Wahpe Woyaka pi
(Talking Leaf)

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

The summer has faded into early autumn and empty school buildings are once again replete with students giving it their best shot at being educated and productive citizens of an ever-changing world. The good news is that we—their teachers—have spent the summer regenerating and retooling so that we will be able to meet this noble and rewarding challenge. I hope everyone has experienced a wonderful and refreshing start to another school year.

The summer was a busy one. For me it included an NCTM Affiliate Leadership Conference in Omaha, more work on the Standards and the rollout of the Standards during this school year, coteaching with Dr. Jeff Palmer from DSU a two-week professional development class in statistics and probability, and hosting another SDCTM Symposium. I did enjoy the cooler August temperatures as I geared up for the beginning of another school year.

It might be difficult to look too far down the road at this juncture, but we have some very important planning to do. The 13th Annual SDCTM-SDSTA Joint Conference will again be held in Huron at the Crossroads Hotel and Convention Center on February 3-5, 2005. Both organizations have fantastic regional and national speakers slated to present. However, the core of the conference revolves around the local speakers who share their experiences with us. Our presenters from around the state take no back seat when it comes to their knowledge and enthusiasm for teaching. Please consider attending this excellent conference, and please consider making the conference even better by presenting. A speaker form is available elsewhere in this newsletter. Do your part to make us all even better teachers.

Again, I hope your school year is off to a rousing start, and I hope the year continues to be fulfilling, educational, and inspirational. If SDCTM can be of some help, let us know. We will all face questions and challenges this year, but none are unanswerable or insurmountable considering the professional work ethic displayed by the dedicated teachers of mathematics of this state.

Chuck Holmstrom
SDCTM President

SDCTM Symposium

The Symposium was held at O'Gorman High School in Sioux Falls on Friday August 6. The topic this year was "Finding the South Dakota Mathematics Standards in Your Curriculum." We had 31 participants including K-12 teachers and administrators. The day consisted of 2 general sessions, 4 breakout sessions and 3 food breaks. Our teams of experts guided the various groups (K-2, 3-5, 6-8, 9-12) through an inventory of the Standards in their curricula. They also offered several activities meant to teach and reinforce specific standards. The food breaks were full of sharing and camaraderie. By all accounts, the Symposium was a success.

As we prepare for the 2005 Symposium, we would like your input. Please share with me holmstromc@sf.k12.sd.us or any member of the Executive Board an idea or topic that you would like to see addressed next year.

Fall 2004

Inside this issue:

Calendar Notes:

- *October 25, 2004 - SDCTM/SDSTA 2005 Speaker Forms Due*
- *November 11-13, 2004 NCTM Central Regional Conference in Mnpls*
- *February 3-5, 2005 SDCTM/SDSTA Joint Conference in Huron*

Revised Mathematics Content Standards Roll-Out Course

The first in a series of five professional development opportunities will be held the first week of November in four locations across the state. During this first stage of the "Standards Roll-Out", the focus will be the statistics and data analysis strand.

In this course, classroom teachers will examine the new SD Mathematics Content Standards in the context of (1) best teacher practice, (2) engaging students in meaningful learning experiences and (3) providing strong support for all learners to reason and think mathematically. Participants will examine a framework for instructional practice that aligns standards to instruction, curriculum and assessment, and will engage in self-analysis and reflection to strengthen the quality and effectiveness of their work.

Most of the instructors for this course are active, experienced classroom teachers who were involved in the revision of the Standards.

Dates and locations for the entire course series have been set.

Strand → Location ↓	Statistics	Number Sense	Algebra	Measurement	Geometry
Rapid City	November 1 *Ramkota*	January 10 *Ramkota*	February 7 *Rushmore Plaza*	March 7 *Rushmore Plaza*	April 4 *Rushmore Plaza*
Pierre/ Chamberlain	November 2 *Ramkota (P)*	January 11 *Holiday Inn Express & Kings' Inn (P)*	February 8 *Cedar Shores (C)*	March 8 *Cedar Shores (C)*	April 5 *Ramkota (P)*
Aberdeen	November 3 *Ramkota*	January 12 *Ramkota*	February 9 *Ramkota*	March 9 *Ramkota*	April 6 *Ramkota*
Sioux Falls	November 4 *Oaks*	January 13 *Oaks*	February 10 *Oaks*	March 10 *Ramkota*	April 7 *Oaks*

Credit for the course is pending. If approved, one graduate credit will be based on attending any three of the series; two credits will be based on attending all five in the series.

