



Wahpe Woyaka pi

(Talking Leaf)

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

The 2016-2017 school year has come to an end. After 30 years in the classroom I still enjoy this time of the year where “life” seems to slow down a bit and I have time to take a breath and reflect upon my latest year of teaching. More time now that our only child has completed his Bachelor’s degree in Mathematics and has acquired his first teaching job and moved out of our house. I have mixed feelings about this stage in my life but am excited to see what kind of impact my son, and others like him, will have on students in their own classrooms.

As classroom teachers, we must not take the impact we have on our students lightly because we are helping them write their end story. I have had the privilege of working with so many good students over the years and they have inspired me to work hard to become a better teacher each year. Through reflection, which I mentioned above, I have tried to model my practice on the best of the experiences and challenges I have encountered over the years. I have used them as a cornerstone, a foundation from which to build upon.

Each of us can recall great teachers who touched our lives, fueled an interest and pressed us to do our best day in and day out. These teachers exhibited a deep caring, concern, commitment, and love for their students. They conveyed a passion for the subjects they taught. They approached their work with creativity and imagination, all the while striving to improve their practices.

I challenge you to take time this summer to reflect on your own experiences. What went well? What did not? What resources would you like to have? What do you wish you knew more about? To address these issues, many of you will be taking summer courses and participating in professional development experiences that will enhance your individual teaching practice.

Please don’t forget you have access to a network of mathematical colleagues and fellow members of SDCTM who have years of experience to draw upon. A stated goal of SDCTM is “Working to Improve Mathematics Education for All Students.” Many of our members participate in a math discussion listserv hosted by the SD Department of Education. Once a member of the listserv, you can collaborate with others statewide and share teaching practices and classroom ideas. From my experience, DOEMath is a judgment-free “coffee house” where mathematics teachers are willing to support you. You can sign up at <http://www.k12.sd.us/MailingList/DOEMath>.

In June, the SD DOE convened a standards committee meeting to address teacher input on the newly proposed mathematics standards. SDCTM officers and members have been active at all stages in the standards development process. Hopefully you have taken the opportunity to add your voice to the feedback provided. Going forward there will be opportunities to be involved in blueprint development and other activities. Nicol Reiner is our SDDOE Math Specialist and has done an outstanding job throughout the revision process. Reach out to her if you are interested in becoming more involved outside of your individual classroom.

Finally, I wish you a peaceful and productive summer. Apart from spending time reflecting on classroom experiences, taking classes, and attending other professional development opportunities, take time to attend to whatever “fills” your glass full before the next school year begins. Thank you for all you do in providing a quality mathematics education for each of your students.

Sincerely,
Allen Hogie
SDCTM President



SUMMER 2017

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Calendar Notes:

- *SDCTM Summer Symposium*
July 12, 2017
- *SDCTM/SDSTA Conference*
February 8-10, 2018



6-8 Highlights

In my humble opinion, math is one of the most difficult courses to teach when it comes to student engagement. Once students become overwhelmed or have something else on their mind, they seem to tune out. From algorithms to patterns, even the best math videos can seem dry. Other subjects can be more personal or involve experiments or projects that keep students looking. Mathematics teachers have to have be more dynamic and read their class in the moment. Recognizing TEGO can help with this with-it-ness.

TEGO or The Eyes Glaze Over can be defined as blank stares out windows, far away looks or “tuning out”, essentially when you have lost the class. No longer is the class following your superb explanation of why the combination method is a valuable strategy for solving systems of linear equations or how a proof in geometry should be written using proper notation. Whether the cause of TEGO is the difficulty of the mathematics or the fact that it is Monday morning, students are no longer learning. Following a 10:2 ratio can help. Known as “chunk and chew,” the teacher delivers no more than 10 minutes of content and then allows two minutes of processing time. This talk time is usually social, allowing student to synthesize verbally by talking to one another. There are numerous strategies to focus student talk time or processing time: think pair share, think pair square, and think ink share.

Learning can dramatically increase if students are engaged. By avoiding TEGO and following this simple ratio of 10 to 2, teachers can increase student involvement and thinking about the content being presented.

Sarah Gross
SDCTM Middle School Liaison

President-Elect’s Outlook

Summer is a great time for relaxing and recharging our batteries. It is also a good time to catch up on all the things we feel like we miss during the hustle and bustle of the school year. As you are preparing for another year, there is a great opportunity I want you to keep in mind. Through the South Dakota Department of Education, you can sign up for the Virtual Mathematics Coaching program.

This is a program where you are matched up with a coach and through the powers of technology, you are able to collaborate virtually. This is a great opportunity for teachers who feel like they need someone to bounce ideas off because you are in a school or district that is small or remote. It is also great for teachers who want to grow professionally and want a second set of eyes in the room. The process uses a simple video recording system and an online platform where the coach and the teacher talk about video taped lessons. Through the Virtual Mathematics Coaching program, you can receive feedback about lessons, questioning techniques, or anything else you think would be beneficial to your practice.

The program is free and there are opportunities to earn graduate credits. Anytime you can get professional development for free, it is a bonus! This fall, watch out for emails from Nicol Reiner from the SD DOE. It is a great opportunity and I highly encourage you to sign up.

