that children are “just the right size for their ages.” Ask the students what they are able to do because they are smaller than adults (e.g. fit on a parent’s lap).

Hold up a piece of string that is about four feet long. Ask the students to stand if they think they are taller than the string is long. Use the direct comparison to compare the students; heights with the length of the string. Repeat the exercise to determine which students’ heights are less than the length of the string and which students’ heights are about the same as the length of the string. To emphasize the need for a common end point, have a student stand on a stool or chair after it is determined that the student is shorter than the string. Keeping the end point of the string on the floor, again ask which is taller, the child of the string.

Divide the students into groups of three, and supply each group with a six foot length of string. Demonstrate how you would like each student to mark the string with tape, a sticker, or a felt marker at the length that he or she estimated to be the same as his or her height. Then demonstrate how the students should compare their estimates with their actual heights.

Have all the students perform the estimation task with the help of the other students in the group. Encourage the estimators to verbalize the comparison in statements such as: *My string length is too short. I am taller than I estimated.* The students should exchange roles so that each one has the opportunity to perform each component of the task.

Call on several students to name objects in the classroom that they could measure with a piece of string. Write each item on a card. In their groups, have them choose one of the cards and estimate the length of the indicated item on a piece of string by marking the string with tape, a sticker, or a felt marker. If students cannot agree on their estimates, they can mark more than one spot on the string. Have the students compare their estimates with the actual lengths of the objects. The groups can then trade cards and measure other items.

I followed this lesson with the lesson entitled “Grandma”. This fit in well, and showed the students the importance of standard units of length.

References


TIMSS Public Use Videos

The 53 public use lessons collected as part of the TIMSS video studies are now available for everyone on a new website, http://timssvideo.com/. In addition to the 53 full-length videos of eighth grade mathematics and science lessons from seven countries, the site provides full English-translation subtitles for each lesson, a searchable transcript, and a set of resources collected with each lesson such as scanned text materials and teacher commentaries. The site also includes a discussion forum where users can share ideas for how they are using the site, and suggest new features that might be added in the future. The site is a project of UCLA and the Carnegie Foundation for the Advancement of Teaching. Funding was provided by The William and Flora Hewlett Foundation.

Dissemination of these public use lessons serves multiple purposes. The videos provide a concrete basis for interpreting the quantitative findings of the TIMSS 1999 Video Study. They provide illustrations of key findings that are communicated more clearly than written reports or oral presentations alone. In addition, video-enhanced definitions can, over time, provide educators with a set of shared referents for commonly used descriptors, such as “making connections.” This could yield a shared language of classroom practice, an essential tool in building a widely shared professional knowledge base for teaching. Videotapes can become a compelling source of new ideas for teaching. Because these new ideas are concrete and grounded in practice, they have immediate practical potential for teachers. Finally, these public release videos enable teachers and researchers around the world to view samples of the kind of lessons that were analyzed as part of the TIMSS 1999 Video Study and to stimulate local and international discussions of teaching.

Museum of Mathematics

The Museum of Mathematics (www.momath.org) will open in the heart of Manhattan in 2012 and will boast dynamic exhibits and programs that will stimulate inquiry, spark curiosity, and reveal the wonders of math. Mathematics illuminates the patterns that abound in our world. The Museum of Mathematics strives to enhance the public understanding and perception of mathematics. The Museum will feature exhibits and programs that will showcase the beauty, creativity, and real world applications of mathematics. The Museum's activities will lead a broad and diverse audience to understand the evolving, creative, human, and aesthetic nature of mathematics. To further generate interest in mathematics, the Museum created a traveling exhibit, the Math Midway (www.mathmidway.org) and launched a monthly public presentation series called Math Encounters (www.mathencounters.org).

Khan Academy (http://www.khanacademy.org/)

A free website that lets you search for a topic of interest to your class. The site offers videos to that teach a specific skill. Most videos are under 10 minutes. If you create an account, students can login and progress can be tracked.

ThatQuiz (http://www.thatquiz.org)

Another free website that allows students to practice math, science, vocabulary, and geography skills. After creating a free account, a teacher can login and set up a class list. Then, specific quizzes can be set up for that class. Quiz properties include difficulty of numbers and operations used, number of problems, and time limits. Once the quiz is set up, a code can be given to the student to login with. After the students finish the quizzes, they can see their scores and what their wrong answers were compared to the correct answers. Teachers can print student scores and answers.

