Summer 2008

Mathbits

Spring Conference Highlights

Though the weather in Duluth was somewhat blustery and the slushy snow began to accumulate early Saturday, the atmosphere inside the DECC among the MCTM Spring Conference participants was saturated with exuberance and collegiality. Laughter precipitated to overflowing during the special keynote presentations by Kim Sutton (the Six Guiding Principles to Teaching Mathematics with Motivation) and Susan Vass (Assignment: Fun! Laughing Your Way Through Life and Math).

The conference theme, *A+ in Mathematics: Algebra and Much More*, focused on the continuing concerns about developing students' algebraic thinking and readiness throughout the grades to achieve the goal of algebra by eighth grade. Teachers, curriculum leaders, and administrators who arrived earlier on Thursday for the Tenth Symposium on Mathematics Education, *Algebra for All: What Does This Mean for Minnesota Schools,* began addressing these issues in a series of addresses presented by keynote speaker Dr. Don Balka. Don Balka's well-received presentations blended information on policy, theory and research with hands-on engagement in illustrative mathematics activities and anecdotes of real application experiences. Symposium participants further collaborated on algebra learning activities and in discussions about the Minnesota algebra standards during grade level breakout sessions led by Bonnie Hagelberger, Ann Sweeney, Terry Wyberg, and Donna Forbes.

Over the course of the next two days the conference theme was carried out in sessions aimed at each of the grade levels such as "Algebra and the Basic Facts: Where is all Can Start" presented by Jim Brickwedde, Developing Algebraic Thinking in Grades 3-5" presented by Melanie Keilor and Deb Guthrie, "Making Algebra Meaningful in Grades 5-8" presented by Paul Agranoff, "Factoring Polynomials: It Doesn't Have to be Difficult" presented by Mike Simonet, "What if the Graph is Linear" presented by Tammy Brooks, "Improving Student Algebra Achievement using Algebra Tiles" presented by Denise Lee, and "Algebra 2 Mastery as a Function of Student Understanding" presented by Josea Eggink.

Ken Vos was presented Honorary Membership Award by MCTM President Judy Stucki

Honorary Lifetime Membership was awarded to Dr. Ken Vos in recognition for years of dedicated service given to MCTM and the field of mathematics education. Dr. Ken Vos taught at the College of St. Catherine in St. Paul for 35 years, influencing many future teachers including some who are now themselves preparing the next generation of mathematics teachers. Ken joined MCTM in 1966 and has been a speaker at many fall and spring conferences. He served on the MCTM Board of Directors as the Vice-President for Mathematics Education. Ken was also one of the initiators of the Symposium on Mathematics Education that precedes the annual MCTM Spring Conference and has worked on numerous additionsl projects for MCTM including position papers on assessment, problem solving, calculator use, and data analysis. Through his service Ken Vos has left an indelible mark on mathematics education in the state of Minnesota.

See page 7 for selected spring conference photos. View lots of additional photos on the MCTM website www.mctm.org.

Inside this issue:

Plan to attend:

Fall Conference
Lakeville South HS
October 17

See p. 11 for registration information.

President's Memo

Judy Stucki
MCTM President
judy@stucki.us

As we complete another school year, I know you are planning ahead for the next one.

One of the issues on everyone's agenda is algebra in the eighth grade. During the Spring Conference in Duluth, we held a few sharing sessions to talk about what schools are planning to do. I will be summarizing that data and putting it on the website along with the email addresses of those present at the sharing sessions. You are welcome to send me your plans and ideas to add to the compiled data or contact one of the people listed to get more information. Keep in mind that most of these plans are just in the beginning stages so schools are unable to report how well their plans are working.

During the Fall Conference we will hold more sharing sessions, probably organized around textbook series being used. Hope to see you there and have a restful summer. Judy Stucki

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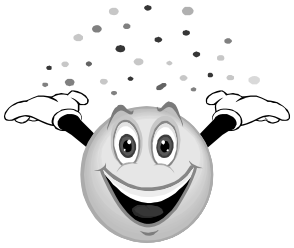
Winners ! ! !