Enjoy what is left of summer. It feels like my summer is flying by! The fall and the start of the new school year will be here before we know it.

Crystal McMachen
SDCTM President Elect



“Learning can dramatically increase if students are engaged.”



“...sign up for the Virtual Mathematics Coaching program.”



9-12 Spotlight

I hope that you are enjoying your summer and your 3 months off...ha ha ha!!! If you are anything like me as I am posting final grades I am already starting to think about and prep for the next year. Yes, I try to find time to relax and rejuvenate over the summer while spending as much time as possible being a mom but not a day goes by that I don't think about my passion of teaching. It is important to reflect on both the lessons that worked well and the lessons that maybe were a flop because there are ways to improve both ends of the spectrum. Being a teacher, I am a life long learner so I enjoy taking in as much professional development as possible over the summer via workshops, twitter chats or books. I am currently reading "Teach like a Pirate" by Dave Burgess next. If you want to try an education twitter chat, I recommend #edchat Tuesdays from 12 to 1 pm and 7 to 8 pm Eastern Time. I want to know what you are reading this summer, what workshops you are attending, and what twitter chats you are following! Post on the SDCTM Facebook page and/or tag #SDCTM on Twitter. (Make sure you are following @SouthDakotaCTM on Twitter and join the South Dakota Teachers of Mathematics on Facebook.) Enjoy your summer!

Lindsey Brewer
SDCTM 9-12 Liaison



"...as I am posting final grades I am already starting to think about and prep for the next year."

Higher Ed Viewpoint

We are now well into summer and I trust that you are all finding some time to rest and relax a bit after the hustle and bustle of the spring semester and end of year duties. On our campuses during the summer we are busy meeting with incoming freshman at the various registration days and helping students get placed into the correct math courses for the fall. Other than that, campus activities are filled with faculty working on their research and also taking those much needed breaks the same as you. Math placement, recruitment, and student retention are still the concerns and issues that our campuses continually struggle with. Of course the underlying common thread to all of this is the success rates in our introductory math courses. Adjustments, tweaks, and modifications are continually being made to help our students succeed in obtaining their degrees. When you look at it, much of what we do is just an extension of what you folks do in K-12. I trust you will have some time to reflect on your courses, attend those inspiring workshops and conferences that help rejuvenate you for the upcoming fall again. But most of all, I wish you all a safe and happy summer.

Sincerely,

Dan Van Pender

SDCTM Liaison to Higher Education
Professor and Dept. Chair
The University of South Dakota



"...the underlying common thread to all of this is the success rates in our introductory math courses."



NCTM Insight

Greetings! I hope that you are enjoying the summer months. Before we know it, back to school supplies will begin to make their way onto the shelves and the first day of school will be here.

As you recharge your battery and begin think about school again, I invite you to consider becoming a member of the National Council of Teachers of Mathematics (NCTM). There are a number of benefits of becoming a member, including the following.

- Access to online resources, activities, standards, and problems.
- Discounts on registrations to NCTM conferences and NCTM books and journals.
- A subscription to a monthly journal. Members can choose from Teaching Children Mathematics (Pre-K – 6), Mathematics Teaching in the Middle School (5-9), and Mathematics Teacher (8-14).

Personally, I have been a member since 2005. I've saved a lot of money over the years on books I've purchased through NCTM. (My most recent favorite is Principles to Action.) Each month I receive Mathematics Teacher and it is one of my favorite things to read. I've gained countless lesson ideas and activities from the journal over the years. Each month, Mathematics Teacher includes a calendar for the month with one challenging problem given each day. I recently started using these problems as enrichment challenges for my students.

Individual memberships cost less than \$100 per year. To learn more, visit <http://www.nctm.org/Membership/>. If you have any questions or would like more information from me, please feel free to reach me at Mark.Kreie@k12.sd.us.

Enjoy the rest of your summer!
Mark Kreie
SDCTM's NCTM Representative



“There are a number of benefits of becoming a member...”



Share the Classroom Treasures

“Sharing” the treasures has been quite popular at the SDCTM/SDSTA Conference. Don't forget to start a box of classroom treasures for the 2018 conference.

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.





A Word from Nicol

Happy Summer! I hope you are finding time in your summer to nurture yourself and participate in things that make you happy and keep you learning. Sprinkling reading and podcasts into my summer are always a good bet for me. I'll share what I'm listening to and reading below, and I would love to hear what you are enjoying so I can put it on my list.

One of the things I like to do while driving in the summer is listen to podcasts. Some of my favorites are Hidden Brain (NPR), TED Radio Hour (NPR), TEDTalks Education, and Stuff You Missed in History Class. While visiting teachers this past year, I heard about a podcast that I was not yet subscribed to called Note to Self. I have since subscribed and have really been enjoying their podcasts, especially episodes from earlier in the year about privacy and data use. Privacy and data use are complicated, and our students are dealing with these issues everyday with their online presence. The implications of our online presence make me ponder the choices of my own children as well as our South Dakota students, and I wonder if they really understand the possible ramifications of all they are sharing online. After listening to some of the episodes, I don't think that even I fully understood the consequences or dangers that exist. If you are looking for some interesting podcasts or to learn more about your digital presence, I encourage you to check out Note to Self.

