Wahpe Woyaka pi

(T a l k i n g L e a f)

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

Preventing Summer Brain Fade…

The singing cicadas signal the approaching end of summer. While summer activities are fun and rewarding, summer brain fade can be a problem. When classes resume in the fall, it can take some time to get everybody back up to speed. I like to keep my head in the game with some interesting summer reading.

With an absolutely irresistible title, Here's Looking at Euclid by Alex Bellos is a first-rate tale of mankind's mathematical achievements. Bellos takes readers on a truly exciting trip from the extraordinary story of an Amazon tribe whose members can only count to five, to descriptions of infinity and beyond(!) The book starts with chapter zero to emphasize the pre-mathematics assumed by our modern society. Some of his chapter titles include *Something about nothing, Life of pi, The x-factor, and Situation normal.* He covers the famous names of mathematics such as Euclid, Fibonacci, and Newton with wit and warmth, as well as the not-so-famous but equally fascinating mathematicians of the past and present.

I learned that here is much more to the story of Pythagoras than his famous theorem. Living in the sixth century B.C, he was also the charismatic leader of a mystical sect. Disciples of the Pythagorean Brotherhood had to obey strict rules such as never marrying a woman who wore gold jewelry, and never passing a donkey lying in the street. Acolytes had to survive a five-year probationary period during which they were allowed to see Pythagoras only from behind a curtain. Pythagoreans worshipped the number ten , not because of humankind's ten digits, but because ten was the sum of the first four numbers. (1 + 2 + 3 + 4 = 10)

In addition to the history of mathematics, I truly enjoyed the concept of mathematics *as history*. Tracing the development of the concept of zero (Hindu mystics) , or describing the birth of statistical thinking (gambling) , Bellos weaves a fascinating web of history, science, art, politics, commerce, and mathematics.

Did you know that the current value of pi is known to "only" 27 trillion places? Ten decimal places are enough to calculate the circumference of the earth to within a fraction of an inch. With 39 decimal places, it is possible to circumscribe the known universe to the accuracy of a radius of a hydrogen atom. Practicality isn't the point however; finding digits of pi is a way of testing the processing capacity of computers.

I experienced many *aha!* moments, and found answers to questions I didn't even know I had! Bellos provides a delightful excursion through the astonishing world of math. I look forward to sharing some new stories with my students.

K-12 Calculator Usage and College Grades

Is there a difference in success of university mathematics students associated with the use of calculators in their K-12 mathematics education? Results of a study by Johns Hopkins University mathematics professors surprised me. Daniel Q. Naiman and W. Stephen Wilson studied connections between their students' previous experience with calculators and their subsequent performance in university mathematics courses. Admission to Johns Hopkins is highly competitive, and a strong mathematics background is fairly universal. Naiman and Wilson hypothesized that with this group of elite students, previous K-12 calculator experience would have no effect on their grades in calculus and linear algebra.

continued on page 2

FALL 2010

Wahpe Woyaka pi

Inside this issue:

Calendar Notes:

- *Daktronics Outstanding Math Teacher Applications due November 11, 2010*
- *SDCTM/SDSTA Joint Conference February 3—5, 2011*
- *PAEMST Applications due May 1, 2011*
-

"Much to their surprise...concluded that there is a negative correlation between college mathematics grades and heavy calculator usage in K-12."

Presidential Ponderings, *continued*

Calculus I, II, III, and Linear Algebra students were surveyed and sorted into two groups: (1) K-12 calculator usage was emphasized and encouraged; or (2) calculator use was not emphasized and encouraged. Of 607 students surveyed, 44 percent self-declared that K-12 calculator use was emphasized and encouraged. On average, this group received grades in their university mathematics courses that were 0.20 grade points lower than their non-calculator-trained peers.

Much to their surprise, Naiman and Wilson concluded that there is a negative correlation between college mathematics grades and heavy calculator usage in K-12. Why? How is mathematical thinking with calculators different than mathematical thinking without calculators? What do non-calculator math courses teach that calculator courses don't? What are calculator courses teaching that non-calculator courses aren't? What are the implications of this research for our classrooms?

