



Mathbits

2006 Minnesota Spring Mathematics Conference April 21-22

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Explore the Possibilities: Engage in Mathematics

Jointly sponsored by Minnesota Council of Teachers of Mathematics
and Minnesota Mathematical Association of Two Year Colleges

- Friday afternoon keynote address: Dr. Eric Jolly, Science Museum of Minnesota
- Saturday lunch presentation: Craig Zablocki, Positively Humor
- Over 150 sessions for elementary, middle, secondary, and post-secondary levels
- Expanded offerings for elementary grades
- Special sessions for new teachers
- Opportunities for networking among K-12 and post-secondary teachers of mathematics
- Friday evening President's Reception and hors d'oeuvres social
- Exhibits also open Friday evening
- For more information, registration, and conference schedule visit the website at www.mctm.org or see flyer and registration in February/March *Mathbits*

District Meetings at the Spring Conference

District Meetings will be held at 1:30 following the lunch on Friday. Check your conference program for exact meeting room for your district. Each district will be holding a drawing for a Gift Certificate redeemable for NCTM or MCTM materials. Please come and join the district meeting to share your ideas and concerns. All members are encouraged to attend. We will be asking for resolutions to be considered at the evening delegate assembly.

Delegate Assembly 2006

The annual Delegate Assembly will be held Friday evening from 7:00 to 8:30 pm on the third floor of the Harbor Side area. Delegates will discuss and vote on new resolutions for MCTM. A dessert buffet along with coffee and tea will be provided. All delegates in attendance will receive a \$30 Gift Certificate to use at the NCTM/MCTM materials booth in the exhibit hall at the Spring Conference and a ticket to the Omni Theatre.

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. We want to know of questions and concerns teachers may have concerning math standards, assessment issues, reform vs. traditional curriculum, etc. Please feel free to contact us at anytime. Each district director's current email address is listed on page 6. If you are unsure which MCTM district your school is in, this information is available on the MCTM website.

If you are interested in serving as a delegate to the 2006 Delegate Assembly, please contact your district director! Your initiative will save the directors' time recruiting later.

Mathbits

Pondering by the President

Karen Coblenz
MCTM President

Greetings from the Minnesota Council of Teachers of Mathematics! I hope your school year is going well and your students are enjoying learning about mathematics each and every day.

Our MCTM and MinnMATYC Spring Conference is coming up quickly. The Symposium will be held on Thursday, April 20, and the conference is on April 21-22. We are excited to have Eric Jolly as our keynote speaker on Friday. He is from the Minnesota Science Museum and spoke at one of our MCTM Board meetings. We enjoyed his message so much that we asked him to keynote our conference on Friday. Our Saturday keynote will be Craig Zablocki from Colorado. Craig is a humorous speaker who will be talking about laughing and learning. We are excited about both of these speakers. Just a reminder that our Friday schedule at the conference is different than in the past. We will not be having a sit down dinner Friday night for all the conference attendees. Instead, we will enjoy the keynote presentation immediately following our last session/workshop, followed by our Presidents' Reception. Please take note of this when you plan your conference schedule and activities. The Delegate Assembly will follow the Presidents' Reception.

We thank our conference chairs, Denise Anderson, Jeannine Salzer, and JoAnn Luthala, and our program chair, Judy Stucki, for all their work in organizing the conference. We hope many people are able to attend this wonderful professional development opportunity.

I hope you have a wonderful end of your school year! Enjoy life! Thanks for all you do!

Karen Coblenz

Mathematics Specialist Report

Tom Muchlinski

MDE Academic Standards
& Professional Development

The MCA-II GRAD in mathematics will become a requirement for graduation when it is given to juniors in 2009. A great deal of concern has already been expressed regarding the fact that juniors who do not pass the GRAD portion of the MCA-II the first time they take it will have only one year in which to do so in order to graduate. While this is an understandable concern and one that cannot at all be ignored, rather than focusing all of our attention on what can be done to help students who do not pass on their first attempt, we can go a long way toward minimizing the number of students for whom this will be an issue, by focusing on what can be done to prepare students to be successful in their first encounter with the 11th grade MCA-II.

