April/May 2010

Mathbits

2010 Minnesota Spring Mathematics Conference

Duluth, MN · Friday, April 30 & Saturday, May 1

The Minnesota Council of Teachers of Mathematics
and Minnesota Mathematics Association of Two-Year Colleges

Why should I attend?

Many publicity pieces seem unrealistic, if not downright fanciful. Phrases like "the best conference ever" or "not to be missed" are more annoying than truthful. So with that candid revelation, why should you give up time with your students, your family and the ever growing stack of electronic communications you receive and come up to Duluth the end of April?

- **The conference will be practical.** Over the years MCTM has learned that sessions should have ideas that teachers can use on Monday morning. Some of the sessions we have planned for you include:
  - *Visual Tools that Support Student Learning*
  - *Getting More Math Time through Technology*
  - *Preparing our students for success in Algebra*
  - *Concepts or procedures - Why not both?*
  - *Math Modeling through Real Data.*
- **The conference is uplifting.** Lately the media seems to be singling out the education profession. Whether it is an article on teacher contracts, test scores, or achievement gaps classroom teachers are often criticized. It is not a pleasant experience to be the brunt of an editorial. What can MCTM do about it? We cannot make the media realize how hard we work or how educating a child requires caring and cooperating family members. So the media problems will remain. But we can surround you with hundreds of people who are part of the solution. Our keynote speakers should be especially inspiring.
  - **Ellen Delaney's** talk *30 Minutes...and Make It Zippy!* should be a hoot.
  - NCTM Present **Hank Kepner** will present *Students Using Mathematics for Decision Making: When It Makes Sense to Them!* I am sure the talk will make a lot of sense to us too.
- **The conference will be timely.** It seems that every few years someone gets a good idea and the state acts, only to change its mind when another good idea comes along (how many of us remember OBE?) The spring conference will have sessions on the latest news concerning the **common core standards** and how it might impact your classroom.
- **The conference will be fun.** Each year I run into former students or friends that I have lost touch with. And each year I meet someone who becomes a friend. The food is good. The view from the Harborside area is alone worth the drive to Duluth. Within walking distance of the DECC there are family activities as well as activities more suited for

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Inside this issue:

2010 MCTM Spring Conference

Making Mathematical Connections

April 31—May 1

grown-ups. So there are interesting things to do, even after the sessions are done for the day.

...if you do not rate the conference as great, ...I will personally apologize.

Where does that leave us? If a **timely, practical, uplifting and fun** conference appeals to you, try to join us in Duluth. Yes, I know there is no money. But someone in your building may have had to cancel a planned staff development experience. Some discretionary money may not have yet been spent. Someone may owe you a favor. Depending on personal preference you might try yelling, crying, threatening, cajoling, begging or demanding your way to Duluth.

If you can get to the spring conference, I really believe you will have a wonderful experience. I believe it so much that if you do not rate the conference as great, sent me an email at wjeppright@nwc.edu and I will personally apologize.

See you in Duluth,
Bill Eppright, Publicity Co-Chair

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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Call for New Donors—Help Meet the Challenge

Please give to the MCTM Foundation. Your tax-deductible donation supports mathematics teachers' participation in MCTM conferences and mathematics coursework. Other funding projects will be initiated as the Foundation grows. The goal is continued excellence in mathematics education for all students.

In an effort to increase the Foundation fund, the MCTM Board has issued a $5000 challenge to the Foundation. To earn this grant the Foundation must receive donations from at least 100 new donors between now and July 31, 2011. A donation of $10 or more from a first-time donor is a step towards meeting this challenge.

There are many ways you can make a donation to the MCTM Foundation.

- To donate online, go to www.mctm.org/donationform.php
- Both the MCTM membership form and the Spring Conference registration form include a line for Foundation Contribution.
- At the DECC during the MCTM Spring Conference, members of the Foundation Governing Board will be at a table in the exhibit hall to talk with you, tell you about the work of the Foundation, and accept your donation.

Please give. Together we can carry on the tradition of excellence in Minnesota.