What's ν (nu) with you?

What do you do to prevent summer brain fade? Have you read something interesting and/or thought-provoking? Attended a great class or workshop? Developed a new activity? Experienced a mathematical epiphany? Please share with your colleagues via this newsletter.

All too soon, the delightful autumn weather will be replaced by another harsh South Dakota winter. The good news: SDCTM/SDSTA's annual conference every February in Huron! Mark your calendar now for February 3-5, 2011, and make plans to attend. Select your favorite math and/or science activity and present a session at the conference. Session proposal forms are online now at www.sdctm.org. You'll be glad you did!

Cindy Kroon
SDCTM President

Here's Looking at Euclid: a surprising excursion through the astonishing world of math
Alex Bellos ©2010 Free Press
http://www.simonandschuster.com/search?term=here%27s+looking+a+euclid

K-12 Calculator Usage and College Grades W. Stephen Wilson and Daniel Q. Naiman
Educational Studies in Mathematics, Vol. 56, No. 1 (2004), pp. 119-122
(article consists of 4 pages) Published by: Springer
Stable URL: http://www.jstor.org/stable/4150266

Nominations for 2011 PAEMST

Know a Great Secondary Math Teacher? Nominate him or her to receive the Presidential Teaching Award!

We're looking for outstanding 7-12 math teachers for the 2011 Presidential Awards for Excellence in Mathematics and Science Teaching. The awards are sponsored by the White House and administered by the National Science Foundation.

Every year up to 108 National Awardees each receive a $10,000 award, a paid trip for two to Washington, DC to attend a week-long series of networking opportunities and recognition events, and a special citation signed by the President of the United States.

The program is now accepting nominations of 7-12 teachers for the nation's highest honor for mathematics and science teachers. Anyone can nominate a teacher. Teachers should submit completed application materials by May 1, 2011.

For more information, including nomination and application forms, please visit www.nsf.gov/pa or www.sdctm.org and click on the awards link.

Diana McCann
SD Math Coordinator PAEMST
diana@thecoganhouse.com

Nominate an outstanding secondary teacher for the 2011 PAEMST.

Share the Classroom Treasures

"Sharing" the treasures was so popular last year, that it will be back for this year's conference. As you sort through your treasures and "unpack" for the school year….don't forget about the conference. Start a "save it for the conference" box and plan to bring all your "extras" to the *Share the Classroom Treasures*, scene 2.

PLEASE - No Textbooks or broken/non-working equipment. Although it may feel like yours, make sure it is. If it's marked "School Property", please leave it in school.

SDCTM Members Share...

I don't know about the rest of you, but several times through out the year, we will have shortened days. At O'G we have schedules for 50 min classes, 40 minute classes, 30 minute classes and even 10 minute classes...fortunately the 30 min and 10 min class schedules are seldom used!! And this is South Dakota, every now and then many of you will have those 1 hour or 2 hour late starts. With that in mind, the question for this month's new feature is:

"What is your favorite 10 minute activity?"

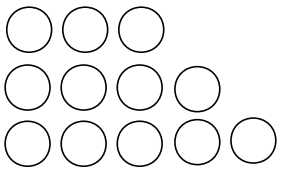
"This feature is a way to help you share ... with one another."

My favorite ten minute activity is to give students magazines and have them find the math in the ads or use a newspaper and find math problems in the news articles. I stick with articles not the advertisements. I want the students to recognize math errors, graphs used, use of mean vs median (occurs quite often), budget impact of certain initiatives, etc.

Rocky VonEye
Dakota Wesleyan University
RoVanEye@dwu.edu

The game of NIM

Each pair of students will need 12 counters. I use small round disks for counters but the counters could be pennies, kernels of corn, . . . whatever you have handy.
Arrange the counters in a row of 3, 4, and 5.