Further information for the course, as well as registration, is available at www.southdakotapd.com

Questions may be directed to:

Anne Thompson
Math Curriculum Specialist
South Dakota Department of Education
Department of Technology, Curriculum and Assessment
700 Governor's Drive
Pierre, SD 57401
Email: anne.thompson@state.sd.us
Phone: (605) 773-3247 (desk)
             (605) 280-1248 (cell)
               (605) 773-3782 (fax)

In this course,classroom teachers will examine the new SD Mathematics Content Standards...

Credit for the course is pending. If approved, one graduate credit will be based on attending any three of the series; two credits will be based on attending all five in the series.

State Finalist for 2004 Presidential Awards Announced

   The finalist for the 2004 Elementary Presidential Award are Mary Graupmann of Kadoka, Brenda Danielson of Menno, formally of Deubrook Area Schools, and Dawn Wirth of Hurley.

- Mary Graupmann teaches at Kadoka School District. She teaches 4th grade at Interior Elementary which she has taught for three years.   She has been teaching for 15 years. She is active in her community and school. She has presented both math and science sessions at the SDCTM/SDSTA conference and is a member of both organizations.

- Brenda Danielson has taught 4th grade at Deubrook Area Schools for the last 4 years. Prior to that time she has taught 2nd and 6th grades in her 9 years of teaching in the district. She has taught in Eyota and Owatonna, Mn and the Grant- Duels School Systems. She has been active in her community and professional organizations. She has presented at SDEA and the annual SDCTM/SDSTA conferences. She has been awarded the 2000 Outstanding Educator Award from DSU and the 2002 Teacher to Remember Award given by SDEA.

- Dawn Wirt teaches 2nd grade at the Hurley School District. She has been in this position for 10 years. She has been active in school directing the Odyssey of the Mind for 4 years and being director and coalition leader for Teens against Tobacco Use. She has received SDEA Grants for equipment for her classroom. She has won the 2001 Fulbright Memorial Fund Scholarship. She is a member of SDEA and SDCTM.

Congratulations to Mary Graupmann, Brenda Danielson & Dawn Wirth .

The MACSTECH Scholars Program at Dakota State

The Mathematics and Computer Science Technology (MACSTECH) Scholarship Program provides scholarships for financially eligible, academically talented students majoring in Computer Science and/or Mathematics for Information Systems at Dakota State University (DSU) in Madison, South Dakota. Funding for the program is provided by the National Science Foundation through a Computer Science, Engineering, and Mathematics Scholarship Program (CSEMS) grant. Scholarships up to $2000 per year (depending on financial eligibility) will be awarded to successful applicants majoring in either Computer Science or Mathematics for Information Systems at DSU. Junior or Senior level students who are double majors in both disciplines and are making satisfactory progress toward the completion of both programs are eligible for scholarships up to $3125 per year. Applications will be reviewed on a competitive basis and successful applicants will be admitted into the MACSTECH Scholars program at DSU. Based on performance, these scholarships may be renewed each semester by the institution through the duration of the grant (Fall Semester 2006).

High School students should submit application packets on or before March 1 to receive priority consideration for entry into the program the following fall semester. Applications received through May 15 will be considered as long as funding permits. Application materials and additional information about the MACSTECH Program may be found at the project web site: http://courses.dsu.edu/macstech

Students should submit applications packets on or before March 1, 2005 to receive priority consideration.