MCTM Foundation

Bill Johnson
Foundation Board Chair
wedge1973@yahoo.com

District Meetings will be held at the Spring Conference on Friday at 5:15 following the final afternoon sessions. The program book will list exact meeting locations for each district. Please come and join your district meeting to share your ideas and concerns. We will be asking for resolutions to be considered at the evening delegate assembly. All members are encouraged to attend as this is one of ways you can contribute to the direction of the organization.

The annual **Delegate Assembly** will be held Friday evening at 7:30 pm. Delegates from each of the districts will discuss resolutions presented at the district meetings and will vote on new resolutions for MCTM to work on.

Each of the eight MCTM district directors is eager to effectively represent mathematics teachers in their respective districts. One of the directors' main goals is to improve communication between the MCTM board and the MCTM membership. District directors want to know of questions and concerns teachers may have concerning math standards, assessment issues, types of curriculum and its use, etc. Please feel free to contact your district director at anytime. Each district director's current email address is live-linked on the website. If you are unsure which MCTM district your school is in, this information is also available on the MCTM website.

District Meetings and Delegate Assembly 2010

See the Feb/Mar issue of *Mathbits* for a detailed description of the process and guidelines for formulating resolutions.

Ross Taylor Symposium for Mathematics Education and Leadership

STEM – Bringing it to Life in Your School

Thursday, April 29, 2010 - Duluth Entertainment Convention Center

The STEM (Science, Technology, Engineering, and Mathematics) disciplines provide realistic, engaging contexts in which to teach "big ideas" in mathematics. By integrating these contexts into mathematics classrooms, students can make connections and achieve deep conceptual understanding. This symposium focuses on the integration of STEM concepts in K-12 mathematics classrooms. Join leaders from across the state to discuss the role that STEM Integration can play in improving understanding in mathematics.

More information regarding the Symposium and registration information can be found in the Feb/Mar issue of *Mathbits* and on the MCTM website.

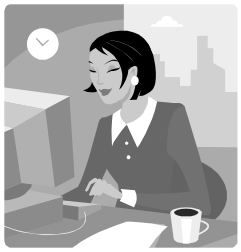
CONNECT Session at the Spring Conference

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

Preservice teachers and those in their first few years of teaching are invited to the CONNECT Session which is held from 7:00-9:00 PM on Thursday, April 29, the evening before the MCTM Spring Conference in Duluth, at the DECC. Sponsored by the CONNECT Committee and the MinnMATYC Mentoring program, this event offers an orientation designed to maximize the conference experience during the next two days as well as an opportunity to network with other teachers with similar interests and to meet leaders in Mathematics education. In addition to teaching ideas participants are eligible for door prizes and can come away with free learning materials from the 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

Mentors

MCTM's virtual mentoring program, conducted by Ann Sweeney of St. Catherine University, provides a bi-weekly email message to beginning teachers that includes teaching suggestions, problem ideas, useful websites and information about upcoming events. The Council also offers one-on-one mentoring with an experienced teacher to those who request it. In addition, we offer our Matt Mentor advice column found elsewhere in this issue of *Mathbits* as well as previous Matt Mentor columns archived at www.mctm.org But we know that many districts designate mentors for beginning teachers and we'd like to be of service to them as well. If you or someone in your district is in the position of mentor for beginning Math teachers, please let us know so that we can share ideas, information and support.



For any information about mentors or other CONNECT activities, contact Larry Luck at larryluck@aol.com

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Mathematics Curriculum: Issues, Trends, and Future Directions

Editors: Barbara J. Reys & Robert E. Reys

72nd NCTM Yearbook 2010

See NCTM catalog http://www.nctm.org/catalog/product.aspx?id=13591

Mathematics curriculum has long been a topic of keen interest in mathematics education and remains a central issue in efforts to improve mathematics learning opportunities for students.

This Yearbook continues in a long line of NCTM Yearbooks that have addressed various facets of the changing mathematics curriculum. Although some factors such as tradition can inhibit significant change, other factors such as policy (e.g., federal No Child Left Behind legislation), societal needs (mathematically literate graduates), and technological advances (computer software, calculators) foster and accelerate the need for change.

In the past year alone, a major state-initiated process for developing "common core standards" is underway. With 48 states and several territories participating in the articulation of "college and career-ready" high school graduation expectations and common K–12 standards, 2010 promises to be a landmark year of discussion and dialogue about mathematics curriculum.