Do you have a question for our membership? Submit your question(s) to Sheila at smcquade2@sfcss.org

Students can take as many counter as they wish from ANY ROW. They may never take from more than one row. The student who picks up the last counter wins. The last counter does not have to be picked up alone. For example, first person picks up all of the second row, second person picks up all of the first row, the first person now takes the entire third row and wins. There is a pattern students should catch on to that will enable them to win. I use this activity with students when I am teaching them to look for patterns and make predictions about what will come next. After 5-7 minutes of this I switch the rules mid-game and say now whoever picks up the last counter loses. That creates a lot of fun chaos.

This game is not my creation. I have seen it at workshops and it can be found online.

Jane Syltie
Brookings High School Math/Science
National Honor Society Advisor

SDCTM Members Share (*cont)*...

Mathematics Mastermind

It's played much like the board game. I divide the class into two teams. Each team decides on a three digit number with no duplicate digits. The captain from each team writes down their number on a sheet of paper so the opposing team doesn't know what it is. Each team hands in their number to me. I have one team start, say player A from the East team, and s/he tries to guess the West team's number. I write that person's guess on the board. If none of the digits in the guess is in the other team's number, I draw a horizontal line beside that guess meaning none of the digits are in the other team's number. If any of the digits guessed is in the number but in the wrong place value, I write a W (I chose W for white like the board game) for each guessed digit that is in the number but in the wrong place value. I write an R (I chose R for red like the board game) for each guessed digit that is in the number and also in the correct place value. Then I go to the opposing team and do likewise. Then I come back to the first team and ask player B for a guess and mark that person's guess accordingly. Then back to the opposing team etc. I allow teammates to help one another but I only write down the guess of the next person in the row. A typical game might look like the following (I think I marked it correctly but you may want to check for errors):

(West Team's number is 046)	(East Team's number is 185)
A on East team guesses 593 ----	A on West team guesses 531 WW
B on East team guesses 472 W	B on West team guesses 317 W
C on East team guesses 643 RW (I always put R's first)	C on West team guesses 182 RR
D on East team guesses 846 RR	D on West team guesses 685 RR
F on East team guesses 146 RR	E on West team guesses 680 R
G on East team guesses 046 RRR	F on West team guesses 581 RWW (The East team has already won with 6 guesses)

After the kids get the hang of it, I have them choose a four digit number. I like this game because it can be done on the spur of the moment, makes kids use their deductive reasoning skills (at least some kids do), and is a relatively quiet game. Figure about 5-10 minutes per game. You can play one game or the best two out of three or whatever. I play this with my 7th graders as well as my sophomores.

Bill Waltner
Math Instructor
(605)-925-4214

"I like this game because it can be done on the spur of the moment..."

SDCTM Members Share (*cont)*...

"The counting goes as follows: 1, 2, 3, 4, fizz, 6, buzz, etc...."

Fizz Buzz and Buzz

I've played this game a couple of different ways. I call one version Fizz Buzz. Fizz is used for any number that is divisible by 5 or has a 5 in it. Buzz is used for any number that is divisible by 7 or has a 7 in it. The counting goes as follows: 1, 2, 3, 4, fizz, 6, buzz etc. 35 would be fizz buzz. When you get to the 50's it goes as follows: fizz one, fizz two, etc. 56 would be fizz buzz and 57 would also be fizz buzz (or buzz fizz - doesn't really matter). You can go in a circle and if someone makes a mistake, you can say they're eliminated from the game or you can just continue if you don't care to eliminate students.

I also play a game called Buzz. Again, buzz is used for any number that is divisible by 7 or has a 7 in it. However, each time a person says buzz, it switches directions. Kids have to really be on their toes when it comes to 27 and 28 etc. If they say 28 when they should have said buzz, they're out. If they say buzz when they should have said a number, they're out. By the same token, if they take too long to say a number or say buzz, they're out. Also, if a student says a number when it's not their turn because the direction should have switched, they're out. Sometimes when I'm feeling ornery, I will let my eyes continue to the next person in line when the direction should reverse and go in the other direction. Kids will often cue on you and they will speak out of turn. This version works best with a smaller number of kids. If there are more than 7 kids, it will take a little while for some to get a turn. When you get down to two people, you will need to clarify what happens when you switch direction. I can't remember what I've done in the past.

