



MathBits

Board of Directors 2014 Election Results

Voting for the MCTM Board of Directors positions took place earlier this spring (well...maybe winter as so it seemed with the perpetual snowfall!). MCTM members accessed candidate information and submitted their votes online. MCTM leadership wants to thank all who participated in the process and especially thanks each of the candidates for leadership involvement along with willingness to serve as part of the Minnesota mathematics education community.

The following MCTM members were elected to their respective positions on the MCTM Board of Directors. These new board members will be installed and commence their duties during the 2014 MCTM Spring Conference.

Sara Van Der Werf , Ramsey Middle School, Minneapolis	President Elect
Sherri Kruger , Badger High School	VP High School
Karen Hyers , Tartan High School, Oakdale	VP at Large
Amy Wix , Kasson-Mantorville Middle School	District 1 Director
RoseMary Hunt , Turtle Lake Elementary, Mounds View	District 4 Director
Rebecca Rud , Bagley Public Schools	District 7 Director

MCTM member elected to National Board

Paul Kelley, Anoka High School, was elected to the National Council of Teachers of Mathematics Board of Directors and begins his 3-year term this month at the NCTM Annual Meeting in New Orleans.

Congratulations to Paul Kelley!

MCTM is looking forward to hosting a NCTM Regional Conference in Minneapolis November 11-13, 2015 and Paul will play an integral role in the preparation for this big event. In the upcoming year, Paul and the entire MCTM Board will be seeking the involvement MCTM members in the planning process. Therefore, watch for upcoming announcements from the local planning committee regarding how you can participate. And be sure to put the dates Nov. 11-13, 2015 on your calendar.

Connect and Stay Connected MCTM Spring Conference May 2-3

Preparations have been in full swing for the MCTM Spring Conference and early registrations are up in number for this year. You can still plan to get connected with the greater Minnesota professional mathematics teaching community at the Duluth gathering! See the website for full information and program details.

Inside this issue:

MCTM information	2
MCTM Foundation	3
CONNECT	4
Resolutions & actions	7
Professional opportunities	10

Special points of interest:

- Math League results
- Guidelines for resolutions
- Collaboration motivation
- Examining a math "trick"

See inside for these feature pieces.

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.



2013-2014 MCTM Board of Directors

Elected Officers

President

Ellen Delaney
ellendelaney3047@gmail.com

Past president

Michele Luke
michele.luke@hopkinsschools.org

VP Elementary

Pam Richards
educatering@comcast.net

VP Jr.High/Middle School

Courtney LaRoche
courtney.laroche@wayzata.k12.mn.us

VP High School

Paula Bengtson
pbengtson@rushcity.k12.mn.us

VP Mathematics

Christopher Danielson
mathematics.csd@gmail.com

VP Mathematics Education

Sonja Goerdt
slgoerdt@stcloudstate.edu

VP at Large

Lisa Conzemius
lconzemius@detlakes.k12.mn.us

District Directors

District 1

Amy Wix
awix22@gmail.com

District 2

Christy Hemp
christy.hemp@swsc.org

District 3

Kristin Cayo
klcayo@gmail.com

District 4

Karen Hyers
khyers@isd622.org

District 5

Michael Wallus
Michael.Wallus@mpls.k12.mn.us

District 6

Mardi Knudson
mardi.knudson@isd47.org

District 7

Sherri Kruger
skruger@badger.k12.mn.us

District 8

Russ Davidson
rdavidson@ncsc.k12.mn.us

Appointed Offices

Executive Director

Tom Muchlinski
mctm@mctm.org

Financial Secretary

Craig Rypkema
crypkema@paulbunyan.net

Recording Secretary

Patty Wallace
patty.wallace@isd181.org

MathBits Editor

Teresa Gonske
tlgonske@unwsp.edu

Webmaster

Rich Enderton
enderton@minnehahaacademy.net

MDE Mathematics Specialist

Sue Wygant
susan.wygant@state.mn.us

NCTM Representative

Abe Schwartz
aschwartz@bemidji.k12.mn.us

MinnMATYC Representative

Becky Groseth
becky.groseth@anokaramsey.edu

Upon the subject of education, not presuming to dictate any plan or system respecting it, I can only say that I view it as the most important subject which we as a people may be engaged in.
~ Abraham Lincoln

MCTM Foundation

Rose Gundacker, Foundation Board Chair

rgundacker@gmail.com

Check your shelves for quality books and materials you no longer need—you can provide **benefit to new teachers and to the MCTM Foundation** through this even at the MCTM Spring Conference.