This preparation for success requires a concerted effort by every teacher of every student in every grade from kindergarten through 11th grade. A guide for this concerted effort is the set of six principles for a high quality mathematics program identified in *Principles and Standards for School Mathematics (PSSM)* published by the National Council of Teachers of Mathematics (NCTM) in 2000. How each district, each school, and each teacher addresses the questions posed for each principle will have a huge impact on how major the concern cited in the paragraph above will be.

The Equity Principle

Does everyone involved (parents, teachers, administrators, etc.) have high expectations for all students?

Do we provide worthwhile learning opportunities for all students?

The Curriculum Principle

- Is our curriculum coherent?
- Is it organized in a way that students see how ideas build on other ideas?
- Does our curriculum focus on important mathematics?
- Is our curriculum aligned with state standards at each grade level?
- Is our curriculum well-articulated across the grades?

Teaching Principle

- Do we, as teachers have a deep understanding of mathematics?
- Do we, as teachers understand how students learn mathematics?
- Do we employ a variety of instructional strategies to help all students develop deep understandings of important ideas?
- Do we provide a challenging and supportive learning environment that encourages student discourse?

The Learning Principle

- Does our instruction promote the development of conceptual understanding as well as efficient procedural skill?
- Does our instruction help students develop problem-solving skills so they are capable solving novel, non-routine problems?

The Assessment Principle

- Do we continually employ a variety of assessment methods to promote student learning?
- Do we routinely use formal and informal classroom assessments to make instructional decisions?
- Do we make use of MCA-II or district level assessment data at each grade level to identify students who may be falling behind and then provide prompt and appropriate instructional interventions?

The Technology Principle

- Do we use technology effectively and appropriately to help students develop a deep understanding of mathematics?

A high stakes test such as the 11th grade MCA-II GRAD raises the level of concern for everyone. For the sake of our students we must not take a reactionary approach to high stakes test performance. Rather, we must be proactive and, from the moment students walk through our doors for the first time, constantly focus on providing them with a high quality mathematics education as envisioned by the NCTM Principles. If we do, students will come to see the connectedness of mathematical ideas and understand mathematics in a way that enables them to carry out mathematical procedures accurately and efficiently while solving challenging and meaningful problems. When this happens, the number of students who do not pass the 11th grade MCA-II GRAD on their first attempt will be quite small. Then, for those students who do not pass, we must provide an intensive and targeted intervention program to put them on the road to graduation.

While Don Karlgaard's grandchildren Ben and Eli have been fishing, Isaiah and his sister JoJo have been studying set theory. Now that JoJo is walking, it has become very difficult for her brother to impress upon her that his toys and her toys are really disjoint sets. Initially, she seemed to think his toys were a subset of hers, but Isaiah quickly dispelled that misconception when he moved "Thomas the Train", the Lincoln Logs, the Legos, etc. upstairs to his room and closed the door. While he is very interested in helping his sister with mathematics, he is less inclined to help her with physical education and teach her how to climb stairs.

To read more about Principles, visit <http://standards.nctm.org/document/chapter2/>

A high stakes test such as the 11th grade MCA-II GRAD raises the level of concern for everyone.

Featured Guest Column

Dick Hanson

You Never Know . . .

We were beginning the final week of May and Chris was not likely to pass Algebra I. He occupied the center desk in our period IV class for the mathematically challenged.

I enjoyed having him aboard. He was always at least somewhat involved in our 'discovery' activities designed to create the need to know. But when it came time to put the pencil to the paper he was often unwilling to commit to the pact that must exist between student and teacher where both agree to bend themselves to tasks they would rather avoid.