This Yearbook reflects some of the many issues that the field is currently discussing so it serves as both a record of current advances and a summary of challenges regarding curriculum. We hope that it will both guide and stimulate thinking about where we have been, where we are, and where we need to go.

Sections in the book: Curriculum Matters: Looking Back, Looking Forward; The Intended Curriculum—Curriculum Development & Selection of Textbooks; The Implemented Curriculum; Impact of Curriculum on Students' and teachers' Learning.

Dear Matt Mentor:

Being new, I have been asked to be on the textbook selection committee. What should I look for in choosing a text? How does our committee go about finding the best textbook series for our building and district?

Willing but Uncertain

Dear Willing:

Congratulations! It is an honor to be selected for this important work, and can be a great learning opportunity for you. Your fresh viewpoint can be an advantage to the whole group. Sometimes those of us with more teaching experience struggle to move beyond our previous approaches.

For the sake of this piece, let's call this committee the district curriculum committee, since usually the group with this designation has broad K-12 responsibility, more than simply selecting one or more textbooks. Even the task of selecting text materials is not so simple, given the fact that in many cases online resources and supplemental materials are available. By curriculum here we mean a set of related courses and their content that together constitute a K-12 mathematics program.

Since Minnesota is a strong locally controlled state, there is no single common approach that applies to all districts. Every Minnesota district can determine its own process and criteria. So let's outline an ideal situation, where a mathematics curriculum committee is carefully selected, and time and resources, both personnel and material, are set aside for the work of the committee.

Why is the work of this group so important? The ultimate choices and decisions made by the group will determine the daily tools for teachers and students for the next 5-7 years. In *What Works in Schools,* Robert Marzano, after reviewing research on effective schools, concludes that the most important school-controlled factor for student learning is "a guaranteed and viable curriculum." Guaranteeing the curriculum means that every Minnesota student will have the opportunity to learn all Minnesota standards and benchmarks for the grade or course whether or not the topic is in the textbook. In defining the term "viable curriculum," Marzano connects viability to time. This means that for each learning goal, enough time must be allotted to that goal so that all students will have a real opportunity to achieve the goal. In other words, all the big ideas contained in the Minnesota standards and benchmarks must be addressed for all students (the guarantee), and enough time must be spent on each standard and benchmark so students can learn well (the viability).

Here are some components of a good process for a curriculum committee.

- **Makeup of committee -** A high quality committee will span K-12 and include representatives of all stakeholders: parents and other community members, higher education partners, broad representation from the teaching staff, including teachers of students with special needs and those who work with English language learners.
- **Time -** The most effective and thoughtful committees work over several years. The initial year should involve collecting data and examining research and current trends and issues in the field of mathematics education. After selection of materials, several additional years of teacher support helps to maximize effective learning.
- **Study and background -** Committee members should have a thorough foundation in state and national standards, current assessments, and their implications for the mathematics program. This study time includes learning about current research in learning mathematics, and trends and issues in the field.

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Ask Matt Mentor!!

...the most important school-controlled factor for student learning is "a guaranteed and viable curriculum."

- **Data -** Time should be spent collecting and examining all the data for the district by district staff or a subcommittee. This includes not only MCA data for all groups of students, but assessments that measure growth of students over time, and college admission test data such as PLAN tests and ACT reports. The latter give a good measure of the effectiveness of the K-12 mathematics program for all those students in the district that take one or both of these tests. Additional data may come from student, parent, and teacher surveys, asking for feedback on the impact of the current mathematics programs. Registration data on the number of students who continue to participate in mathematics classes at the 9-12 level, students accelerated and those asked to repeat courses provide measures of the quality and success of the existing K-12 mathematics program.
- **Current status and future goals -** The next step might be a synthesis of strengths and weaknesses in the current program, and goal setting for the future. This should flow from all the work done in the initial phases of study – data, surveys, trends, state and federal mandates and requirements. Even before considering any text materials, the district should have a plan for preparing and supporting teachers throughout a transition to new materials.

In attempting to deliver the 8th grade standards, districts may be especially interested in elementary programs that help lay a foundation for algebraic thinking.