The target audience is teachers of grades 9-14 mathematics…

http://

Convergence: Where Mathematics, History and Teaching Interact

 The Mathematical Association of America announces the launching of a new online magazine and resource in the history of mathematics and its use in teaching, entitled *Convergence: Where Mathematics, History and Teaching Interact*, with the cooperation of the National Council of Teachers of Mathematics and the financial support of the National Science Foundation. The target audience is teachers of grades 9-14 mathematics, be they secondary teachers, two- or four-year college teachers, or college teachers preparing secondary teachers. The magazine will include articles dealing with the history of various topics in the curriculum, classroom suggestions designed for immediate use, historical problems, a "what happened today in history" feature giving mathematical events that happened on that date in history, interesting mathematical quotations changing daily, reviews of books and teaching materials, and a calendar of upcoming meetings and other events in the history of mathematics and its use in teaching. To visit the magazine, point your browser to http://convergence.mathdl.org. For more information, or to contribute, write to the editors: Victor J. Katz: vkatz@udc.edu; Frank J. Swetz: fjs2@psu.edu.

Cell Studies with Candy

   This project actually begins when we start to discuss cells and cell structures. We make a "foldable" project that the students design. It displays all the necessary structures found inside a cell. The "foldable" is made with a piece of paper that when folded open on one half you see a plant cell, and when you fold it over on the other half you see an animal cell. We spend one day color matching the cell structures that are found in both plant and animal cells. The foldable involves a color-coded key along with definitions of what each structure is responsible for in the cell. This "foldable" has all the necessary information on it when it comes time to study for the test on cells. Once we get an idea of what the structures do and what they are shaped like, we try to match each structure with a familiar candy. We may use baked beans for ribosomes since ribosomes are protein makers and beans are a good source of protein and we may use rope licorice as the cell membrane. We use a petri dish to place all our "cell structures" (candy) into. We use single unflavored gelatin packets mixed with water to form the cytoplasm that will fill up the petri dish. Once that is placed into the petri dish we add the candies.

Starburst (softened and shaped) - nucleus
Red Rope Licorice - cell membrane   Skittles - vacuoles
Mike & Ikes - mitochondria   Baked Beans - ribosomes
Chex toasted corn pcs - golgi bodies   Cinnamon Red Hots - lysosomes

   After we allow the gelatin to harden and the candy is stuck into the gelatin, we take the model out of the petri dish and it all stays together as one cell. I usually give the students a zip lock baggie to take their cell model home. I normally do NOT let them eat their model even though it may be edible because you just never know how clean the petri dishes are. In reality you could actually eat the model, however, it probably wouldn't be very tasty because of the unflavored gelatin.
   It's amazing how much the students remember cell structures because they now can compare them to the candy they used in the model. Our final step of the cell project is we view cheek cells and onion skin cells under the microscopes to find the structures we now know and to compare how each cell is alike and how each is different.

Troy Wanner
O'Gorman Junior High School, Sioux Falls
twanner@sfcss.org

Editor's note:

My 7th grade son recently came home very excited about a science lab. The more he shared with the family, the more I knew he would remember this "stuff" forever. Knowing that many of our membership teach science, I asked his teacher to share the lab for the newsletter.

Dakota STEP Math Test To Undergo Changes

The South Dakota Department of Education is beginning the process of rebuilding the Dakota STEP Math test for the 2006 school year. There will be some minor changes in the test to reflect the new Math Standards. In order for us to make these changes we will need the help of SD Math teachers to review problems for alignment and bias. This meeting will take place in Sioux Falls at the Downtown Holiday Inn on January 19 and 20. One day will be devoted to alignment and one day to bias. Teachers selected would only be obligated for two days.

I am seeking your help in nominating a teacher or teachers from your district to help in this process. Elementary, Middle School and High School teachers are needed. In addition, minority teachers, teachers with special education backgrounds, LEP, Migrant or other specialized areas are needed to be part of this group. The SDDOE will reimburse mileage, meals, lodging and substitute pay at state rate. Since this is limited and focused group, not all nominees may be selected.

I hope you can help us by nominating someone from your district. The deadline for nominations is November 19, 2004. Selections should include name, grade level, years of teaching experience and contact information, email address, phone number, etc., so contracts can be issued. Nominees will have to fill out an information form for SDDOE. Nominations may be made via email to merle.doolittle@state.sd.us or faxed to Merle Doolittle 773-3782. Questions may be directed to Gary Skoglund 773-5229 or gary.skoglund@state.sd.us

Gary Skoglund
Assessment Director

> DOE invites South Dakota teachers to review Dakota STEP problems for alignment and bias.