As in previous years, there will be **materials giveaway** tables at the Thursday evening CONNECT meeting for pre-service and new teachers. These teachers will be most interested in textbooks, activities, and other things that will be readily useful.

In addition, the MCTM Foundation is initiating a pilot **Used Book Sale** project as a benefit for the MCTM Foundation. It will focus on NCTM publications and a few other high quality books that would be of greater interest to more experienced teachers, teacher leaders, and higher education faculty or researchers. The book sale will be located next to the Foundation table in the Exhibit Hall.

Bring your donations to the DECC and make two piles identifying your donations for each of the events described above. The CONNECT giveaways will need to be at the DECC by 5 PM on Thursday, at the room to be indicated by signage. The Used Book Sale items may be dropped off at the same time in the Fitzgerald Hall at the Foundation table. You will receive a form for the Foundation books indicating you have donated to a non-profit organization, but you will need to keep an inventory of the books yourself.

If you have additional questions, please contact Sharon Stenglein sstenglein@comcast.net

Successful students and teams

MN State High School Mathematics League 2013-14 Tournament Results:

Tournament Tier 1 School Teams

- 1st Edina High School
- 2nd Wayzata High School
- 3rd Mounds View High School

Tournament Individuals

- 1st Michael Tang, Edina
- 2nd Varun Mangalick, Mounds View
- 2nd Nathan Weckwerth, Dassel-Cokato

Tournament Tier 2 School Teams

- 1st Shattuck-St. Mary's School
- 2nd Providence Academy
- 3rd Cotter High School

All-Around Student Placing

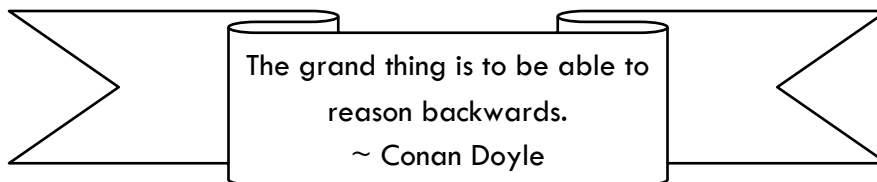
- 1st Michael Tang, Edina
- 2nd Varun Mangalick, Mounds View
- 3rd Henry Wang, Century (Rochester)

MN State High School Mathematics League Regular Season Results:

- Tier 1: 1st place Wayzata High School
2nd place Mounds View High School
3rd place Edina High School

- Tier 2: 1st place Cotter High School
2nd place Shattuck-St. Mary's School
3rd place Marshall School

- Individuals: 1st place Henry Wang, grade 10, Century High School
2nd place tie Michael Tang, grade 10, Edina High School
 2nd place tie Jenica Zhong, grade 11, Wayzata High School



CONNECT

Committee to Orient and Network New/Novice Educators into a Community of (math) Teachers—A resource for beginning teachers

CONNECT Session at the Spring Conference

Pre-service teachers and those in their first few years of teaching are invited to the CONNECT Session held during 7:00–9:00 PM on Thursday, May 1st, the evening before the MCTM Spring Conference in Duluth. Sponsored by the CONNECT Committee and the MinnMATYC Mentoring program, this event offers an orientation designed to maximize your conference experience, as well as an opportunity to network with other teachers with similar interests. In addition, participants are eligible for door prizes and can come away with free learning/teaching materials from our famous “Book Giveaway.” There is no charge for this event—that’s right, free food courtesy of MCTM! Reservations are not necessary but are greatly appreciated, especially if several people from a school or college are coming. If you know you’re coming, please contact Betty Johnston at elizabet.johnston@comcast.net

Summer Interns

Several colleges and universities who prepare mathematics teachers have junior and senior level students who would be willing to be interns for summer school classes in school districts. This will give them valuable teaching experience and will provide summer school teachers with additional help and resources. If your school is offering summer classes and would be interested in having one or more college students available as interns, please contact Ryota Matsuura at St. Olaf College (matsuura@stolaf.edu). He will try to arrange for available interns.