Spring Conference attendees who are present through the final event have the opportunity for their names to be drawn in the door prize giveaway. The 2008 prize drawing winners were:

Sharon Baron, Thief River Falls Junior High School
Kim Bauer, Lincoln Center Elementary
Gail Beall, Wilshire Park Elementary
Tammy Bjorge
Eileen Dahl, Hennepin Technical College
Heidi Hansen, University of Minnesota
Jo Leah Hasson, Greenbush Middle School
Stacy Jurgens, Mesabi Range Community and Technical College
Russ Petricka, Carlton College
Priscilla Ruemping, Rochester Community and Technical College
Jason Schorn, Southwest Minnesota State University
Hannah Stevens, Concordia College

The winner of the *two-year MCTM membership* prize for turning in the Personal Data Sheet prior to lunch on Saturday was Laura Cochlin, North St Paul School District.

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Judy Stucki	President	1 Joan Rustad-Huisman*	jrustad@blueearth.k12.mn.us
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* Officially assumed office at conclusion of Spring Conference.

Appointed Offices			
Tom Muchlinski	Executive Director	Tom Muchlinski	NCTM Affiliate Services Rep.
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Craig Rypkema	Financial Secretary	Teresa Gonske	Newsletter Editor
Paul Agranoff	NCTM Representative	Rich Enderton	Webmaster

Outgoing officers who completed their elected terms at the end of Spring Conference:
Donna Forbes, VP High School
JoAnn Luhtala, VP at Large
Bill Putnam, District 1 Director
Deb Guthrie, District 4 Director
Sonja Goerdt, District 7 Director

Thanks for your service!

What's New in Statewide Assessment?

Rosemary Heinitz

Math Content Specialist
MDE Research & Assessment
Rosemary.heinitz@state.mn.us

The folks from the MDE Research and Assessment division enjoyed the opportunity to visit with teachers at the Spring Conference. It is a valuable opportunity for us to connect with teachers and to learn about issues connected to statewide tests.

2008 Assessment Conference
The MDE Annual Assessment Conference will be held Thursday, August 7, 2008, at Northwestern College. This one day conference features sessions of interest to teachers, administrators, and District Assessment Coordinators (DACs). Information about registration and conference sessions will be sent to Superintendents and DACs and will be available on the MDE Research and Assessment website.

Test Preparation Materials
The Item Samplers provide an opportunity for students to experience the "look and feel" of the test. The MCA-II item samplers are posted on the MDE website. Additional released items for MCA-II will be available from the Pearson Perspective website. To access the items, go to http://PerspectiveForEducators.com/mn. Follow the path for Teaching Resources > Sample Items. Currently, you will find Grade 3 items. Look for additional items for other grades in the fall.

MCA-III Test Specifications
The draft of the MCA-III Test Specifications for grades 3–8 will be posted on the MDE website after review of the document is completed. Look for this in June.

ADP Algebra I End-of-Course Field Test
Minnesota will be joining a few other states in field-testing some End-of-Course Algebra I tests in the fall of 2008. In a few weeks, districts will receive a letter inviting them to participate in the study. Districts will need to indicate if they are interested by June 20, 2008. Your District Assessment Coordinator (DAC) is the person to contact for more information.

Advisory Panels
Invitations have been sent for participation in the Test Item Review Process. To become involved in the test development process, teachers are encouraged to register on the MDE website at http://education.state.mn.us. Follow the path for Accountability Programs > Assessment and Testing > Professional Development > Advisory Panels.

Best wishes for a healthy summer!

Report on Spring 2008 Delegate Assembly Resolutions

2008 Resolutions

Resolution #1—Algebra Standards

Be it resolved that MCTM disseminates information about districts' implementation of the algebra requirements including course names.

Action Taken: Assigned to the Algebra Task Force (4/27/08)

Resolution #2—Algebra Standards

Be it resolved that MCTM disseminates information to identify best practices and intervention strategies to address the needs of students who are significantly behind their cohorts and those who will have difficulty meeting the 8th grade Algebra requirements.

Action Taken: Assigned to the Executive Committee (4/27/08)

Resolution #3—Funding Request

Be it resolved that MCTM communicate to legislators a request for ongoing technology funding to support the new standard requirements and for the administration of the computer based tests.

Action Taken: Assigned to the Executive Committee (4/27/08)

Resolution # 4—Quality Teacher Network

Be it resolved that MCTM encourage its members to contact the Minnesota Department of Education or their legislators to support and fund the math Quality Teacher Network.