Measurement with Birthday Treats

For birthdays this year, we are doing a project that I was given by another teacher of the year who was also a Presidential Math Awardee. Of course, the first kid's mom couldn't find the treat they had signed up for after canvassing 8 stores, so sent Shark Tale Fruit Snacks. Shark Tales is a newer snack, so I didn't have any pre-planned activity ready-to-go. All of the activities that are incorporated into each snack or treat are linked to an NCTM standard. I am including the worksheet my class completed for Shark Tales, since it is an original adaptation.

For another birthday, we used gummy worms as a measuring tool. The attached worksheet is what we completed in class and a second (not included in this newsletter) was used as a homework follow up assignment. Again, these are two that I have adapted or created, so I feel comfortable sharing them.

Roxie Ahlbrecht
Robert Frost Elementary, Sioux Falls

> All of the activities that are incorporated into each snack or treat are linked to an NCTM standard.
>
> Worksheets are on pages 6 & 7.

STUDENT WORKSHEET

# Gummy Worm Measurement

Use your paper gummy worms to measure the length of the following items:

1. The top of your desk   _____gummy worms

2. A yardstick   _____gummy worms

3. Across the classroom door   _____gummy worms

4. A bookcase   _____gummy worms

5. Your friend's arm   _____gummy worms

6. The seat of your chair   _____gummy worms

7. The leg of your desk   _____gummy worms

8. The computer monitor   _____gummy worms

9. Your social studies book   _____gummy worms

Your choice:

1. _____   _____gummy worms

2. _____   _____gummy worms
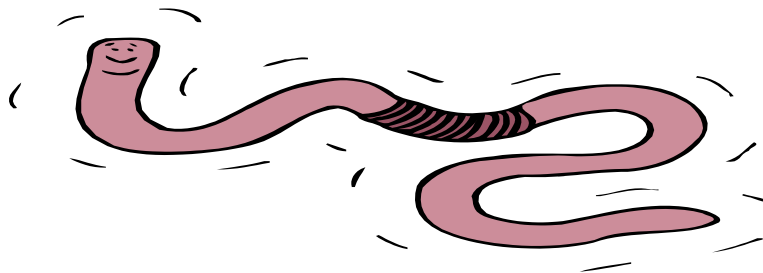
STUDENT WORKSHEET

Shark Tale

Name _____   *Magic Number* ____

How many fruit snacks do you think you will find in your package? _____

Count your fruit snacks. _____

My guess was _____ too _____.

0 few

0 many

Color	Number of Snacks
Red	
Orange	
Yellow	
Purple	
White	

Number of Candies						
	6					
	5					
	4					
	3					
	2					
	1					
	0	Red	Orange	Yellow	Purple	White
		Colors of Fruit Snacks				

Monopoly

Students use data from a board game to model linear and nonlinear functions.

Materials: Paper, pencil, graphing calculator or graphing software

The following table presents data from the board game *Monopoly*. Listed are each property's position on the game board (number of spaces from *Start*), purchase price, rent unimproved, rent with one house, and rent with one hotel.

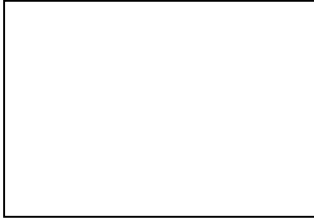| Property	Position	Price	Rent	House	Hotel
Mediterranean	1	60	2	10	250
Baltic	3	60	4	20	450
Oriental	6	100	6	30	550
Vermont	8	100	6	30	550
Connecticut	9	120	8	40	600
States	11	140	10	50	750
St. Charles Place	13	140	10	50	750
Virginia	14	160	12	60	900
St. James Place	16	180	14	70	950
Tennessee	18	180	14	70	950
New York	19	200	16	80	1000
Kentucky	21	220	18	90	1050
Indiana	23	220	18	90	1050
Illinois	24	240	20	100	1100
Atlantic	26	260	22	110	1150
Ventnor	27	260	22	110	1150
Marvin Gardens	29	280	24	120	1200
Pacific	31	300	26	130	1275
North Carolina	32	300	26	130	1275
Pannyslvania	34	320	28	150	1400
Park Place	37	350	35	175	1500
Boardwalk	39	400	40	200	2000