If you are a pre-service or beginning teacher, CONNECT to MCTM through us. If you’ve been around a while, help your new colleagues to get CONNECTed. For more information visit www.mctm.org. To be CONNECTed, contact Larry Luck at larryluck@aol.com or at 763-784-0084.

Announcements

Books for Beginning Teachers

At the MCTM CONNECT session, which immediately precedes the MCTM Spring Conference in Duluth, beginning teachers grades K – 12 are given the opportunity to receive books and learning materials that have been donated. If you have books or materials in your office that you no longer need but that would be of use to beginning teachers, please consider donating them. They need to arrive at the Gooseberry Falls room at the DECC by 5:00 PM on Thursday, May 1, 2014. Perhaps people from your institution who are coming to the conference could be asked to bring them. Questions? Contact Larry Luck at larryluck@aol.com

BOOKSTORE information—NCTM members save 20%

While you’re in Duluth at the Spring Conference, be sure to check out the Bookstore and purchase the latest resources, from newly released titles such as *Principles to Actions: Ensuring Mathematical Success to All*, to the best-selling *Essential Understandings* series. Some items to look for include *Mathematics Formative Assessment: 75 Practices*, *Understanding RTI in Mathematics*, and the light-hearted *Math Jokes 4 Mathy Folks*. We will also have an assortment of “I HEART Math” supplies and accessories.

Special Reminder: We are able to make special orders for ANY items that we do not have on hand, and these items will be shipped directly to your door step FREE of charge, regardless of quantity or size. Also, all conference attendees that are NCTM Members will receive 20% off on their purchases.

Attending Spring Conference? Know your district and attend your District Meeting

MCTM is YOUR professional organization and seeks YOUR input for direction. The meeting time at the Spring Conference is the opportunity for the membership of MCTM to gather for discussing the “business” of MCTM.

District Meetings are scheduled for Friday afternoon at 5:15, following the afternoon sessions and prior to the President’s reception event. All conference attendees are welcome to participate in their respective district gatherings. The District Meeting gives you the opportunity to voice concerns and ideas regarding the future direction of MCTM. As an incentive to attend the meeting, a prize drawing is held at each of the eight district gatherings.

Based upon the conversations and ideas brought to the District Meeting, each district may propose resolutions to present to the Board of Directors for action. These resolutions from the membership are important in helping to shape the direction of MCTM, its actions, and its policies.

The **Delegate Assembly** serves as the official business meeting of MCTM members. Each district has the responsibility to select and send a specified number of delegates as voting representatives to the Delegate Assembly. The number of delegates is based on the proportion of MCTM members in the district. The Delegate Assembly follows the President’s Reception on Friday evening, held from 7:15 to 8:45. The resolutions that were proposed at the District Meetings are brought to the Delegate Assembly for discussion and action. Delegates play an important role in deciding whether a proposed resolution merits being moved forward to the Board of Directors. A fabulous dessert is served specially for delegates only at the Delegate Assembly!

If YOU would like to be an important part of your organization and desire to learn more about its inner workings as a delegate, contact your district director. District directors are listed on page 2. If you need to determine which district you are in, contact any of the directors—each is willing to help you make that connection.

Note that non-delegate MCTM members may attend the District Assembly as observers but are ineligible to participate in the discussions and voting process. Let your District Director know if you are interested in being a delegate.

Suggested guidelines for proposing resolutions

- A resolution should be about **something that the organization is actually able to accomplish**. Occasionally well meaning resolutions are proposed, that involve action outside of the scope of what MCTM as an organization can reasonably do or influence.
- A resolution should **not involve lobbying**. MCTM is a 501c3 organization. This means it is tax exempt, but it also means it has to be careful not to spend more than a small fraction of time and resources on lobbying the government. A resolution that involves a good deal of lobbying cannot be taken on by the board of directors.
- A resolution has to be **handled by volunteers**. The district directors and all elected board members get no compensation for their efforts. They are on the board because they care about students and want them to have quality mathematics instruction. They would like to do much to help you, but they have to work on the resolutions after they have marked homework, planned their lessons, and dealt with all of the issues teachers deal with every day. Thus, resolutions should be significant and important enough to have volunteers use their valuable time to work on them.