KUTA Software (http://www.kutasoftware.com/freeipa.html)

Looking for extra practice for your students? KUTA Software offers free worksheets with topics under inequalities, plane figures, linear function, polynomials, equations, and many more. After the student worksheet is given, there is an option to print an answer sheet.
The second annual STEM Day at the State Fair, sponsored by the Minnesota STEM Network, will again have a prominent place in Carousel Park on Thursday, August 25th, opening day of the 2011 Minnesota State Fair. Families may visit over 25 exhibitors between 8 am and 5 pm in Carousel Park next to the Grandstand. The inaugural STEM Day at the State Fair in 2010 was attended by over 2,000 visitors, including Governor Tim Pawlenty, Senator Al Franken and others. STEM Day at the State Fair is focused on reaching K-12 students, teachers and parents with the messages: STEM is fun! STEM has a huge impact and benefit on our society. Wonderful STEM career opportunities exist, both now and in the foreseeable future!

Visitors will be able to engage in hands-on activities and interactive demonstrations from a diverse array of exhibitors and organizations. The University of Minnesota Physics Force and Chemistry Show, Microsoft, the Raptor Center, and The Bakken will present on the main stage on an hourly performance schedule. There will be STEM activities showing children and their parents how to engage in STEM after school, and interactive demonstrations from schools and organizations that illustrate how science, technology, engineer and mathematics permeate every day life as well as will information about future employment trends and educational opportunities in STEM fields.

This year’s STEM Day participants include:

| 3M Visiting Wizards | The Bakken Museum | Bell Museum of Natural History |
| Cedar Park STEM Elementary | Eagan FIRST Robotics | ExploraDomeMN |
| First Tech Challenge First Robotics | Future City | Imation |
| Independent Learning LLP | KidWind | Laura Jeffrey Academy |
| Midway Technology Systems | Microsoft | Minnesota 4-H |
| Minnesota Space Grant Consortium | Minnesota High Tech Association | Science Museum of Minnesota |
| National Center for STEM Elementary Education at St. Catherine University | STARBASE Minnesota | SciGirls at Twin Cities Public Television |
| Raptor Center at the Univ. of Minnesota | STEM Education Center at the Univ of MN | St. Cloud State University |
| South Central College | The Works |

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**Math Day!**

2 + 2 = Zoo!

Now for two days!

November 8 & 9, 2011

November 8 = geared towards elementary
November 9 = geared towards secondary

$3 per student + admission

For more information and to register, visit our website mnzoo.org or call 952.431.9218

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Videos of Ignite talks hosted by Key Curriculum Press

http://www.keypress.com/x25933.xml

What is Ignite? Presented throughout the United States and abroad, Ignite is fast-paced, fun, thought-provoking, social, local, global. It’s a high-energy program of 5-minute talks by people who have ideas—and the guts to get onstage and share them. Key’s Ignite events tackle today’s most talked-about math topics in a way that’s lively, refreshing, and blink-and-you-miss-it quick. Watch these videos of featured speakers presenting fresh ideas in mathematics. Each speaker had 5 minutes to talk about whatever lights them up, using 20 slides that auto-advanced every 15 seconds—whether they were ready or not.

A sampling of speakers and topics from NCTM 2011 Annual Meeting in Indianapolis:

Let's Give Them Something to Talk About! Sonja Goerdt, St. Cloud State University
Calculus is a Toad. Dan Teague, North Carolina School of Science and Mathematics
Music and Math: Exploring Fractions in Music. Arjan Khalsa, Conceptua Math
The Race for the Checkered Flag. Tim Pope, Key Curriculum Press
Why 2 > 4: A Proof by Induction. Max Ray, The Math Forum @ Drexel

Get the Math http://www.thirteen.org/get-the-math/

GET THE MATH is a convergent media project designed to help middle and high school students develop algebraic thinking skills for solving real world problems. Drawing on conventions of popular reality TV shows, video segments begin with profiles of young professionals, who then pose challenges connected to their jobs to two teams of teens. At that point viewers are encouraged to try the challenges themselves using interactive tools provided on the GET THE MATH website, before returning to the video to see the teams’ solutions. Students can further explore the same algebra concepts through additional interactive challenges on the website. Students will see how professionals working in fashion, videogame design, and music production use algebraic thinking. Includes online resources for teachers such as a training video showing how to use project materials in the classroom and a teacher’s guide with lesson plans.