Bill Waltner
Math Instructor
(605)-925-4214

This game is a quick and easy one to set up. It works well for review of concepts as well as practice/review of rote memory items.

Another really good game is "I have ... Who has ...?" The students can even make up their own versions based on several different math concepts--integers, fractions, etc. It is played with cards; each student has at least one. Any student can begin and they read their card (I have a -7. Who has my number multiplied by 2?) Then the person that can answer the question posed (the I have -14 card person) goes next. They read their card (I have a -14. Who has my number divided by -1?). The game is done when all the cards have been read and the person who began the game has to re-read their card.

Sally Heberlein
DMS Math Coach
RCAS Math Implementation Leader
Rapid City Area Schools

2011 SPEAKER / PRESENTER PROPOSAL FORM

Joint Conference of South Dakota Council of Teachers of Mathematics (SDCTM) and South Dakota Science Teachers Association (SDSTA)

February 3-5, 2011

Crossroads Hotel/Huron Event Center Huron, SD 1-800-876-5858

OFFICE USE ONLY:
Session No._____
Day _____
Time _____
Location_____
Repeat Session _____

Submission of this form constitutes acceptance unless otherwise notified.

All South Dakota speakers must also register for the conference.

Use this form (page 2) or download from www.sdctm.org or www.sdsta.org

_____ _____
(First Name) (Middle initial) (Last Name) (First Name) (Middle initial) (Last Name)

_____ _____
(Name of School/Affiliation) (Name of School/Affiliation)

Preferred Address: (circle one) work home

_____
(Address)

_____
(City) (State) (Zip Code)

_____
(Work Phone) (Home Phone)

_____
(Email)

Presentation Grade level: K-2 3-5 6-8 9-12+

Length of presentation: ___one hour ___ two hours
Date of presentation: ___ Friday ___ Saturday
___ Either day ___Both days
LCD projector: ___ YES ___ NO
Other equipment: (specify) _____

Only requested equipment will be provided.

Speakers are encouraged to bring their own equipment. The conference cannot guarantee compatibility of electronic components

Speakers are expected to bring their own computers and software.

Title of presentation: _____

Description (max. 50 words): _____

_____

_____

If you have a last minute change or cancellation (after midnight Feb. 2, 2011) please call Crossroads Convention Center 1-800-876-5858

Speakers are requested to provide handouts for 30 on a first come, first served basis.

Please return this form by **October 15, 2010** to: Jean Gomer
Box 96
White, SD 57276
email: jeanann@itctel.com

I agree to comply with the guidelines in the "Minimum Safety Guidelines for NSTA Presenters and Workshop Leaders:" during my presentation. NSTA Minimum Safety Guidelines are located online at http://www.nsta.org/coru/safety.html

Signature _____ Date _____

Modified
02/13/10
CK

Contact SDCTM with any special needs requests as defined by ADA by emailing Jean Gomer at jeanann@itctel.com before October15, 2010

All South Dakota speakers must also register for the conference:

Use this form (page 2) or download from www.sdsta.org or www.sdctm.org

Conference program information and booklets will be available for download from www.sdsta.org and www.sdctm.org

SDCTM/SDSTA JOINT SPRING CONFERENCE

Crossroads Events Center, Huron South Dakota
February 3-5, 2011 1-800-876-5858

Conference information and program booklets will be available online at www.sdctm.org and www.sdsta.org

ADVANCE REGISTRATION --

Please print clearly. Postmark by January 20, 2011

Name _____
Address _____
City, State, Zip _____
School/District _____ **E-mail** _____
Home phone _____ **School Phone** _____

Please check the appropriate categories for membership, conference registration, and payment.