Action Taken: Assigned to the Legislative Task Force (4/27/08)

Resolution # 5—Conference Communication

Be it resolved that MCTM explore the possibility of providing a flash drive at the conference with email addresses of presenters.

Action Taken: Assigned to the Spring and Fall Conference Committees (4/27/08)

Resolutions referred to committees and task forces were initially addressed by the indicated committee during MCTM committee meetings on June 17, 2008. Updates on the progress of actions taken will be forthcoming.

MCTM Foundation

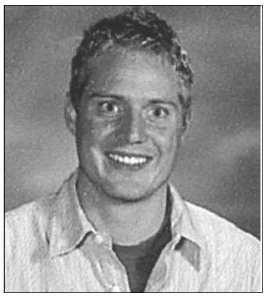
Teachers Awarded MCTM Foundation Grants to Attend Spring Conference

The MCTM Foundation awarded support grants to three teachers for their attendance at the MCTM 2008 Spring Conference in Duluth. William Wietman and Jeremiah Weaver, both of Carlton High School (Carlton, MN) received Beginning Teacher Support Awards. Janet Genord from Woodbury High School (Woodbury, MN) received the Mid-Career Teacher Support Award. Congratulations!

After the conference, William reported as follows:

William Weitman
Carlton High School

> This year's MCTM conference was really exciting for me. I spent time looking at ways to make my teaching more concrete for my students. I attended sessions on vocabulary, online teaching, differentiated instruction, and many sessions on middle school and elementary school topics. In addition, I went to a session on implementing the standards. All of the sessions I attended provided me with outstanding resources that I was able to bring right back to use in my classroom. At the end of Friday night I was able to attend the Delegate assembly and vote on resolutions as a representative of my district. This opportunity peaked my interest in the behind the scenes things that happen during the conference. I promptly volunteered for the 2009 NCTM conference and will try to preside or speak in future MCTM conference. All of these opportunities would not have been available to me if I did not receive this grant from the MCTM foundation. Thank you!



Jeremiah Weaver
Carlton High School

Jeremiah wrote in his application that he was looking forward to attending his first MCTM conference. "I view this conference as an opportunity to grow not only as a teacher, but as a professional in the field of mathematics."

For Janet's application, her principal wrote, "I am confident that what she learns from the MCTM conferences will make a positive impact on students and staff."

Janet Genord
Woodbury High School

Past award recipient Abram Schwartz followed up his participation in the 2007 MCTM Spring Conference by attending NCTM's 2008 Annual Meeting in Salt Lake City as a recipient of the MET (Mathematics Education Trust) award to support a teacher's participation in their first Annual Meeting.

Back in Duluth in April 2008, Abe wrote:

> This year's (MCTM) conference was absolutely fantastic. I wish I could bottle up the enthusiasm that we share at the conference and bring it back to my teaching staff. Maybe I could save a little and spread it out through the year. The spring conference is a rush, and Duluth is a great location for this event (even if we did almost get snowed in). This year I had the privilege going to the National conference in Salt Lake City, and after being back in my classroom for a week, I was off to Duluth for the MCTM Spring conference. I must be a Math Geek! I also had the opportunity to try presenting at the spring conference, and believe it or not, I actually enjoyed every second that I was in front of the group. It is great to get together with other teachers that are equally as passionate as I am about providing quality math opportunities for all students. I am looking forward to presenting again next year. After 2 years of being a MCTM member, I can already say that I will more than likely be a math geek for life... and proud if it!

Conference Support Awards are made available by the MCTM Foundation to bring beginning and mid-career teachers to the spring conference and hopefully to engage them in ongoing professional development. Watch for application materials for the 2009 Conference Support Awards. These materials will be available in October, at the Fall Conference and on the MCTM website.

For more information about the MCTM Foundation, see the MCTM web site or contact Cathy Wick, Chair of the Foundation Governing Board, at cwick@ties2.net.

TEACHER INCENTIVE GRANT recipients from 2007 used the funds to host an after school Math Club for grades 3-6. Jan Klungtvedt and Lori Daeuber from the Dilworth-Glyndon Felt School District led a five-session club with each session having a geometry focus. The program was very popular with the students.