Now the committee should be ready to develop criteria for what they seek in new text materials. Part of this consideration involves deciding which criteria could be filled in other ways, and which are really needed in the materials. So, for example, some teachers may want lots of practice problems available. These are readily available in existing materials and worksheets. Some teachers may be looking for rich tasks that will engage students intellectually in mathematics. Such tasks are harder to find, especially those that reveal the mathematics without overwhelming students, so this may be something to have as a priority for new materials. In attempting to deliver the algebra in the Minnesota 8th grade standards, some districts may be especially interested in elementary programs that help lay a foundation for students' algebraic thinking.

Here are some ideas to include in developing selection criteria:

- **Alignment with standards –** How well does the content of the materials align with Minnesota standards? Do the materials include sufficient content to allow enough time for all students to grasp the big ideas for the grade or course? Is statistics included in high school texts? Is algebra included in middle school texts? (No one program will be a perfect match to Minnesota standards, but the committee should look for close matches.)
- **Balance of skills and concepts** – since understanding requires both factual knowledge and a strong conceptual framework, does the program provide for connecting skills and concepts throughout? Does it focus on big ideas rather that disconnected procedures?
- **Mathematical processes** – Does the program provide an ample range of opportunities for problem solving, reasoning and proof, communication, representation, and making connections? These are well described in *Principles and Standards for School Mathematics*, the 2000 publication of the National Council of Teachers of Mathematics.
- **Depth without repetition** – Many current programs are characterized by repetition. Does the new program provide sufficient depth on fewer topics for students to understand and retain the learning, relieving future teachers of the necessity of reteaching? When topics are revisited, is the depth of the treatment suited to the maturity of the students? Is there emphasis on fewer big ideas?
- **Tasks –** Do lessons provide rich tasks that will engage students intellectually in important mathematics? Are there multiple contexts for learning and applying mathematics?
- **Transitions –** Will students be able to make smooth transitions from one level to the next?

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*.

- **Sense-making** – Do the materials support students in making sense of the mathematics rather than simply teaching topics in isolation?

After the committee has developed a set of criteria, you will probably find a "short list" of promising materials for each level. Even if you will not be selecting materials for all levels at the same time, you should continue to plan for coordination and smooth transitions among the levels. When you have a short list, it is time to examine the materials thoroughly. An excellent way to do this is to pilot materials with students, to see how the materials "teach" and how students respond. There are many models for this, and care should be taken for the continuity of students' learning. Nevertheless, it is difficult to make a thoughtful final decision by just looking at the pages. Real lessons in real classrooms are the best indicator of the strengths or weaknesses of a program.

After a final choice, the real work begins. Teachers need support prior to the school year, with the number of days determined by how different the new materials are from those previously used. They will also need support throughout the first several years in order to get the maximum value from the materials. Ideally, they will have teacher leaders available to support them, and will have opportunities to meet together throughout these next years to plan for the most effective instruction possible.

I hope this stimulates you to become engaged in this important and exciting work, and gives you some idea of what a good process might look like. As a committee member, please advocate making your district's committee the best! Feel free to show this to district leaders.

And good luck!

Matt

After the final choice, the real work begins. Teachers need support … to get the maximum value from the materials.

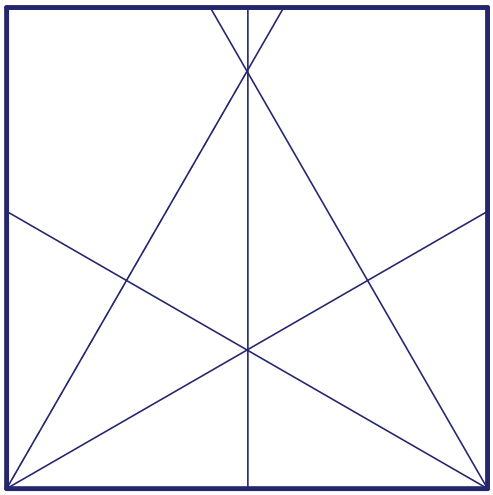
Folding an equilateral triangle

Beginning with a square piece of paper, find a way to create an equilateral triangle through folding. Outline the resulting equilateral triangle with a pencil. Be able to explain the reasoning that justifies your construction.