On occasion I would stop at his desk, open his book, put a pencil in his hand and urge him to begin the work. His gaze was out the window. The view was compelling. Soccer and softball fields full of frenzied activity . . . the broad Minnesota River valley and the Minneapolis skyline. I too could be mesmerized by the view, especially when a sunset would be reflected in the IDS Tower and turn the city into Oz.

Chris's father was a regular at teacher/parent conferences and I dialed his number to give him the bad news. I explained even with a passing grade on the only test that remained before finals I did not think Chris would earn a credit. He asked if he should put more pressure on his son, and I said I didn't think that would help as Chris flushed now when I approached his desk.

The day before the test I passed out the Tip Sheet that would focus their review. Most hit the circular file. Some were carefully folded and entered in the unofficial NASA glider contest in the hall outside my room. Few made it home.

Test day came and went.

Late that night I sat in the kitchen. You know the scene. Kitchen table bathed in yellow light . . . covered with papers . . . just you and the dog are up. I finished Chris's paper...97! I carefully arranged the matrix of papers from students sitting around Chris to see how he could possibly assemble a 97. Highest score around him was 82.

Next morning I was in the hall waiting for him. "Chris!" I called . . . "I need to see you."

"It's about the test isn't it?" He said.

"Yes"

"I did OK didn't I?"

"OK?! . . . Chris you wrote a 97!"

"YESSSS !!!" he yelled pumping his fist.

"Chris, I've got to know how you did it."

"Well, ya know that Tip Sheet you always give us . . . This time I took it home . . . And my Dad and I spent time on it."

"I understand and I'm glad you spent time with your Dad . . . But Chris, you had to show all of your work . . . and there were questions on that test that went back to things we learned at the start of the year . . . and . . ."

For some strange reason I stopped. Then on a whim I asked him . . .

"Chris did you ever see the movie 'One Flew Over the Cuckoos Nest'?"

"Ya know, I did." He said. "I watched in on an Oscar Rerun Marathon on Channel 9 a month ago."

"Chris, do you remember the character called Chief?"

He nodded.

Dick Hanson, a retired math teacher and football coach from Burnsville High School, has been a frequent speaker at MCTM, NCTM and MinnMATYC conferences. He received the Presidential Award for Excellence in Mathematics Teaching for Minnesota in 1984.

“Remember when Jack Nicholson put his arm around him and said ‘Chief, You fooled us all!’ ” . . .

And I put my arm around him and said “Chris, you fooled us all!”

Postscript:

That night when I read the national obits in the StarTribune I saw that Will Sampson who played the Chief in Cuckoos Nest passed away the day Chris took the test.

Chris passed Algebra I, and went on to earn a respectable B- in Algebra II.

Storal to the Morey:

We never know . . . what our students really learn.

Beginning with this issue of *Mathbits*, Matt Mentor, a wise and experienced teacher, offers advice about teaching mathematics topics to beginning teachers. Of course, experienced teachers can join in as well. Here’s how it works:

Matt Mentor will respond in *Mathbits* to a teaching question posed by a reader. Other readers who have different suggestions or alternative answers to the question are invited to submit their replies to Matt who will post them to the Matt Mentor page on www.mctm.org. Send your answers to MattMentorMCTM@aol.com and Matt will post as many different solutions that adequately address the question as are received.

This month’s question:

Dear Matt,

My curriculum calls for teaching beginning lessons on functions in Algebra 1. My students get confused with all the terms and notation. Do you know of any ways of introducing this topic that will help them understand?

Students learn about functions the same way they learn about other mathematical topics – beginning with experiences and situations, having opportunities to talk about the experiences and situations, first with informal language and gradually with more formal talk, and only then using more abstract representations and notation. Starting with the abstract symbols will only serve to keep them confused.

At the Algebra 1 level, the emphasis should be on developing the concept of function. Since function concepts are sometimes abstract in the way they are presented, making it difficult for many students to grasp the idea, it is important to use models that make the ideas accessible.