Connect Supports Novice Math Teachers

On Thursday, April 24, the night before the opening of the MCTM Spring Conference in Duluth, 118 preservice and beginning math teachers along with 28 college faculty and committee members, attended the annual CONNECT Session. Hosted by the CONNECT Committee and the MinnMATYC Mentoring program and organized by **Stephanie Amberg**, 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 chance to hear about exciting opportunities offered by NCTM, MCTM SciMath-MN and others as well as an arm load of free materials to take home. Most of the major textbook publishers provided sample textbooks and support materials for participants to take as well as about 50 door prizes. Teachers and college faculty also donated books and materials for the famous book giveaway. Plans are already underway to improve this event next year as we continue to offer this fun and useful introduction to MCTM and its programs to our future colleagues.

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

CONNECT Committee members will be working with the Fall Conference Planning Committee to insure that there will be an ample number of sessions at that conference which will be of interest to beginning teachers and we will also be cooperating with those planning the *Winning Strategies Conference* at Normandale Community College in the spring.

We would also like to have a greater outreach to beginning elementary teachers and we need the help of all MCTM members for that effort. Please let them 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!

CONNECT
Committee to **O**rient and **N**etwork **N**ew/ Novice **E**ducators into a **C**ommunity of (math) **T**eachers

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Ask Matt Mentor!!

Dear Matt Mentor:
Because of the requirement that students take Algebra in 8th grade, my school district has told us that we cannot offer Algebra I in high school. What suggestions do you have for courses we should offer to those students who either didn't pass Algebra I in 8th grade or who did poorly and are not ready to move on to more advanced concepts?

Frustrated Math Teacher

Dear Frustrated:
The 8th grade Algebra I requirement expects that students will have the opportunity to learn and understand the mathematics defined in the 2007 Minnesota Academic Standards for mathematics. That is, the course in Algebra I required by law is not defined by the table of contents in an Algebra textbook, but rather by the standards and benchmarks in the 8th grade portion of the 2007 Minnesota Academic Standards. These include not only the algebra of linear functions, but topics in number (real numbers, including roots and exponents), geometry/measurement (including the Pythagorean Theorem and coordinate geometry), and data analysis/probability (including scatter plots and the line of best fit). These topics are often not included in an algebra textbook. Additionally, many topics currently taught in an algebra course in high school are not included in the list of required topics for 8th grade. So there is a dual issue here: the need for additional topics for 8th grade and additional topics from Algebra I remaining to be taught in high school. We need to find curriculum resources that provide for all parts of the 8th grade standards, matching as closely as possible.

Minnesota districts are busy with creative thinking about how to continue the flow of study of algebra in high school while aligning with high school standards. Students continue to be required to study three years of high school mathematics (as they have been since 2003), which must include all the Minnesota standards 9-11 for mathematics, and include a course in Algebra II or its equivalent in an integrated format (the latter is a new requirement). Some have decided to offer most 9th graders an Algebra II course, followed by Geometry and Algebra III (in either order), and followed by one or more advanced courses as electives. Where formerly in a subject specific curriculum (Algebra I, Geometry, Algebra II) the courses were crowded and left little or no room for addressing standards in data analysis, probability, or trigonometry, this sequence of courses gives time to address all the re-

quired standards. Allowing a little more time also provides the opportunity for more active teaching, which gives an opportunity for all students to be successful in these courses. Other districts are finding other sequences that will meet the needs of their students, allow sufficient time for all students to learn and understand the mathematics, and meet all the requirements of law.

The best approach for dealing with students who do poorly in an 8th grade algebra course is to prevent that from happening in the first place. You can do this by focusing the course on the smaller number of topics in the standards, and using everything we know from cognitive science and other research to make the course active, sense-making, engaging and coherent. Just moving a current Algebra I course to 8th grade, however, almost guarantees frustration for everyone. The standards will not all be addressed, many students will be unsuccessful, and school results on 8th grade MCAs will be poor.

A second chance high school course that is based solely on the topics of linear algebra will probably have to be offered without credit, similar to college and university courses considered remedial or developmental. The best thing is to teach Algebra I well the first time, focusing on the standards.

Though this seems like a large change, we have the skills to do it. Minnesota has the highest percentage of secondary teachers (7-12) with mathematics majors – 86% - of any state. The national average is 61%. Our well-prepared, qualified, and hard working teachers can help all students learn. Currently the number of 8th graders studying algebra in Minnesota is 25% while the national average is 34%. Internationally, most 8th graders study content similar to the content in our 2007 standards, though in an integrated course in most cases rather than a specific algebra course. Given our outstanding teaching force, we surely have the know-how to do what teachers in many other states and countries are already doing. This will be a challenge. But you can do it! And remember, MCTM can help!