Middle Grades and up...

Many students will initially focus on attempting to form a 60 degree angle. Allow them to wrestle with this for awhile. When this seems ineffective in achieving accurate results, ask students to recall precisely what the term "equilateral" means (*equi*– equal; *lateral*– sides). This provides a good opportunity for reviewing vocabulary and making sense of the word parts. Suggest that they focus on this characteristic of the triangle in the folding construction..

Some students will end up repeatedly folding 45-45-90 right triangles. Some students will create an isosceles triangle with a side of the square as the base and the midpoint of the opposite side as the third vertex. Prompt them to carefully consider the definition again, but suggest that there is something interesting or important about the symmetry they have recognized and attempted to use.



This sketch suggests possible fold lines used to create the triangle. If you need more ideas, numerous illustrations can be found through a web search.

Advanced extension to the problem:
Find the maximal equilateral triangle that can fit inside the square and prove your result.

You are invited to submit original student solutions, methods, and proofs to *Mathbits* for publication.

Illustration created with *the Geometer's Sketchpad*. Constructing the illustration provided opportunity for application of additional geometric concepts—give it a try!

Professional Development and Education Opportunities

Southwest Minnesota State University

Southwest Minnesota State University is offering a Master of Science in Education with a Mathematics emphasis. The mathematics emphasis is appropriate for licensed secondary (7th –12th) mathematics teachers who wish to pursue graduate coursework in mathematics education. The two-year program is offered with on-campus mathematics courses during the summer, and online/blended education core courses during the fall and spring semesters.

Summer 2010 mathematics courses offered are Topics in the History of Mathematics and Statistics. Fall 2010 courses include Critical Theory of Educational Systems and Applied Research & Assessment in Education.

For more information:
http://www.smsu.edu/CampusLife/GraduateOffice/Math%20Licensure%20Information.pdf

Call the Graduate Office at 1-800-642-0684 ext 6819 or email Graduate.Office@SMSU.edu

Summer math offerings at Bemidji State University

Bemidji State University is offering the following professional development opportunities for teachers during summer 2010. All courses are offered on-campus (housing on Lake Bemidji is available) and grant funded to support teacher professional development. The courses and dates are:

Chance and Data Investigations for Teachers; June 7 - June 25
Statistics is a science that helps with understanding populations (descriptive statistics) and decision making, projections, and analysis (inferential statistics). This program will help you set the foundation for your students and their future success with these very important topics. Six semester credits, grant support covers half of tuition costs.

Patterns & Functions (Algebra) and Discrete Mathematics for Elementary and Middle Teachers; June 28 - July 16
State math standards require the inclusion of algebra related topics in elementary grades through the 8th grade algebra expectation. This program will help you integrate algebra (patterns and functions) standards into your grade level. Six semester credits, grant support covers half of tuition costs.

Arithmetic Foundations I & II for Teachers and Paraprofessionals; July 19 - Aug 6
Best practices require that all teachers have a deep understanding of arithmetic foundations and have interesting ways to help students learn and practice fundamental skills. The courses will explore conceptual development through activities that are engaging for students and teachers. Six semester credits, grant support covers **ALL** tuition costs.

For more information, or to apply, please see the website:
http://faculty.bemidjistate.edu/grichgels/ITQP/SummerAppForm10.html
Contacts: Todd Frauenholtz tfrauenholtz@bemidjistate.edu 218.755.2817
Glen Richgels grichgels@bemidjistate.edu 218.755.2824

EDC Institute and pilot testing

Linear Algebra and Geometry
In 2006, Education Development Center, Inc. was awarded a grant by the National Science Foundation to create Linear Algebra and Geometry, a linear algebra course specifically designed for high school students. We have finished drafting the core part of the text, which is currently undergoing field testing in several schools.

We are offering you the opportunity to learn about our project and try it out in your school. This summer, we will hold an Institute to discuss the teaching and implementation of linear algebra. The dates for the institute are August 9-12, 2010. The institute is free for all participants. In addition, we will reimburse all travel-related expenses for those teachers who field test the curriculum in the 2010-11 school year.