Mark Sand, of Northwest Missouri State University, uses the model of a mail carrier to make functions concrete for his students. The letters form the domain; the mailboxes the range. Any letter without a clear, unambiguous address would not fit the “mail carrier” function. Letters are matched to boxes in a specific way based on their addresses.

It becomes clear in discussion of this model that all letters in the function can be delivered to exactly one address. In addition, many letters may be delivered to some mailboxes, while other mailboxes may have no letters. The important characteristic that makes the mail carrier a function, however, is that each letter CAN be delivered, and will go to ONLY ONE address. Additional ideas such as one-to-one function, in which each mailbox receives one letter, constant function, where all the letters go to one mailbox, or onto function, where there are no empty mailboxes, can easily be grasped in this model. Composition of functions can be tied to forwarded mail; inverse functions could be a “Return to Sender” activity.

(Continued on page 6)

**Ask
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*.

Another notion that flows from this model is that every function does not have to be about numbers, nor does every function need an algebraic “rule”, an idea students may bring with them from earlier grades. Though there are many other models that can be effective, this one seems to hold much potential. (For a short description of Sand’s ideas, see “A Function Is a Mail Carrier” in *Algebraic Thinking: Grades K-12*, NCTM, 1999.

Some Algebra 1 students may be ready for the more formal function notation; others will not grasp this until later courses. Finally, if students can understand that a situation that can be represented by a function is one where there is predictability they will have a good beginning understanding of this key concept.

Sincerely,
Matt

Readers: Do you have another solution to the question asked of Matt? Or do you have a question? Send it to MattMentorMCTM@aol.com.

April is Mathematics Awareness Month

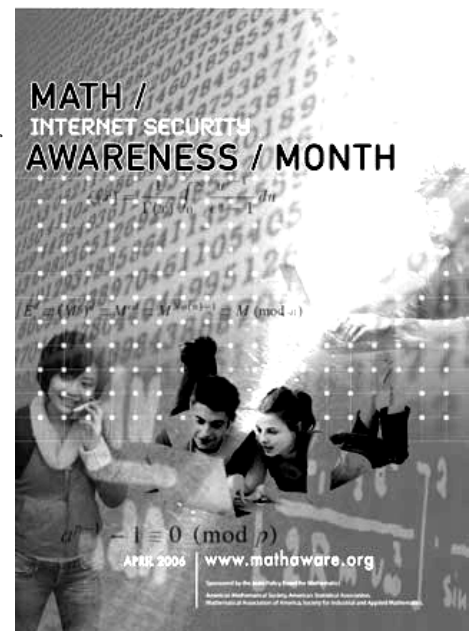
Theme: Mathematics and Internet Security

Mathematics Awareness Month is sponsored each year by the Joint Policy Board for Mathematics to recognize the importance of mathematics through written materials and an accompanying poster that highlight mathematical developments and applications in a particular area. The theme for Mathematics Awareness Month 2006 is “Mathematics and Internet Security.”

When you use your home computer to log on to your bank account and pay a bill, to buy a book from Amazon, or to buy or sell something on eBay, you assume your personal details—your social security number, your bank account access password, or your credit card number—cannot be read by an unauthorized third party. What makes this possible is mathematics.

Mathematics also plays a central role in the ongoing struggle to fight computer viruses. And initiatives both in the United States and abroad to introduce Internet voting systems in elections depend upon sophisticated mathematical ideas to ensure accuracy, fairness, secrecy, and freedom from vote tampering.

Resources and a poster for this year’s Mathematics Awareness Month program can be downloaded at www.mathaware.org. Read essays such as *The Mathematics of the RSA Public-Key Cryptosystem*, *Route Ciphers in the Civil War*, *Slide Rules and Electronic Voting*, *Intelligent Worms: Searching for Preys*, and *Securing Data in the Age of Networked Storage*.