Discoveries and Breakthroughs Inside Math and Statistics http://www.aip.org/dbis/mathstat/

How does math play a role in the formation of snowflakes, in why 9 out of 10 dentists agree, or in how you design your new patio? Discoveries & Breakthrough Inside Math and Statistics is the result of a partnership between the Mathematical Association of America (MAA), the American Statistical Association (ASA), the Society for Industrial and Applied Mathematics (SIAM), and the American Institute of Physics' Discoveries and Breakthroughs Inside Science (DBIS) program. This site features video segments based on the latest mathematical and statistical research and applications that are currently being distributed to local TV stations across the USA and around the world. Each video segment is accompanied by full text information and links to further resources and information. Topics include:

Crocheting A Coral Reef—Biologists Team Up with Crochet-ers to Create Museum Display of Coral Reef Made of Yarn
Uncovering Treasures of The Past—Physicists Use Special X-ray to Read Hidden Writing on Ancient Documents, Study Dinosaur Fossils
Building a Better Flu Vaccine—Bioengineers Improve Flu Vaccine with Mathematical Model that Quickly Predicts Dominant Strain
Predicting a Snow Storm—Atmospheric Scientists Make Snowfall Prediction More Accurate with Mathematical Formula
Odds Of Winning—Mathematicians Use Fundamentals of Probability to Win the Coin Toss
Secrets of Snowflakes—Mathematicians Use Models to Simulate Snowflake Growth
Forecasting Floods in 3D—Hydrologists Forecast Floods Based on Detailed Weather Forecasts and Local Geology
SciMathMN is completing work with the Minnesota Department of Education to design a MN STEM Teacher Center and recreate Frameworks that guide the translation of Academic Math and Science Standards into K-12 classroom practice.

In partnership with the MN Department of Education, SciMathMN has been coordinating the effort involving over 170 teachers and curriculum experts. Many of the state’s best K-16 science and math teachers and faculty have been involved in the Frameworks project to help teachers develop and organize their materials, instructional practices, and assessments at their local schools.

SciMathMN believes the Frameworks will be critical components in moving Minnesota’s world-class standards to become world-class practice in Minnesota classrooms. The Frameworks provide supporting information and resources for each of the math and science standards, including:

- An Overview of the standard including Correlations to other standards
- Student Misconceptions
- A Vignette of that standard being delivered in the classroom
- Resources and new vocabulary
- Sample Assessment items
- Differentiation for the range of students in the classroom
- Suggestions for Administrators and Parents

Bookmark the MN STEM Teacher Center http://www.scimathmn.org/stemtc/ to have this resource close at hand.

Please note: The MN STEM Teacher Center opened to the public on June 30, 2011. However, they will still be reviewing and updating the content for a few weeks. They appreciate patience during this process and welcome your suggestions.

SciMathMN is a non-profit business, education partnership promoting quality science, technology, engineering and mathematics (STEM) in Minnesota's K-16 educational systems. SciMathMN partnered with the MN Department of Education to develop Frameworks for the delivery of Minnesota's mathematics and science standards, as well as the MN STEM Resource Teacher Center.

SciMathMN first developed Frameworks for the Profile of Learning (the first set of MN state standards) in 1997 and 1998. Following the publishing of those documents, SciMathMN offered numerous staff development sessions to disseminate the resources and train teachers in the delivery of standards. However, Minnesota's standards have been revised twice since the Profile of Learning, and that prompted SciMathMN to seek funding to create new Frameworks.

Since 2005, SciMathMN has focused its efforts on policy issues related to K-12 STEM education. In 2007 Minnesota participated in the international TIMSS testing for math and science and SciMathMN performed extensive analysis of those results (with Michigan State University as a partner). The reports documenting Minnesota's success can be found on the SciMathMN website (www.scimathmn.org) and we believe that these current Frameworks will continue to move us in a direction that will keep Minnesota's students and businesses internationally competitive.