With those guidelines in mind, the districts, led by their district directors during the district meetings, will craft resolutions and submit them to the Delegate Assembly. The delegates will vote each resolution up or down in regard to whether to pass it on to the board of directors for action.

If you are unable to attend the Spring Conference and District Meetings, please contact your District Director with any ideas, issues, or concerns you feel are important to be brought forward.

Collaboration

Mardi Knudson, District 6 Director

As an instructional math coach, this is the time of year I see a heightened level of anxiety in math teachers! MCA's are around the corner and spring isn't!

Reflect on this quoted selection:

Demoralization (as opposed to burnout), *on the other hand, happens* “when the job changes to such a degree that what teachers previously found good about their work is no longer available,” says Santoro. “Moral rewards are what bring many of us to teaching: finding ways to connect meaningfully with students, designing lessons that address students’ needs, using our talents to improve the lives of others.” When the source of moral rewards is cut off, for example by a highly scripted curriculum, (or excessive data emphasis) teachers become demoralized. This kind of situation “demands a collective and structural response,” says Santoro.” “There is no shame in demoralization – it is the work that has changed, not the failure of an individual to tough it out. Teachers can ask themselves, colleagues, school leaders, policy makers, parents, whoever will listen: How are we able to access the moral rewards of our work?... “

- Doris Santoro, Assistant Professor of Education at Bowdoin College

This quote is the inspiration that moves me to figure out support systems for teachers. Which can be an impossible task unless we fall back on collaboration!

Isn't collaboration what we are all about in the classroom? Encouraging math discourse requires that at least two people enter into the conversation. We, teachers and students, are not in this alone. We are here for each other.

In my fall article I put forth the challenge to reach out to colleagues down the hall or at your grade level. How has that worked? Are you able to enter into lesson study at your department meetings or PLCs and take deep dives into a concept? Are you able to share ideas about pre-testing units, differentiation, interventions and progress monitoring? If you seem to have hit a roadblock in any of these areas, step out of your comfort zone and seek ideas from your peers. Districts are in the throes of completing plans for staff evaluations next year. How is your district addressing the need for “peer observation/reflection?” What will be the focus of discussion when you plan those sessions?

If any of these topics start to give you hives, fear not! Help is just a few weeks away! As we ramp up for the end of year, let's collaborate. A perfect opportunity for rejuvenation is just around the corner, the MCTM Spring Conference: “Connect and Stay Connected.” Join us!

Good Reading

NCTM Journal Blogs—Each of NCTM's three teacher journal blogs has been developed to expand on a theme:

- ♦ Math Tasks to Talk About (*Teaching Children Mathematics*) www.nctm.org/TCMblog/MathTasks
The hand shake problem; How many squares on a checkerboard?
- ♦ Blogarithm: Standards of Mathematical Practice in the Middle Grades
(*Mathematics Teaching in the Middle School*) www.nctm.org/MTMSblog/Blogarithm
Peace through constructions; The 2⁰th post
- ♦ Joy and Inspiration in the Mathematics Classroom (*Mathematics Teacher*) www.nctm.org/MTblog/Inspiration
Light the Fire; You matter

Blog posts are contributed by guest bloggers from within the mathematics education community, and all three invite comments from the field.

Report on Resolutions Passed by the 2013 MCTM Delegate Assembly

The following resolutions were passed by the 2013 Delegate Assembly on April 26, 2013. The resolutions were brought before the MCTM Board of Directors on April 28, 2013 and subsequently assigned to committees as appropriate for consideration and action. This report presented by the MCTM Board of Directors documents action taken between April 28, 2013 and April 1, 2014.

Special resolution: Be it resolved that MCTM recognize and thank Bill Eppright for his many years of meritorious service to the council as a facilitator of the delegate assembly. Affirmed by all districts.

- 1) Be it resolved that MCTM advocate for general improvements, better study materials, and longer testing times due to 48 multiple-step, multiple choice items in 60 minutes for the Minnesota Teacher licensure Exam (MTLE).