Matt Mentor

Have a Question for Matt?

Send your questions about teaching math topics to MattMentorMCTM@aol.com and watch for Matt's response in the next issue of *Mathbits*.

New Math Standards for Sixth Grade Students

Focus on the Middle Grades

Anne Bartel
Minneapolis Public Schools (retired)

The state legislation regarding standards for mathematics will begin to impact sixth grade students and teachers in the fall of 2008 (if they haven't already). These students are the first who will be required to meet the changing requirements involving Algebra I topics in their eighth grade year in 2010-11.

While test specifications are not yet available from the Minnesota Department of Education (MDE), we can take a look at the expectations addressed in the wording of the new standards and the more recent benchmarks. A comparison of the 2003 and the 2007 benchmarks reveal a more focused and more challenging mathematics curriculum in the first year of middle school. Here are some observations:

Increased Focus:

- Mathematical reasoning is now embedded throughout the standards, rather than listed separately.
- Number sense is anchored in positive rational numbers—fractions, decimals and percents.
- Algebra topics move beyond four-quadrant graphing and order of operations to include more coherent work with variables, representing functions, equivalent expressions and the concept of equality.
- Data analysis is focused on probability, thereby providing additional opportunities to work with fractions, decimals and percents.
- Geometry topics emphasize area, perimeter, volume, angles and measurements, again incorporating rates and ratios.

Increased Challenge:

- The emphasis on work with positive rational numbers (fractions, decimals and percents) will be difficult for students who have not yet mastered whole number computation. This will also provide a challenge for teachers who have previously used sixth grade as a time to solidify work with whole numbers and whole number arithmetic. Math departments will have to think creatively about how to best catch students up while introducing new material.
- Multiplication and division of fractions have typically been addressed in the seventh grade curriculum. Sixth grade teachers will be challenged to make this new material conceptually available to students (and perhaps, to themselves).
- There is also an assumption that these students will enter sixth grade with some basic concepts related to fractions. Middle school teachers will have to get smarter about how to accelerate the

To view a comparison chart showing the 2003 and 2007 sixth grade benchmarks, visit the MCTM website.

learning of these benchmarks with students who are still struggling with basic fraction concepts.

The 2007 sixth grade standards and benchmarks are an improvement over the 2003 standards in their clarity and focus. They hold greater promise for Minnesota's students if teachers can identify materials and strategies to address the challenging content and work collaboratively to create effective intervention programs of instruction for students who need more time and attention to be successful.

A Sampling of Activities at Spring Conference 2008

Do's and Don'ts in Deciphering Decimals

Feature Article

Contributed by

Lenny Diekmann
Kelley Fransman &
Dr. Rhonda Bonnstetter

Southwest Minnesota
State University
Marshall, MN

Numbers represented by decimals are used every day by people of all ages, but misconceptions about decimals are often observed and are sometimes left uncorrected. Misconceptions can develop in many different areas of student learning, including ordering decimals, adding and subtracting decimals, multiplying and dividing decimals, and converting decimals to fractions.

Misconceptions related to ordering decimals come in several forms. Some students believe that the more digits after the decimal, the greater the number is, especially if the digits are not zeros. These students consistently interpret longer decimals such as 0.425 or 0.125 as larger numbers than shorter decimals such as 0.5. Many students holding this misconception read the decimal part of a number like a whole number, believing for instance that 4.425 is larger than 4.5 because 425 is larger than 5 (Gould, 2006; Sherman, Richardson, & Yard, 2005; Vicki & Kaye, 2004).

The second most common decimal misconception is the belief that the shorter the decimal representation, the larger number. The students that exhibit the shorter-is-larger misconception choose the decimal with the fewest digits after the decimal point as the largest. These students would interpret shorter decimals such as 0.3 or 0.5 as larger numbers than decimals such as 0.63 (Sherman, Richardson, & Yard, 2005; Vicki & Kaye, 2004).

Teachers can use several methods to deal with these two misconceptions. One strategy is the use of 10 x 10 grids of graph paper to shade in the value of a decimal in tenths or hundredths. Another technique involves the use of base-ten blocks to demonstrate to students that one whole number is made up of ten tenths, one hundred hundredths, and so on. By making the concepts more visual and hands-on, students are more likely to develop the ability to move between various representations of a number and to demonstrate deeper conceptual understanding of decimals.