SciMathMN found a willing partner in the Minnesota Department of Education and received the grant funding to produce the current (2011) version of Mathematics and Science Frameworks. The MN Department of Education provided much guidance and assistance in development both of the Frameworks and also the design of the website.
Call for Proposals to Speak at the Minnesota Council of Teachers of Mathematics Fall Conference Friday, Oct. 21, 2011

Thank you to many of you for your past contributions to the Minnesota Council of Teachers of Mathematics Fall and Spring Conferences. Our past conferences have been successful because teachers throughout our Minnesota schools have been willing to share their expertise and ideas for teaching mathematics at our conferences. Participant evaluations tell us these presentations are an important part of the professional development of mathematics teachers in Minnesota.

Please consider serving as a session presenter for the 2011 Fall Conference of the Minnesota Council of Teachers of Mathematics (MCTM). The conference theme is Standards and Curriculum: Defining what students should understand and be able to do in their study of mathematics.

The fall MCTM Conference will be held at Maple Grove Senior High School, Maple Grove, MN on Friday, October 21, 2011. The sessions are mostly 45 minutes in length, but we do have a few slots for 90 minute extended sessions. There is an option on the Speaker Proposal form of doing a double session if you would like to do a longer session.

NCTM’s Principles and Standards for School Mathematics will again provide the framework for the conference. As you consider your topic for speaking at the MCTM fall conference we hope you will consider a connection to this year's theme: Standards and Curriculum.

• What are successful strategies for helping all students meet the state mathematics standards in grades PreK-12?
• Have you used a new curriculum? What stories of success can you share with others?
• How can the MN Frameworks support teachers’ in meeting state standards?
• In what ways has your school been successful in aligning your curriculum with the state standards?
• How has your school successfully aligned your curriculum with the standards within grades and across grades?
• What are successful ways to ensure EL students meet state standards?
• How has assessment based on state standards improved all students’ performance?

These are only some guiding questions to consider as you prepare your topic for speaking at the fall conference. We are open to all ideas.

We are making an effort to do much of the conference planning during the summer, so your prompt attention to this request will be greatly appreciated.

We hope you will log on to the MCTM website (www.mctm.org) and complete the speaker proposal form for the 2011 Fall Conference. Once you are at the home page, click on Fall Conference Forms link in blue on the home screen to find the location of the speaker proposal form.

You can also complete the attached form and return it to the address shown no later than August 31, 2011. Preferences will be given to those who submit proposals by July 31 or earlier.

We encourage you to extend this speaking invitation to your colleagues, and to copy the proposal form or retrieve it from the website. We look forward to hearing from you soon.

Sincerely, Kay Wohlhuter, Kathleen Cramer, Paula Bengtson

Fall Conference Co-Chairs

Please note: If you don't choose to submit electronically, you can mail or fax proposals to: Kathleen Cramer 159 Pillsbury Dr. SE, Minneapolis, MN 55455 (612) 624 - 8277
Consider Speaking at the 2011 MCTM Fall Conference
Presentation Proposal Form  2011 MCTM Fall Conference  Friday, October 21, 2011
Standards and Curriculum
Maple Grove Senior High School http://district279.org/sec/mgsh

Name ___________________________
Preferred mailing address ___________________________
Street/PO Box ___________________________
City/State/Zip ________________
Phone (h/w/cell) ___________________________
Email address ___________________________
(This email address will be used for all correspondence with you)
Name and school or professional affiliation as they should appear in the conference program
Name (Print clearly) ___________________________
Affiliation ___________________________
City/State ___________________________

Please circle the appropriate grade levels for your presentation:

K 1 2 3 4 5 6 7 8 9 10 11 12 College General

Would you be willing to do this presentation twice if necessary? Yes ___ No ___
Would you like to do a double session (90 minutes)? Yes ___ No ___
May MCTM publish your email/url in the printed program? Yes ___ No ___
May MCTM publish your email/url on the MCTM website after the Conference? Yes ___ No ___

Title of the Presentation: (Two lines maximum; 36 spaces per line maximum)

Additional Description for the Program – (20 words maximum)

Equipment or facilities needed: All classrooms are wireless and have a projection system for your computer. Some rooms may have an overhead and some rooms may have a document camera. We do not have the ability to furnish interactive white boards for the individual sessions. We may be able to schedule your session in a computer lab. Please contact us early if this is your desire so we can check into it for you.