Action Taken:

Assigned to Professional Concerns Committee. (4-28-13)
OPEN

- 2) Be it resolved that MCTM find effective ways to advertise and promote the conference to non-members and members.

Action Taken:

Assigned to Publicity Committee working with Membership Committee and the Math Leaders Task Force. (4-28-13).
Advertised with the Elementary and Secondary Principals Associations and Education MN. (11-21-13)
COMPLETED

- 3) Be it resolved that MCTM explore options for holding state regional meetings to increase membership and participation.

Action Taken:

Assigned to Professional Development Task Force. (4-28-13)
MN Math Leaders and MDE held workshops and webinars in September, January, and planned for March. MN Math Leaders will hold open network meetings in May and survey to identify math leaders around the state who can coordinate with MCTM District Directors to offer regional networking meetings. (2-1-14)
OPEN

- 4) Be it resolved that MCTM connects teacher preparation programs with MCTM members within their district to present to preservice teachers about the organization, to make future teachers aware of benefits, and to increase membership.

Action Taken:

Assigned to CONNECT Committee. (4-28-13)
MCTM representatives will share benefits of MCTM membership at the CONNECT session in Duluth. Further on the agenda for June 2014 CONNECT planning meeting with support from MCTM. (2-1-14)
COMPLETED

- 5) Be it resolved MCTM explore communicating with MDE concerns about the 11th grade MCA III formula sheets lacking diagrams or legends.

Action Taken:

Assigned to MDE State Mathematics Consultant. (4-28-13)
A response was provided in September 2013 issue of *Mathbits*.
COMPLETED

- 6) Be it resolved that MCTM conference committees explore options for availability of resources shared by

(Continued on page 8)

(Continued from page 7)

presenters to conference attendees through the MCTM website.

Action Taken:

Assigned to Spring Conference Committee. (4-28-13)
A link added to presenters' session form for sharing resources. (11-21-13).
Follow-up contact with speakers will occur in April. (2-1-14)
OPEN

- 7) **Be it resolved that MCTM conference committees explore grant and scholarship options for pre-service teachers to defray conference costs such as registration, lodging, and/or travel.**

Action Taken:

Assigned to CONNECT Committee and MCTM Foundation. (4-28-13).
On the agenda for the annual CONNECT planning meeting in June 2014 for further consideration. (2-1-14)
OPEN

- 8) **Be it resolved that MCTM continue to promote and collaborate with MDE's webinar series.**

Action Taken:

Assigned to Professional Development Task Force & Math Leaders Task Force. (4-28-13).
E-blast sent to membership promoting 2013-14 MDE webinars. (9-16-13).
COMPLETED

- 9) **Be it resolved that MCTM consider using a block of time during the Spring Conference for special interest groups to meet.**

Action Taken:

Assigned to Spring Conference Committee. (4-28-13)
Committee decided not to pursue this formally. (11-21-13)
COMPLETED

The committees of MCTM are the bodies that carry out the work of the organization. They work on their designated tasks and issues throughout the year. MCTM members are encouraged to consider contributing their talents to the various committees. A broad range of representation on the committees ensures that MCTM remains a strong, member-driven organization.

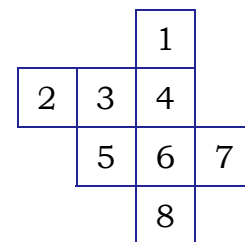
If you have any questions or concerns regarding this report, please direct them to MCTM President Ellen Delaney or contact your District Director prior to the District Meetings on May 2, 2014. The MCTM Board of Directors appreciates the feedback you provide.



Card Number Six—A Logic Problem

Eight numbered cards lie face down on a table in the positions shown in the diagram. Of the eight cards:

1. Every Ace borders on a King.
2. Every King borders on a Queen.
3. Every Queen borders on a Jack.
4. No Queen borders on an Ace.
5. No two cards of the same kind border on each other.
6. There are two Aces, two Kings, two Queens, and two Jacks.



Which kind of card—Ace, King, Queen, or Jack—is card number six?

Hint: Assume card number six is either an ace, a king, a queen, or a jack. In only one case does no contradiction arise.