1. SDCTM/SDSTA MEMBERSHIP(s) and DUES

Please check the appropriate categories. ***You may join one, both, or neither organization.***

Begin/renew SDCTM (math) for one year

_____ Elementary $5
_____ Middle School $20
_____ High School $20
_____ Post-Secondary $20
_____ Student $5
_____ Retired $5
_____ Other $20

Begin/renew SDSTA (science) for one year

_____ Elementary $5
_____ Middle School $20
_____ High School $20
_____ Post-Secondary $20
_____ Student $5
_____ Retired $5
_____ Other $20

2. CONFERENCE REGISTRATION

Please check the appropriate categories. Noon luncheon is included for each day that you register.
NOTE: The Friday night banquet is NOT included*. Banquet tickets may be purchased for $20 each.*

I will attend the conference on *(check one):* _____ Friday _____ Saturday _____ Both days

SDCTM or SDSTA Member
_____ One day $50
_____ Two days $75

Non-Member
_____ One day $100
_____ Two days $125

Student Member
_____ One day $15
_____ Two days $25

College credit will be available; information/registration available at the conference registration table.

3. PAYMENT

Make checks payable to SDCTM.
Purchase orders will ***NOT*** *be accepted.*

Membership(s) total $ _____
Registration $ _____
Friday Night Banquet ($20 each) $ _____

TOTAL ENCLOSED $ _____

Requests for refunds must be received by January 20, 2011

4. SEND THIS FORM WITH PAYMENT

Steve Caron
907 South 16th Street **School phone (605) 725-8208**
Aberdeen, SD 57401 **Home phone (605) 226-2292**

Email: steve.caron@k12.sd.us

Advance registration must be postmarked by ***January 20, 2011***

Please check here if you have also submitted a speaker proposal form for the 2011 Conference. ☐

Contact SDCTM with any special needs requests as defined by ADA by emailing Jean Gomer at jeannann@itctel.com by January 13, 2011

"Jim Goehring / Ann Veitz Scholarship for Future Leaders"

"The Jim Goehring / Ann Veitz Scholarship for Future Leaders" has been established to encourage new teachers of math and science to become professionally involved on the state level. The scholarship, which is good for a free one or two day registration at the Joint Conference of the South Dakota Council of Teachers of Mathematics and the South Dakota Science Teachers Association, is available to any teacher who meets each of the following criteria:

- Is a K-12 teacher of math or science who is in the first year of teaching in SD
- Belongs to SDCTM and/or SDSTA. Applicants must pay their own dues to the chosen organization.

The application process is simple. Fill out the form below, have it signed by the building principal, and mail it to Steve Caron along with the regular conference registration form which is available at www.sdctm.org or www.sdsta.org .

- -

2010-2011 APPLICATION

"Jim Goehring / Ann Veitz Scholarship for Future Leaders"

Name:

School District:

Teaching Assignment:

Membership Information:

_____ I am already a member of SDCTM SDSTA (Circle one or both)

_____ I am joining SDCTM and/or SDSTA (Circle one or both)
I am enclosing a check for:
_____ $5.00 for Elementary Math and/or $5.00 for Elementary Science
_____ $20.00 for MS/HS Math and/or $20.00 for MS/HS Science

(*Name*)_____ is in his/her first year of teaching in SD at

_____ School District during the 2010-2011 school

year and is thus eligible for 'The Jim Goehring / Ann Veitz Scholarship for Future Leaders."