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Using Technology to RAT-chet up Statistical Literacy

Consider this problem from the 6th grade CMP unit, *Data About Us* (ACE 9, page 26):

Alicia has a rat that is three years old. She wonders if her rat is old compared to other rats. At the pet store, she finds out that the median age for a rat is 2 1/2 years.

- A. What does the median tell Alicia about the life span for a rat?
- B. What additional information would help Alicia predict the life span of her rat?

Think about this problem. What would be a “good” student response to this question? What type of response would you expect from your middle school students?

Consider the following student responses to this question:

Student	What does the median tell Alicia about the life span for a rat?	What additional information would help Alicia predict the life span of her rat?
Jamie	“Her rat is about to die.”	“How long the rat has to live.”
Tyneshia	“It only has 2 years to live.”	“What is the mode of a rat’s life?”
Pao Vu	“2.5 is only the median so rats can stay a little bit more than that.”	“Compared to older rats, look at the data”
David	“It’s over the median.”	“Want more data.”

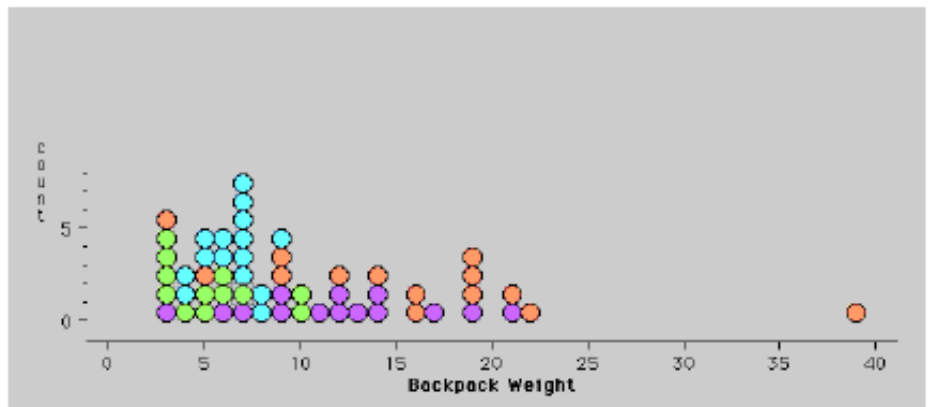
Focus on the Middle Grades

Anne Bartel
 Minneapolis Public Schools
 (Retired)

As a formative assessment question, the RAT problem helps us see some of the misconceptions under which these students are operating. Most of these students would be able to calculate the median given a set of data, but they still don’t understand the bigger picture that includes looking at the data distribution and considering the issue of variability.

Researchers have done quite a bit of research on how students explore and analyze data and how it compares to the ways in which “expert” statisticians work. A fairly recent software tool—TinkerPlots—has been developed to help students look at and compare graphs using their intuitive methods. The authors of this program believe that by allowing students to use methods of data analysis that make sense to them, and by discussing their work and their results with other students and with the teacher, students will continue to develop more sophisticated approaches.

Students can “free explore” TinkerPlots without knowledge of formal graphs, axes, or variables. As students slide, order, stack, and separate data icons that relate to individual data ‘cases’, students typically raise questions that lead to further work with the data. Students can analyze data sets that come with the program, they can download data sets from the Internet, or they can enter their own data. Students are encouraged to observe the variability in data distributions with data points that can differ by icon size, color and sound. These visual, auditory and kinesthetic aspects of the software environment allow students to focus on the variability in the distribution in powerful and intuitive ways.



(Continued on page 8)

Two online sites will help you explore some of the capabilities of TinkerPlots and decide if it is a software program that will support your middle school statistics program in important ways:

- The homepage for SERG, the Statistics Education Research Group, provides background information about TinkerPlots as well as short movies to demonstrate the capabilities of the software: <http://www.umass.edu/srri/serg/projects/tp/tpmain.html>
- The same movies and sample student data projects with their TinkerPlot graphs can be explored at <http://www.keypress.com/tinkerplots/> Specific questions about TinkerPlots, including the technology requirements to run it., can also be accessed at this site.