Let's examine some mathematics

Teresa Gonske, Editor

Dover Publications had a big paperback book sale a few months ago. The prices were deeply discounted and the descriptions in the recreational mathematics section were intriguing, so I ordered a dozen different books. They included *Sam Loyd's Book of Tangrams* (Sam Loyd, 1968), *The Canterbury Puzzles* (H. E. Dudeney, 1958) where the puzzles are incidents in connected stories posed by pilgrims in Chaucer's *Canterbury Tales*, *The Puzzling Adventures of Doctor Ecco* (Dennis Shasha, 1988) where Dr. Ecco is a mathematical detective solving puzzles such as The Tower of Lego, Gossiping Defenders, and the Puzzle-Mad Kidnapper, and *Mathematical Fun, Games, and Puzzles* (Jack Frohlichstein, 1962).

While browsing through the pages of this last book, I came upon "fun novelty no. 10," labeled as *easy*, which presented a way of multiplication for those "who have difficulty with the tables, especially when required to multiply higher numbers like 8×7 , 9×8 , etc. A person need not know his 7's, 8's, or 9's multiplication tables."

Yikes! I thought. How could I have purchased a book full of "tricks"—which too many in the general population believe mathematics is primarily composed of—representing the very thing I try to steer my own students (future math teachers) away from promoting? And furthermore, wouldn't this example make good fodder for those who'd accuse me of promoting "fuzzy math," i.e. in their opinion not requiring solid memorization of the times tables as first and foremost in importance in the overall scheme of learning math?

The author showed that 8×7 and 9×6 would look like this. I was not familiar with the method. The specified instructions went as follows: 1) Make a big X on your paper. 2) Write the numbers you are multiplying on the left side of the X. 3) To get the numbers you write on the right side of the X, mentally subtract the top number from 10 and the bottom number from 10. 4) To find the tens figure in the answer, determine the difference on either diagonal line. To find the units figure, merely multiply the two numbers on the right; they will always be simple combinations (with numbers 1 thru 5).

$\begin{array}{r} 8 \quad \times \quad 2 \\ 7 \quad \times \quad 3 \\ \hline \end{array}$	$\begin{array}{r} 9 \quad \times \quad 1 \\ 6 \quad \times \quad 4 \\ \hline \end{array}$
Answer: 5 6	Answer: 5 4

And that was all—no explanation! Yes, it's quite a nifty a trick, I concur, but I really don't like it at all if I don't know why it works! Hmm...this calls for a proof. I need to be convinced the general case is valid. But first, before we work with variables, let's write out a numerical representation of the procedures and thinking that we used.

The way we determined the tens digit is represented by $7 - (10 - 8)$ and the manner in which we determined the units digit is represented by $(10 - 8)(10 - 7)$. Putting it together, we can show calculating the value of the product like this. Okay, that's better...I can see some structure to it. But I still need the general case to *really* believe it. So let's determine the product $m \times n$.

$$\begin{aligned} & 10[7 - (10 - 2)] + (10 - 8)(10 - 7) \\ &= 10[7 - 2] + (2)(3) \\ &= 50 + 6 \\ &= 56 \end{aligned}$$

$$\begin{array}{r} m \quad \times \quad (10-m) \\ n \quad \times \quad (10-n) \\ \hline \end{array}$$

Ans: $n - (10 - m)$ $(10 - m)(10 - n)$

Ah-ha! Now I believe the "trick"! But only because I've uncovered the structure than indicates what is happening within the specified procedure. And now I think that perhaps I'm beginning to like this exercise. Certainly not as a method of computation, but alternatively as a fairly accessible example to use in prompting development of students' reasoning and proof sense.

$$\begin{aligned} & 10[n - (10 - m)] + (10 - m)(10 - n) \\ &= 10[n + m - 10] + (10 - m)(10 - n) \\ &= [10n + 10m - 100] + [100 - 10n - 10m + mn] \\ &= 10n + 10m - 100 + 100 - 10n - 10m + mn \\ &= mn \end{aligned}$$

Several weeks after first sketching my proof out on paper, I learned that there is a history to this method which is sometimes called *European peasant multiplication*. Thanks for this revelation must go to one of my students, Levi, who had written a review of the article "Let Your Fingers Do the Multiplying" by S. J. Kolpas from the April 2002 issue of *Mathematics Teacher*. In skimming a copy of the article I recognized the pattern of work I had done. And here was the method being shown not from starting with "a big X," but as an age old method of "finger-reckoning," i.e. using just the fingers!