1. Explore the relationship between *position on the board* and *purchase price* of a property. Create a mathematical model (equation) to describe the relationship. What type of function best represents this relationship? Sketch the graph and record the equation and relevant correlation information. Comment on the meaning of the equation.
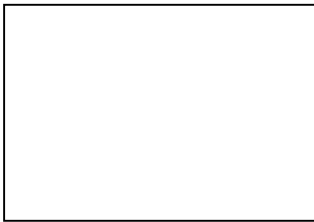
2. Explore the relationship between *position on the board* and *rent (unimproved)*. Create a mathematical model. What type of function best represents this relationship? Justify your answer. Sketch and record the equation and relevant correlation information.

3. Explore the relationship between *position on the board* and *rent with one house*. Create a mathematical model. What type of function best represents this relationship? Justify your answer. Sketch and record the equation and relevant correlation information.
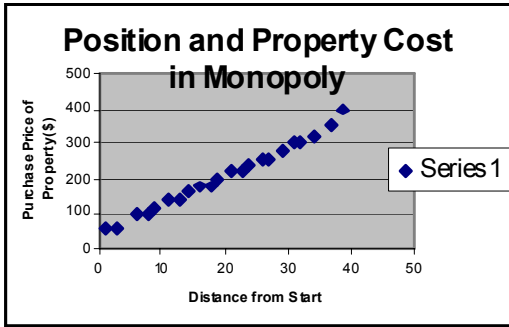
4. Explore the relationship between *position on the board* and *rent with a hotel*. Create a mathematical model. What type of function best represents this relationship? Justify your answer. Sketch and record the equation and relevant correlation information..

5. Suppose that a hypothetical property is to be added at position # 47 on the Monopoly game board. Propose a name for the property and use your models to predict its price, rent unimproved, rent with one house, and rent with hotel. Justify your answers.
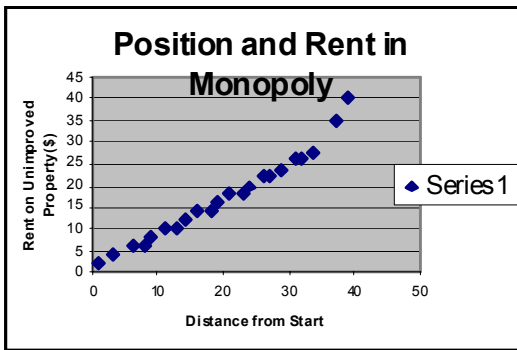
Cindy Kroon
Montrose High School
cindy.kroon@k12.sd.us

ANSWERS:

Position and Property Cost in Monopoly

1. The data appears to be linear.
$Y = 8.42X + 39.84$
$R^2 = 0.989$

The price is \$38.84 plus \$8.42 for each space away from start.

Position and Rent in Monopoly

2. The data might be linear or quadratic.
$Y = 0.88X - 0.41$
$R^2 = 0.967$
The rent is \$.88 per space minus \$.41
or
$Y = .01X^2 + 0.44X + 2.71$
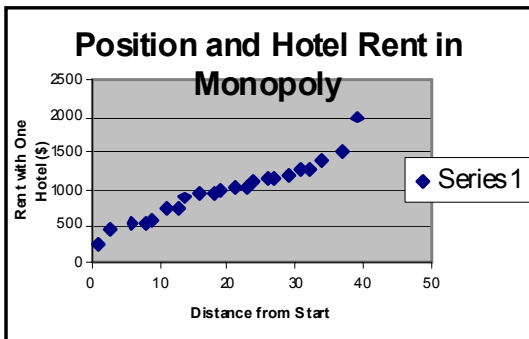$R^2 = 0.983$