Teaching statistics to middle school students is a fairly recent challenge for us, influenced by NCTM's *Principals and Standards for School Mathematics*, the preponderance of workplace applications and the power of computer technology. New software applications like TinkerPlots (and Fathom at high school) can help us better understand this content area ourselves and help students better understand it in developmentally appropriate ways.

Cabri™Jr Geometry

Cabri Geometry is a computer software program that dates back to 1985 when Jean-Marie Laborde and others at the Computer Science and Applied Mathematics Institute in Grenoble explored properties of geometry objects and their relationships. During the nineties, the first generation of Cabri-géomètre gave way to a new generation called "Cabri II" thanks to developments made by these researchers as well as the industrial support of Texas Instruments. The alliance between Cabri-géomètre and Texas Instruments created a small revolution in teaching geometry with the availability of student calculators including the TI-92. In early 2003, a new version of Cabri II was developed, followed by new geometry software: Cabri Junior for TI-83 and TI-84 calculators. The "Junior" refers to the much smaller screen of a hand-held calculator as compared to a computer monitor.

I used computer software in the lab with my geometry students starting in 1989. We would go to the lab for two days working in pairs and then spend the third day debriefing in my classroom with an overhead panel hooked up to my computer. Then we would repeat this process for four weeks and, by the discovery method, learn definitions, properties, relationships, and theorems of geometry. In 1996, our high school bought 60 TI-92s so we could bring the lab to our geometry students. (You know how difficult it is to get in to the computer lab!)

I became so excited when I learned about Cabri Junior because now every student can take their work home with them. All of our students buy their own calculator so I just had to help my students dump games, etc from their calculator memory and download Cabri Jr. I had used Geometer's Sketchpad for all of my dynamic geometry work since 1989 and it was hard to change. However, it was worth the effort because Cabri Jr. has its advantages plus students increase their learning because they are able to work with this software outside of class.

I would encourage you to take a look at using a dynamic system like Cabri Jr. to teach geometry. This software allows students to construct objects and check and/or make conjectures. It is so much more fun and interesting for your students and more real learning takes place as compared to short term memorization.

For more about Cabri™Jr visit the Texas Instruments Cabri™Jr website <http://cabrijr.com/> to download Cabri™Jr., featured activities, and an introductory tutorial. Guidebooks for Cabri™Jr and other TI Applications can be downloaded from <http://education.ti.com> Click on the following sequence of menu choices: Downloads—Guidebooks by Calculator—Applications—Cabri Jr guidebook.

Focus on the High School Level

Don Karlgaard
Mathematics Teacher
Brainerd High School
Brainerd, MN



Green Eggs Graphing (Grade 1)

Shared by Laura Kerkaert

In honor of Dr. Seuss's birthday my class did our math "Dr. Seuss Style." This lesson was successful because it invites the students to become active in the graphing process. They feel ownership of the graph because it tells them something about their class and classmates.

Objectives:

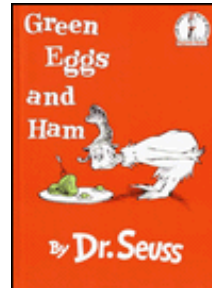
The students will collect data to create a class graph.
The students will solve problems by using data from a graph.