The "number between" activity has the teacher designate two endpoints of a segment on a number line followed by students designating a number between the endpoints. The designated number and one of the original endpoints become the endpoints of a new segment. As the activity continues, the number line is made up of smaller and smaller line segments. The students gain an understanding of the value of numbers from their relative position on the number line and an appreciation of the density of decimal numbers (Helme & Stacey, 2000).

The "stickers" activity requires students to arrange themselves in order from smallest to largest according to the decimal number that is on their designated sticker. Depending on the numbers chosen, the common misconceptions about the size of decimal numbers can be addressed by these activities (Helme & Stacey, 2000).

Ones	Tenths	Hundredths	Thousandths
(1)	(0.1)	(0.01)	(0.001)
1	3	4	5
3	2		
2	7	1	
7	2	5	5
1.345 + 3.2 + 2.72 = 7.255			

Figure 1. Place value chart to represent decimal numbers.

Students who understand decimal numeration can still develop misconceptions when trying to add or subtract decimals. The most evident of these misconceptions is when students fail to line up the decimals correctly when computing a sum or difference. Teachers can help students extend their understanding of addition and subtraction with whole numbers to decimals by building on a solid understanding of place value. A good solution to this misconception is to have students work with decimal squares and place value charts. The students need to understand that there are place values for decimal fractions similar to that for whole numbers. A place value chart can be made by simply having students turn their notebook paper to its side to form vertical columns. Have students appropriately fill 1.345, 3.2, and 2.71 into the correct columns on their chart (see Figure 1) and then add the numbers together (Count On; Sherman, Richardson, & Yard, 2005).

For some students, the difficulties with adding and subtracting decimals lie more in trying to line up decimal points. Graph paper can be quite helpful; simply have students use the squares in the graph paper to write out the problems, thus alleviating problems related to visual, reading, and writing errors (see Figure 2).

Multiplying and dividing decimals can be challenging for many students because of problems that are primarily conceptual rather than procedural (NCTM, 2000; Vicki & Kaye, 2004). The biggest misconception that students have when multiplying decimals is a procedural error of incorrect placement of the decimal point in their answer. Many students will count the number of places from the left, as they are familiar with reading from left to right. The best solution to this misconception is to have students

estimate the answer before actually calculating the answer. Once they have estimated the answer, have the students solve the problem and they should notice that they should have counted over from the right side of the number instead of from the left side of the number (Sherman, Richardson, & Yard, 2005).

Some students think that all answers should only have two decimal places. This is because dollar amounts have only two decimal places and are used in many examples. Students need to see many varieties of decimal examples, although money problems have real world relevance and do aid many students in building a reference for estimation.

Misconceptions can also result when dividing decimal numbers. One that is seen often is when students do not move the decimal of the divisor and just carry the decimal up to the result without first moving it the appropriate number of spaces to the right. Students need to be shown why the decimal point in the divisor is moved. The first step in addressing this misconception is to relate division with a decimal divisor to division with a whole number divisor. An example would be to have students divide \$6.33 between 3 people. They will discover that each person will receive \$2.11. Then ask them to solve the same problem between 0.03 people instead of 3.0 people. Then they should be able to conclude that it would be easier to do the division with a whole number divisor than a with decimal divisor. Once the students understand the reason for that step, then the rest of the steps in the division should be successful. Another misconception that arises is when students bring down the decimal in the subtracting process. This creates issues throughout the division problem. Again, using estimation before beginning the division algorithm can help students to build a framework for reference while doing computations.

1.	3	4	5
3.	2		
2.	7	1	
7.	2	5	5

Figure 2. Writing decimals on graph paper.

Division can be used to help students understand how to represent decimals as fractions. It is important to have the students represent decimals with bases of tenths, hundredths, etc. as fractions, and to review the equivalence of common fractions with their corresponding decimals, such as 3/10 = 0.3 (Count On; Sherman, Richardson, & Yard, 2005). One adaptation to the "stickers" activity would be to mix decimal and fraction values, having students order them on a number line. Having students work with these types of problems will help to build proficiency and conceptual understanding surrounding the various representations of rational numbers.