We realize both your summer schedules and your 2010-11 school year catalogues are filling up quickly. If you are interested in participating in this institute, please register by June 1. You can find additional information, samples of the text, and the online registration form at http://www2.edc.org/cme/linearalg.html and if you have any questions, please contact Kay Caruso (kcaruso@edc.org). Education Development Center, Inc. is a nonprofit organization.

Math Teacher's Circle

The **American Institute of Mathematics** (AIM; http://www.aimath.org/) wants to let you know about an opportunity for middle school math teachers called **Math Teachers' Circle** (http://www.mathteacherscircle.org/). Math Teachers' Circles are groups of middle school math teachers who meet regularly with mathematicians to work on mathematical problem solving in the context of rich and interesting problems. These groups are now meeting in a number of locations around the country. To check if there is one near you, please visit http://www.mathteacherscircle.org/localcircles.html.

If you would like to be part of a Math Teachers' Circle and there is not one in your area, we would like to let you know about two workshops that AIM is offering this summer on "How to Run a Math Teachers' Circle." This summer's workshops are designed for teams of middle school teachers and mathematicians who are interested in forming their own local Math Teachers' Circle. During the workshop, the teams will participate in Math Teachers' Circle sessions and will form concrete plans on how to start and sustain a Circle in their area. Accepted teams will receive full funding for their participation.

The workshops will take place June 28-July 2, 2010, at AIM in Palo Alto, CA; and July 26-30 at the Mathematical Association of America's Carriage House in Washington, D.C. More information is available at www.mathteacherscircle.org. Applications are linked from the "Upcoming Workshops" page, and questions may be directed to circles@aimath.org.

Twin Cities Math Teachers' Circle Immersion Workshop
August 1-4, 2010, University of St. Thomas, Gainey Center, Owatonna, MN
For more details, contact Melissa Loe, University of St. Thomas, at msloe@ stthomas.edu.

Math Camp for Teachers and for Students

University of St. Thomas hosts Math Camp for Teachers and Students August 16-19
Join Rachel McAnallen, aka "Ms. Math," as she takes you on a mathematical journey of discovery. Math Camp participants will be creating mathematical designs using a compass nad straightedge, making polyhedral models, solving puzzles, and doing many fun math activities that are not usually done in school. "Mathematics is a language to be spoken, an art to be seen, a music to be heard, and a dance to be performed."

For teachers: 8:30 am—12:30 pm For students: 1:00 pm—4:30 pm
Held on the University of St. Thomas Campus, Minneapolis.
For registration information contact Connie Wees cfwees@visi.com or 651-436-5513

NCTM E-Seminars

NCTM E-Seminars

Motivating Students in Mathematics with YouTube Videos (Grades K-12)
Presenter: Eric Milou, Rowan University, Glassboro, NJ
May 6, 2010, 4–5pm ET

Making Math Words Stick (Grades 2-8)
Presenter: Emily Hendricks, Lafayette School Corporation, Lafayette, IN
May 26, 2010, 4-5pm ET

Visit http://www.nctm.org/profdev/ for details and registration.

Focus on Elementary Grades

Contributed by
Megan Wendorff
Brown Elementary
Pipestone Area Schools

This is my first year of teaching and by pulling a bunch of different ideas from many different sources; I created a 100th day of school Classroom Olympics.

Celebrate the 100th Day of School with a Classroom Olympics

Objective: provide the opportunity for students to practice counting by 1's, 2's, 5's, 10's, and 25's, etc., while exercising!! As the year goes on, some may not get to practice counting skills; this activity provides a fun way to celebrate the 100th day of school and freshen up on counting skills!

Materials: Music Player: c.d. player, computer, radio, etc.
Music
Space
ENERGY!!