I recommend obtaining a copy of this article for the potential hands-on activity leading to an investigation where students practice algebraic reasoning, inductive reasoning, and deductive proof. In Levi's words, "it's not necessarily a bad thing to teach 'tricks' to my students as long as they are forced to analyze why the trick works and gain an understanding of the math behind the idea. [It] can be very motivating to students to have a 'trick' and be able to explain it and use it."

Professional development opportunities

The Master Math Teacher - Grades Three through Eight

June 13, 2014 South Central Service Cooperative, North Mankato, MN

Description: If you teach math in grades 3 through 8th grade, prepare yourself for a fun, informative day of learning! We will investigate standards and create a make and take to get you ready for fall! If you can, bring your best teaching idea to share with the group.

Check-In Time: 7:30 AM Start : 9:00 AM End: 3:00 PM Fee: \$25.00

Contact: Mary Hillmann Telephone: 507-389-2509 Fax: (507) 389-1772

http://mnscsc.org/Programs-Services/Professional_Development/SCSC-Educational-Opportunities.aspx

2014 Summer Teacher Institute, Wednesday, June 18, 2014, 8am—4pm

The Division of Graduate & Continuing Education and the Department of Education at the **University of Northwestern – St. Paul** have teamed together to offer the 2014 Summer Teacher Institute

The institute is a one-day continuing education and professional development event for PreK–12 educators featuring 90-minute dynamic, interactive workshops. Attendees will participate in up to four workshops designed to meet Minnesota licensure renewal requirements in Reading, Technology, Positive Behavioral Intervention, Instructional Strategies, and/or Key Warning Signs for Early Onset Mental Illness in Children and Adolescents. Participants can earn Continuing Education Units (CEUs) and/or 1-2 graduate credits. If seeking graduate credit, an individual course application will be required in addition to registration. Summer Teacher Institute Workshops are taught by Northwestern faculty and practicing teachers. Complete information about the event, available workshops, and registration is available at www.unwsp.edu/summerteach

For additional information, contact Dick Joerger at rmjoerger@unwsp.edu or 651.631.5243

More learning experiences for all

Math Moves!—mathematics learning experiences at the Science museum of Minnesota

Four museums and two research centers have collaborated, with support from the National Science Foundation, to develop, create, and evaluate Math Moves! Here are just a few of the activities you'll find when you visit.

Shadow Fractions—Make stories or scenes as you experiment with the placement of scaled objects and a bright-white LED light to cast shadows of objects on a grid. Moving these objects, increase or reduce the size of shadows.

Comparing Frequencies—Use one or more small wheels driven by a large wheel to create rhythmic percussive sounds. Experiment with several wheels to compare frequencies of the clicks and hear the rhythm of proportions and frequency of clicking.

Comparing Forms—You'll find three chairs identical in every aspect except proportional scale. One chair is full scale (X), the others are $1/2X$ and $2X$. Use your body and measuring tools to investigate how the chairs differ in size.

Partner Motion—See how rate of motion affects a graph on a screen. In this full-body activity, you'll walk back and forth, slowly and quickly, creating graphs of your motions. Work with a partner to create a number of different graph shapes. Graphs display movement over time, giving another way to think about and feel how rates compare.

Drawing with Gears—At this mechanical drawing table, you'll draw harmonic patterns using proportional wheels. The drawn patterns repeat after a fixed number of rotations and are determined by the ratio of the gears used at a particular time. You'll create complex, circular drawings on paper to take home or share with other visitors.

Learn more about the Math Moves! project and partners at www.mathmoves.org.

Opportunities with NCTM

2013 Interactive Institutes from NCTM <http://www.nctm.org/institutes/>

Engage in deep learning with NCTM Interactive Institutes. NCTM's Interactive Institutes offer activities and tactics to transform your classroom into an environment where your students will better learn to examine, interpret, and think critically about math concepts. At each Institute, you'll participate in face-to-face activities and network with peers from across the country, and take home strategies that will help you provide your students with the tools they need to apply math in meaningful ways. You can also reinforce, expand, and apply what you learn by participating in optional extended online professional development during the school year.