________ overhead ___________ document camera ___________ Computer lab

Please return by August 31 (preferably by July 31 or earlier) to: Kathleen Cramer, 252 Peik Hall, 159 Pillsbury Drive SE, Minneapolis, MN 55455 Fax: 612-624-8277

Any questions? crame013@umn.edu 651-270-0381

You may also complete this form electronically at http://www.mctm.org/
REGISTRATION FORM
Minnesota Council of Teachers of Mathematics
FALL CONFERENCE
Friday, October 21, 2011
“Standards and Curriculum”
Maple Grove Senior High School
9800 Fernbrook Lane North - Maple Grove, MN 55369
http://district279.org/sec/mcts

REGISTER PRIOR TO OCTOBER 7, 2011 AND RECEIVE THE EARLY REGISTRATION DISCOUNT
You may register for the Fall Conference by completing this form or you may register online at www.mcts.org
For refund requests received by Friday, October 14, 2011, MCTM will refund 50% of your registration fee. After this date, no refunds will be given.

Name
Address
City __________________________ State ________ Zip Code __________________________

If you are a new member OR if any of the following has changed, please fill in the information below.
Home Phone (________) __________________ Work Phone (________) __________________
E-Mail __________________
District Name __________________ School/Institution __________________

Registration Fee (includes lunch)
Non-member fee includes one year membership

Discounted Rate (Before 10/7)
Regular Rate

- MCTM Member $35.00 $40.00
- Non-member $60.00 $65.00
- Student Member $20.00 $25.00
- Student Non-member $32.50 $37.50
- Speaker $20.00 $20.00
- Undergraduate Mathematics $20.00/person $20.00/person
- Education Student Group Rate

Level
Position
- Elementary
- Teacher/Professor/Instructor
- Junior High/Middle
- Specialist/Coach/Supervisor
- High School
- Administrator
- District
- Full-time Student
- Post Secondary
- Retired
- Other

MCTM Dues:
- New
- Renewal
- Do not need to renew

Regular Membership
- One Year - $25.00
- Two Year - $40.00

Student/Retired Membership
- One Year - $12.50
- Two Year - $20.00

- I would like to make a tax-deductible contribution of ________ to the MCTM Foundation

Amount Due
- Registration Fee
- Dues
- Foundation Contribution
- TOTAL DUE

Method of Payment
- Credit Card __ V __ MC __ D
- Card Number __________________________
- Expiration Date __________________________
- Billing Address Street Number __________________________
- Billing Address Zip Code __________________________
- Signature __________________________
- Check payable to MCTM
- PO Number __________________________
(Purchase order must be attached)

Mail to:
MCTM
PO Box 289
Wayzata, MN 55391

Register online at www.mcts.org
Mission Statement:

The MCTM is an organization of professionals dedicated to promoting the teaching and learning of meaningful mathematics for all students by supporting educators in their efforts to improve mathematics education.

Mark Your Calendar

August 14, 2011 Colloquium on P-12 STEM Education Research, U of MN
October 21, 2011 MCTM Fall Conference, Maple Grove High School
April 25-28, 2012 NCTM Annual Meeting & Expo, Philadelphia, PA
May 4-5, 2012 MCTM Spring Conference, Duluth, MN

Do we have your correct address and email?

Check the mailing label for your membership renewal date. Renew online at www.mctm.org

MCTM strives to provide membership with current information regarding mathematics education in the state of Minnesota. To accomplish this goal, we need an accurate, permanent address for each member. Is your correct address printed on the label of this issue of Mathbits? If not, contact Exec. Director Tom Muchlinski at 763-475-3168 or tmuchlinski@earthlink.net or visit the MCTM web site (www.mctm.org) membership page to make your change. Student MCTM members and members in transition are encouraged to provide a permanent address. Newsletters mailed to student members will not be forwarded. Thank you for helping us stay in touch! FYI: In an effort to be cost effective, MCTM sends newsletters at USPS bulk rate. As a result, delivery times may vary between postal districts.

MCTM’s Electronic Times is sent out approximately every six weeks by the Publicity Committee. Do we have your correct email address? Contact Tom Muchlinski with changes.

Please submit items for publication in the next issue of Mathbits to tlgonske@nwc.edu by August 5, 2011. Email or call 651-631-5228 with any questions. - Teresa Gonske, Editor