Signed: _____, Building Principal

Daktronics, in conjunction with the South Dakota Council of Teachers of Mathematics, is pleased to sponsor the Daktronics Outstanding Mathematics Teacher Award in the state of South Dakota. The recipient of this award receives a plaque and a $1000 cash award to support the award winner's efforts to teach mathematics with equipment or perhaps help to attend a conference or workshop. Middle school and high school teachers, who spend at least 50 percent of their schedule teaching mathematics, are eligible for this award. Application information is available at http://www.sdctm.org/

AWARD SUBMISSION REQUIREMENTS

1.) A maximum two page, 12 font resume, which includes the following:
   a) Personal information, including name, telephone numbers, email, addresses, etc.
   b) Beginning with the most recent, list colleges and universities attended including post-graduate studies. Indicate degrees earned and dates of attendance.
   c) Beginning with the most recent, list teaching employment history indicating time period, grade level and subject area.
   d) Beginning with the most recent, list professional association memberships including information regarding offices held and other relevant activities.
   e) Beginning with the most recent, list staff development leadership activities or other professional activities.
   f) Beginning with the most recent, list awards and other recognition of your teaching.

2.) A maximum two page, 12 font, double spaced, personal essay that includes but is not limited to the following topics: 1.) Describe how you have inspired students in your mathematics class. 2.) Describe innovative teaching techniques involved in your classes 3.) Describe what types of technology are used in your class. 4.) Describe any professional development, as it pertains to mathematics, you have been involved in. 5.) Describe how you have helped students attend classes/workshops/contests/quiz bowls that pertain to mathematics or engineering or how you have helped students incorporate mathematics outside the classroom. (For example, MathCounts, math club, etc.)

3.) Provide 4 letters of recommendation one each from an administrator, parent, colleague, and student or former student. Recommendations must be dated and contain contact information for the writer. They are limited to one page, double spaced, one inch margins, and must be in 12 font. It is important that the information be as detailed as possible to adequately evaluate each application/nomination.

4.) The completed resume and recommendations need to be included in one file in either a word or PDF file in the order they are outlined above and emailed to Paul Kuhlman at paul.kuhlman@k12.sd.us.

The packet must be received by **November 1st, 2010**

5.) The recipient for the 2011 Daktronics Outstanding Mathematics Teacher Award will be announced at the **SD Science Teachers Association/SD Council of Teachers of Mathematics meeting in Huron on February 4th, 2011.**

Print a copy of this form. Mail with check payable to SDCTM to:

Diana McCann
31133 Bon Homme Road
Tabor, SD 57063

Name_____

School Name _____

Subjects or Grades Taught_____

Addresses

Home _____

_____

School _____

_____

Mailing Address: _____ Home _____School

Home Phone _____ School Phone _____

Fax Number _____

E-mail _____

Membership categories (Check only one)

_____ Elementary School $5.00
_____ Middle School / Junior High $20.00
_____ High School $20.00
_____ Post Secondary $20.00
_____ Retired $5.00
_____ Student $5.00
_____ Other $20.00

SDCTM Newsletter
C/o Sheila McQuade
OGHS
3201 S. Kiwanis Ave
Sioux Falls, SD 57105

2008-2011
SDCTM Executive Board Members

SDCTM President
Cindy Kroon
Montrose High School
(605) 363 - 5025
cindy.kroon@k12.sd.us

Treasurer
Diana McCann,

(605) 589 - 3320
diana@thecoganhouse.com

SDCTM Past President
Bill Gripentrog
Watertown High School
(605) 882 - 6316 ext. 721
william.gripentrog@k12.sd.us

NCTM Representative
Allen Hogie
Brandon Valley High School
(605) 582 - 3211
allen.hogie@k12.sd.us

President-Elect
Jay Berglund
Gettysburg High School
(605) 765-2436
jay.berglund@k12.sd.us

Webmaster
Cindy Kroon
Montrose High School
(605) 363 - 5025
webmaster@sdctm.org

www.sdctm.org

Vice-President
Steve Caron
Aberdeen Central High School
(605) 725-2435
steve.caron@k12.sd.us

Conference Coordinator
Jean Gomer

(605) 629-1101
jeanann@itctel.com

Secretary
Brenda Danielson
Scotland Elementary School
(605) 583-2717 ext. 261
brenda.danielson@k12.sd.us

Newsletter Editor
Sheila McQuade
Sioux Falls O'Gorman High School
(605) 336 - 3644
smcquade2@sfcss.org