Position and House Rent in Monopoly
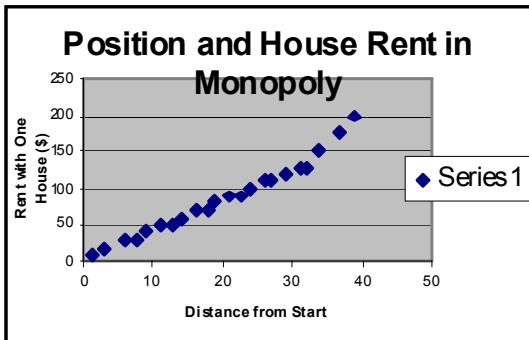
3. The data appears to be quadratic.
$Y = .06X^2 + 2.15X + 13.70$
$R^2 = 0.987$

Position and Hotel Rent in Monopoly

4. The data appears to be cubic.
$Y = .06X^3 - 3.48 X^2 + 87.14X + 144.84$
$R^2 = 0.967$

5. Student answers will vary, but should be justified according to the model used. One possible set of solutions: St. Kroons Place, Price \$435, Rent unimproved \$48, Rent with 1 House \$245, Rent with Hotel \$2810.

SOUTH DAKOTA COUNCIL OF TEACHERS OF MATHEMATICS

Membership Contest

SDCTM will be awarding one TI 84 plus-silver calculator to the school with the highest SDCTM membership **percentage**. SDCTM will also be awarding one TI 84 plus-silver calculator to the school with the highest SDCTM membership **total**. Elementary schools may opt for $125 worth of mathematics manipulatives or calculators. The principal from each participating school must fill out this form, sign it, and return it to the address below. In case of ties, a drawing will be held to determine the winner of each category. *The deadline for entries is December 1, 2004.*

School Name _____

School Address _____

Names of your mathematics teachers who are members of SDCTM:

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

_____   _____

Total number of teachers who teach any mathematics classes in your school: _____

Principal Name (print) _____

Principal Name (signature) _____

Please send this form to: Chuck Holmstrom
4508 Chippewa Circle, Apt. # 19
Sioux Falls, SD 57106

SPEAKER / PRESENTER FORM FOR THE JOINT CONFERENCE OF SOUTH DAKOTA COUNCIL OF TEACHERS OF MATHEMATICS and SOUTH DAKOTA SCIENCE TEACHERS ASSOCIATION HURON, SOUTH DAKOTA FEBRUARY 3-5, 2005.

Submission of this form constitutes acceptance unless otherwise notified.

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

_____
(Name of School/Affiliation)

Preferred Address: (circle one)   work   home

_____
(Address)

_____
(City)   (State)   (Zip Code)

_____
(Work Phone)   (Home Phone)

_____
(Email)

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

_____
(Name of School/Affiliation)

How should name(s) and affiliation(s) be listed on the conference program?

_____
(Name)

_____
(Affiliation)

_____
(Name)

_____
(Affiliation)

Title of presentation: _____

 Brief description: _____

_____

Circle appropriate levels: K   1   2   3   4   5   6   7   8   9   10   11   12   C

Length of presentation: _____ one hour   _____ two hours   _____ three hours

Day of presentation: _____ Friday   _____ Saturday   _____ either day   _____ both days

One overhead projector and screen will be provided for each room
Additional A-V equipment needed (Speakers are expected to bring their own computer and software): _____

_____

Please return this form by October 25, 2004 to:

Jean Gomer   Or email to gomerj@deubrook.com
Box 96
White, SD 57276   Fax (605)-629-3701

**Speakers are requested to provide handouts for 30 on a first come, first served basis.
All South Dakota speakers must register for the conference.**

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

Signature _____   Date _____

Last Modified
5/17/04

SDCTM Membership Application Form

Mail with check payable to SDCTM to:

Diana McCann
41876 Apple Tree Road
Springfield, SD 57062

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 $10.00
_____ Junior High School $10.00
_____ High School $10.00
_____ Post Secondary $10.00
_____ Retired $5.00
_____ Student $3.00

2004-2006
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