Ideas for the 100th Day Olympics:

- Estimate and determine 100 minutes, 100 seconds
  Brainstorm activities that take 100 minutes, 100 seconds
- Estimate and determine 100 feet, 100 inches, 100 miles
  Brainstorm activities that are 100 feet, 100 inches, 100 miles
- Listen to a favorite song(s) for exactly 1:00
- 100 Jumping Jacks (counting by 5's all together as a class)
- 100 Side-Bends (counting by 2's all together as a class)
- 100 footsteps around the room
- Relay Races
  Divide the class into two teams; each student runs to the front of the room and does ten sit-ups, jumping jacks, wind-mills, etc… and then runs back to tag their partner. They continue going until their team reaches 100, counting by tens. (Many variations)
- Give the person sitting next to the student, high-fives, showing them how they can count to 100, by 25's.
- All of these activities can be done by counting back from 100.
- Activity Ideas:
  Jumping Jacks
  Wind-Mills
  Sit-Ups
  Side-Bends
  Jumps to the ceiling
  Touch toes
  Swimmers (arms only) front-stroke, back-stroke
  Leg-Kicks: front to back, side-to-side

Follow-Up:

- 100 drinks of water by the class (2 per student until 100 is reached)
- 100th day Olympics certificate or 100th day gold medal (created on Microsoft Word and/or a certificate maker.

Have fun!

MAA's Number of the Day!
A new number posted each day

Check out the Number of the Day at http://maanumberaday.blogspot.com/

863 is the largest three-digit prime that can be written as the sum of fifteen consecutive primes: 29 + 31 + 37 + 41 + 43 + 47 + 53 + 59 + 61 + 67 + 71 + 73 + 79 + 83 + 89 = 863.
863 is a number that cannot be written as a sum of three squares.
863 = (11 + 71) + (11 x 71), where 11, 71, and 863 are all primes.
863 is a value of n so that n(n + 6) is a palindrome: 863(869) = 749947

Math = Healthy Animals!

Math is an important part of a zoo's daily routine. Each day keepers and animal care staff carefully analyze, weigh, and prepare diets for the animals at the Minnesota Zoo. Animal diets are designed to mimic an animal's wild diet and preparing each diet is a complex process that ensures the animal receives the right amount of calories and nutrients for optimum health.

The Minnesota Zoo will hold its annual Math Day November 10, 2010. Stations set up throughout the Zoo will display how math is an essential part of animal care and Zoo operations. Each station displays math problems for multiple levels of ability. Stations are developed and attended by upper level/advanced high school math students. Below is a sample of a station from a previous event.

The black-tailed prairie dog is a true ground squirrel found on prairies and semi-desert of the northwestern United States. They are very social animals and live in family groups. Their diet in the wild is primarily short grasses, broad-leaved herbs, roots, seeds, and insects.

At the Minnesota Zoo, this is the menu enjoyed by the colony of prairie dogs:

1 kg primate chow
1 kg Labblox
2 - 3 carrots, sliced
(serves 15 prairie dogs, fed once daily)

Grades 3-4
Imagine you are the zookeeper for these animals. How much food would you need to prepare to feed 30 prairie dogs for one day.

Grades 5-6
The zoo's scale only gives weight in pounds. How many pounds of primate chow would you need to feed 15 prairie dogs?
(*Hint: 1 lb = 2.12 kilograms)*

Grade 7-8
The zoo's prairie dog colony consists of 50 individuals. What percentage of the colony would be fed with this menu?

Grade 9-12
10% of the colony are females who are pregnant. To ensure they get enough to eat, the menu needs to increase 15% for each female. What does the revised menu look like?

MINNESOTA ZOO®

Mark you calendars!

MATH DAY
at the Minnesota Zoo
Wednesday November 10, 2010
$3 per student + admission

For more information and to register, visit our website ***mnzoo.org*** *or call 952-431-9218*

Math Day at the Minnesota Zoo is a great way for students to experience real world applications for the math they are learning in school. All station math problems are based on the Minnesota K-12 Academic Standards for Mathematics.

We are looking for upper level math classes to host stations for Math Day. Special admission discounts for host classes! Call Gina Goralski at 952-431-9260 or email gina.goralski@state.mn.us if interested.

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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

April 21-24, 2010	NCTM Annual Meeting & Exposition, San Diego, CA
April 23	Advance registration for MCTM conference closes
April 29-May 1, 2010	MCTM Spring Conference, Duluth, MN

Do we have your correct address and email?

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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 Summer issue of *Mathbits* to tlgonske@nwc.edu by May 18, 2010. Email or call 651-631-5228 with any questions. - Teresa Gonske, Editor