Materials:

- Green Eggs & Ham by Dr. Seuss
- Green poster or butcher paper
- Pictures of green vegetables
- Pieces of construction paper to use as graphing markers

Procedure:

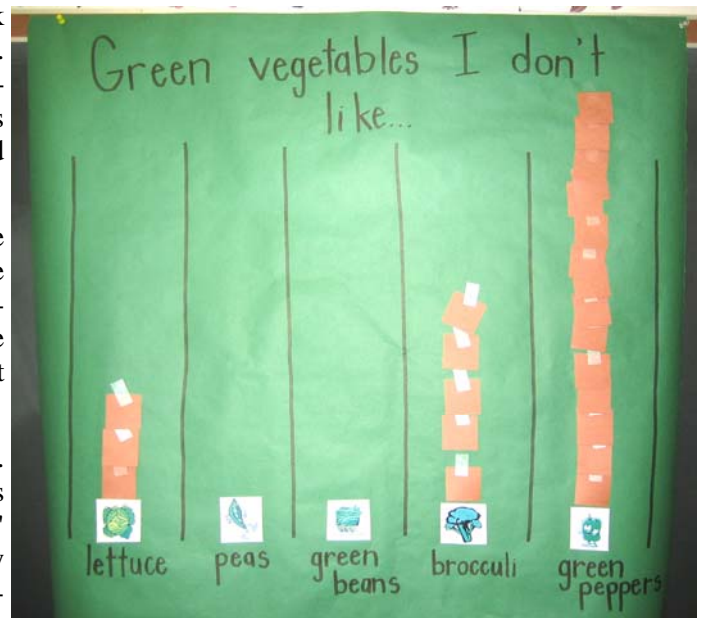
1. Read the book Green Eggs & Ham to the class. Talk about how the main character did not like green eggs.
2. On a large piece of green butcher paper have a blank graph created. Have five categories with green vegetables. I used lettuce, green beans, peas, green peppers, and broccoli. Put pictures of each vegetable on the horizontal axis of the graph and label each category. The graph title could be "Green vegetables I don't like."
3. Ask students what green vegetable they do not like. Have them make their choice. Then invite each student to place a marker in the category marking their choice. Help students create a graph by showing them how to place the markers in a straight vertical row so it is easier to count the totals.
4. After each child has made their choice, discuss the graph. Ask students questions like: "Which vegetable do students dislike the most?" "How many students dislike lettuce?"



Dr. Seuss characters, text & images © and ™ 1999 Dr. Seuss Enterprises, L.P.

Focus on the Elementary Grades

Judy Hansen
First Grade Teacher
Brown Elementary
Pipestone, MN



"How many more students dislike green peppers than peas?" "How many students dislike green beans or broccoli altogether?"



Extension:

This activity can also be done graphing the class's favorite color. Give each child a small Dr. Seuss hat. They can color the hat their favorite color. Then put their hats on the graph. Ask the same style of questions with this graph.

Professional Development and Education Opportunities

Mathematics Within—University of Minnesota

The Institute of Technology Center for Educational Programs will offer three teacher professional development courses in the summer of 2006. These intensive courses aim to help grades 3-7 teachers significantly deepen their math content knowledge, recognize the "language of mathematics," and connect their math knowledge to the bigger picture of key ideas in elementary and middle school math content. Participants will work with the instructional team to develop concept-specific mathematics enrichment units adaptable for a wide range of student skills, comprehension, and experiences aligned with the Minnesota Academic Standards. Teachers will not only have the opportunity to work closely with peers during the course but will also become part of an academic year teacher networking system where they can continue learning, teaching, and developing leadership skills.

Geometric Structures & their Connections to Algebraic Processes

Dates: June 19-30, 2006 Location: University of MN, Twin Cities, East Bank

An Advanced Viewpoint of Algebraic & Geometric Ideas in Middle School Mathematics

Dates: July 10-21, 2006 Location: University of MN, Twin Cities, East Bank

Algebraic Processes & their Connection to Geometric Structures

Dates: July 24-August 4, 2006 Location: University of MN, Twin Cities, East Bank

For more information, please contact ITCEP at 612-625-2861 or itcep@umn.edu or visit www.itcep.umn.edu/profdev/

Math Programs for Summer 2006—Bemidji State University

Grant supported—reduced or tuition free. Apply credits toward a Master of Science in Education degree that can be completed online.