References

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Jo, Pat, and Kris went on a picnic. Jo brought two sandwiches and Pat brought three sandwiches, but Kris forgot to bring food. If the three campers shared their food equally and Kris paid Pat and Jo a total of five dollars for the sandwiches that they shared, how much money should Pat and Jo each get?

If 2,520 is the least number divisible by the first nine counting numbers, find the least number divisible by the first twelve counting numbers.

A farmer has 2 hens. Every day, each hen lays 1 egg. How many eggs would his hens lay in 3 days? How many hens would he need to double the amount of eggs for 1 day? If the farmer needs 28 eggs each week, could he get that many with only 2 hens? If not, how many hens would he need? Draw a picture that shows your answer or find a way to solve this problem without drawing.

Problems for various grade levels available at NCTM website http://www.nctm.org/resources/

Consider speaking at the 2008 MCTM Fall Conference

Presentation Proposal Form
2008 MCTM Fall Conference

STEM—Science , Technology, Engineering, and Math

Friday, October 17, 2008
Lakeville South High School

Name _____

Preferred mailing address

Street/PO Box _____

City/State/Zip _____

Phone (h) (w) _____

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 (post-conference)? Yes _____ No _____

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

Additional Description for Program – Optional (20 words maximum)

Equipment or facilities needs: Please note that we do not have the ability to furnish LCD panels, computers, or SmartBoards for individual sessions.

_____ Second overhead _____ Computer _____ VCR/Monitor

Please return this form by Sept. 30 to:	Bill Tomhave Concordia College Moorhead, Minnesota 56562
You may also complete this form electronically at http://www.mctm.org/	Fax: 218-299-4308 Any questions? tomhave@cord.edu or call 218-299-3923

EARLY REGISTRATION FORM

Minnesota Council of Teachers of Mathematics
FALL CONFERENCE
Friday, October 17, 2008

STEM—Science, Technology, Engineering, and Math

Lakeville South High School
21135 Jacquard Avenue
Lakeville, MN 55044
http://www.lshs.isd194.k12.mn.us/

REGISTER BY OCTOBER 8, 2008 TO QUALIFY FOR EARLY REGISTRATION.

Registrations postmarked or submitted on-line after October 8 will be charged an additional $5.00. You may register for the Fall Conference by completing this form or you may register online at *www.mctm.org*

Name _____

Address _____

City _____ State _____ Zip Code _____

If you are a new member OR if any of the following has changed, fill in the information below.

Home Phone (_____) _____ Work Phone (_____) _____

EMail _____

District Name _____ School/Institution _____

Early Registration Fee *(includes lunch)* *Non-member fee includes one year membership*		**Level**	**Position**
□ MCTM Member	$35.00	□ Elementary	□ Teacher
□ Non-member	$60.00	□ Junior High/Middle	□ Specialist/Coach/Supervisor
□ Student Member	$20.00	□ High School	□ Principal
□ Student Non-member	$32.50	□ District	□ Student
□ Speaker	$20.00	□ Post Secondary	□ Retired
□ Undergraduate Mathematics Education Student Group Rate *(Group from the same institution sent together with one payment and individual forms attached – includes one year of membership dues)*	$20.00/person	□ Other	□ 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	**Method of Payment**	**Mail to: MCTM PO Box 289 Wayzata, MN 55391**
_____ Early Registration Fee _____ Dues _____ Foundation Contribution _____ **TOTAL DUE**	□ Credit Card __ V __ MC __ D Card Number _____ Expiration Date _____ Signature _____ □ Check □ PO Number _____ *(Purchase order must be attached)*	***Register online at www.mctm.org*** **For office use only:** Record _____ Received _____ Payment _____

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

www.mctm.org

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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

October 17	MCTM Fall Conference, Lakeville South HS
September 30	Deadline for MCTM Fall Conference speaker proposals
November 1	Deadline for NCTM Regional Conference speaker proposals
May 1-2, 2009	MCTM Spring Conference, Duluth, MN
November 5-6, 2009	NCTM Regional Conference, Minneapolis, MN

Do we have your correct address?

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 Executive Director Tom Muchlinski at 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.

Please submit items for publication in the September issue of *Mathbits* to tlgonske@nwc.edu by August 15, 2008. Email or call 651-631-5228 with any questions. - Teresa Gonske, Editor