Learn more about each of the following Institutes at the link provided above.

Connecting Number and Operations in the Classroom, Grades Pre-K–5, July 10–12, 2014, San Diego

The concepts and skills related to number and operations are foundational elements in mathematics. Students are being challenged to acquire and demonstrate a deeper understanding of a sense of number. This Interactive Institute will give you the skills in number and operations to help your students develop number sense with a particular focus on conceptual understanding, procedural fluency, and applications.

Algebra Readiness for Every Student, Grades 6–8, July 7–9, 2014, San Diego

Two and a half days of professional development dedicated to algebra readiness, and you will walk away with practical methods to prepare your students for success. This Interactive Institute offers a variety of activities and instructional techniques to give your students opportunities to develop strong algebraic reasoning skills. You'll also learn strategies that will help align with State Standards while giving students the tools they need to succeed.

Engaging Students in Learning: Mathematical Practices and Process Standards, Grades 9–12, July 31–August 2, 2014, Chicago

An interactive professional learning experience that enables high school mathematics teachers to effectively address the Common Core mathematical practices and NCTM Process Standards.

E-Seminars Anytime <http://www.nctm.org/profdev/content.aspx?id=23401>

For those of you that are not able to travel to NCTM's regional locations, there is now an online option for professional development. Choose from 12 options. And create your own schedule. Each seminar is a 60-minute online session with no travel required. E-Seminars ANYTIME are now **FREE for NCTM members!** (\$79 non-members)

- Can Writing Be the Missing Link for Mathematical Understanding?
- Implementing the Grades 9-12 (or 6-8) Common Core State Standards with NCTM Resources
- Assessment Considerations for RTI in Mathematics
- Mathematics Teaching and Student Learning: What Does the Research Say?
- Using Multiple Representation in Algebra (Grades 9-12)
- Applying Response to Intervention (RTI) in Mathematics to Support ALL Learners
- Preparing for the First Days of Mathematics Instruction and Beyond (Elementary)
- Effective Mathematics Instruction: The Role of Mathematical Tasks (K-12)
- Using Jokes and Humor in the Mathematics Classroom
- Why Don't My Students Have Number Sense? (Grades 6-8)
- Developing Effective Instruction for Fractions, Ratios, and Proportional Thinking (Grades 4-8)

You will receive a recording of the E-Seminar and a Site Facilitator Guide.

Minnesota Council of
Teachers of Mathematics
P.O. Box 289
Wayzata, MN 55391

Ellen Delaney, President
ellendelaney3047@gmail.com

Tom Muchlinski, Exec. Director
612 - 210 - 8428
mctm@mctm.org

www.mctm.org



Call for Articles

Seeking articles for *MathBits* on issues of interest to mathematics teachers in Minnesota. This includes particular learning tasks and activities that have been implemented in your classroom along with a description of the learning outcomes and any unique results. Photos and images are welcomed. Contact the newsletter editor or your district director with any questions or a proposed idea.

Also seeking information on professional opportunities and professional resources. If you are aware of items of interest please pass them along for dissemination to the MCTM membership. Don't worry about format or having all the details, simply email what you know to the editor.

Thanks!

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.

The Minnesota Council of Teachers of Mathematics 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 and a correct email address. To update your information contact Exec. Director Tom Muchlinski at 612-210-8428 or mctm@mctm.org or visit the MCTM website (www.mctm.org) [membership page](#) to make your change.

If you have received a paper copy of *MathBits*, either 1) you explicitly requested to receive a hard copy through the USPS mail or 2) messages sent to your email address have come back to MCTM as undeliverable. If you have not made a direct request for a hard copy, please contact MCTM to [verify a correct email address](#). Also, check that messages from the address mctm@mctm.org are not being blocked by your server or being sent to your spam folder.

Most communication from MCTM is being conducted through email. (And now Facebook and Twitter for those of you who use the social media!) If you would like to receive a hard copy of the newsletter by mail, you may

Submit items for publication in the upcoming issues of *MathBits* to tlgonske@unwsp.edu. Many types of contributions are welcomed. Email or call 651-631-5228 with questions or comments. Thank you.

Teresa Gonske, Editor.