Discrete Math/Patterns and Functions for K-8 Teachers June 5-23

Geometry for K-8 Teachers July 5-21

Arithmetic Foundations for K-8 Teachers and Paraprofessionals Foundations I July 24-August 1; Foundations II August 3-11

For more information and application materials go to <http://www.bemidjistate.edu/grichgels> or contact Dr. Glen Richgels at grichgels@bemidjistate.edu

"Y" the Difference? A Conference on Exceptional Teaching Practices in Engaging Students, Especially Girls and Minorities, in Science, Technology, Engineering, and Mathematics

Dates: June 27-28, 2006 Location: College of St. Catherine

For K-12 teachers. Keynotes by national researchers on increasing achievement in science, technology, engineering, and mathematics. Presentations by local leaders from K-12 classrooms. Tracks for elementary, middle school, and high school grades. Presented by the Center of Excellence for Women, Science and Technology.

For more information contact Anne Hornickel at 651-690-6433 or ahornickel@stkate.edu.

Health Career Investigators

The Health Careers Center at the University of Minnesota announces our summer health careers exploration program, **Health Career Investigators**. HCI is a fun two-day summer experiential program for high school students entering grades 9, 10, & 11. Students get to come and experience the world of a health professional, trying their hand as a medical doctor, dentist, nurse, pharmacist, or other professional and at the same time being challenged to solve the greatest health threats of today – pandemic flu, obesity epidemics, methamphetamine outbreaks and more! More details along with registration and application information are available at our web site: <http://www.healthcareers.umn.edu/>

Minnesota Institute for Talented Youth (MITY)

Summer math classes for students grades 7-12. Location: Macalester College, St. Paul

Algebra and Trigonometry: Gateway to Calculus Dates: June 19-30

Math Programming: Let the Games Begin! Dates: June 19-30

Mathematics: A Way of Thinking Dates: July 10-21

Precalculus Dates: July 10-21

More information, class descriptions, and application forms are available on the MITY website www.mity.org or call 651-696-6590.

Opportunities for Students

New Teachers & Future Teachers:

Join us and

CONNECT*

with other teachers and leaders in math education



You are invited to a special welcome session
created just for new and future teachers

Thursday Evening
April 20, 2006
7:00-9:00 PM
at the DECC in Duluth

- soup, sandwiches, pop and dessert provided*
- free teaching materials & ideas*
- fun activities, fun people*
- discover how to get your own personal mentor to discuss teaching ideas and issues*
- find out who's who in math education and how they can help you*
- get an overview of the MCTM conference – best sessions and the ins and outs of making it a great conference*
- network with other teachers in their first years of teaching*
- network with others planning to enter the teaching profession*
- find out about other future events for new teachers*

No need to RSVP – just come, be our guest

Join us in Duluth the evening before the MCTM Spring Conference.
We'd love to meet you, help make your conference attendance a
success, and pass on some teaching hints and special surprises.

* sponsored by **MCTM CONNECT—C**ommittee to **O**rient and **N**etwork
New/**N**ovice **E**ducators into a **C**ommunity of (Math) **T**eaching
Questions? See www.mctm.org
or contact Sonja Goerd, dsgoerd@clearwire.net

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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

Apr 20	Mathematics Education Symposium
Apr 21–22	MCTM Spring Conference, Duluth
May 1	PAEMST nomination deadline
Sept 20-22	NCTM Regional Conference, Chicago
Oct 20	MCTM Fall Conference, Lakeville

Do we have your correct address?

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 Arnie Cutler at 612-626-8326 or cutler@tc.umn.edu 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. Thank you for helping us stay in touch!

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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 is working to ensure timely delivery of information. Please contact Teresa Gonske or Arnie Cutler with any concerns.

Please submit items for publication in the Summer issue of *Mathbits* to tlgonske@nwc.edu by May 15, 2006. Email or call 651-631-5228 if you have questions. - Teresa Gonske, Editor