The stack of books in my "to read later" pile has grown quite large! One of my summer goals is to tackle (with relish) the growing stack. At the top of my pile for math books is the book, *"Heart! Fully Forming Your Professional Life as a Teacher and Leader"* by Tim Kanold. A dear friend and colleague is reading the book and has asked to talk about it. I can't wait to dig into the book so we can discuss it! I have great respect for Tim Kanold and the work that he has done in mathematics education and leadership, and I look forward to taking time to read, reflect, and discuss his ideas. If you are reading Tim's book and want to chat about it, send me an email and let me know!

What would my ramblings be without an update about the proposed South Dakota Mathematics Standards? I am so grateful to the educators from across the state that came back together in June to analyze the submitted educator feedback and make further revisions to the proposed SD Mathematics Standards. Our time and discussions together were so valuable, and the proposed standards will serve our South Dakota students well. I am in the process of compiling all of the work and revisions and will be posting the most updated documents on the DOE website in July (<http://doe.sd.gov/ContentStandards/math-review.aspx>). In September 2017, we will start the next step of the process by bringing the proposed SD Mathematics Standards to the first public hearing. There will be four public hearings across the state during the 2017-18 school year in Aberdeen, Sioux Falls, Pierre, and Rapid City. I encourage you to be familiar with the proposed SD Mathematics Standards and talk to your colleagues, friends, and relatives about the importance of high quality mathematics standards for our students. As educators of mathematics, our advocacy and expertise are so important in the process of adopting high quality standards to facilitate meaningful mathematics education and quality outcomes for our students. I encourage you to attend the public hearings at the Board of Education meetings across the state if you are able. Dates and locations of future Board of Education meetings will be discussed in July, and you can find them at the Board of Education website (<http://doe.sd.gov/board/>).

Nicol Reiner
SD State Math Specialist
Nicol.Reiner@state.sd.us



"I hope you are finding time in your summer to nurture yourself and participate in things that make you happy and keep you learning."

Spurious Correlations



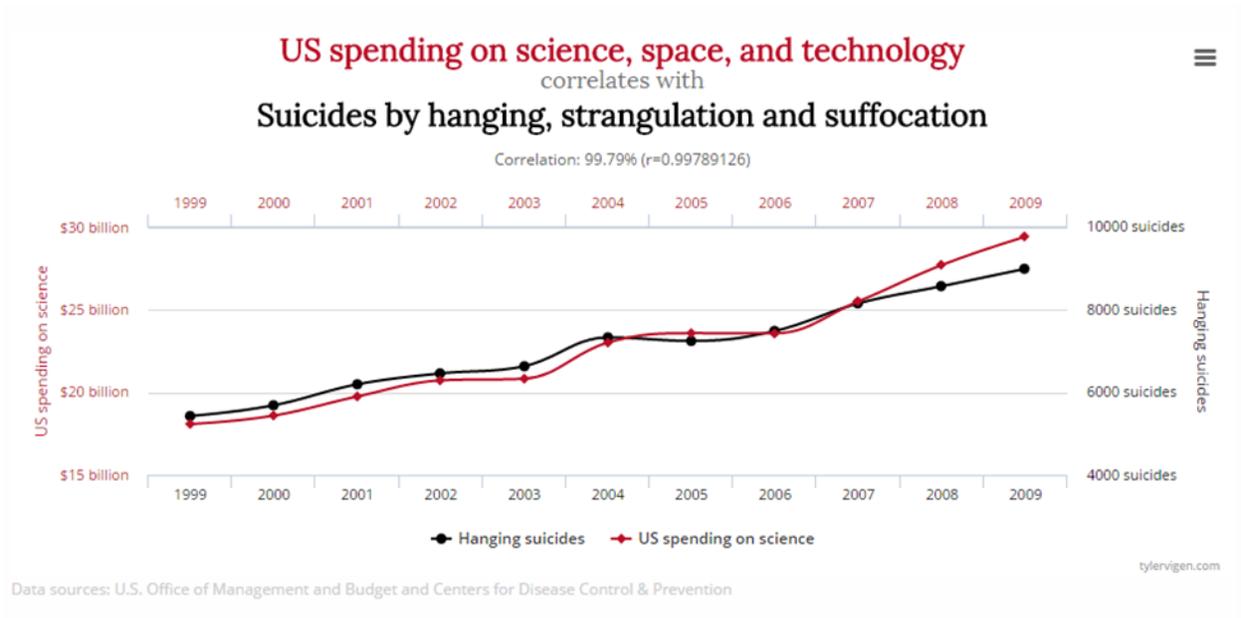
Mark Twain famously said, "Figures don't lie, but liars figure."

Empirical research is interesting, but how do variables work together? As we (should) know, correlation does not guarantee causation. Implementation of the Common Core Standards for School Mathematics (CCSSM) has necessitated an increased emphasis on statistics in the K-12 classroom.

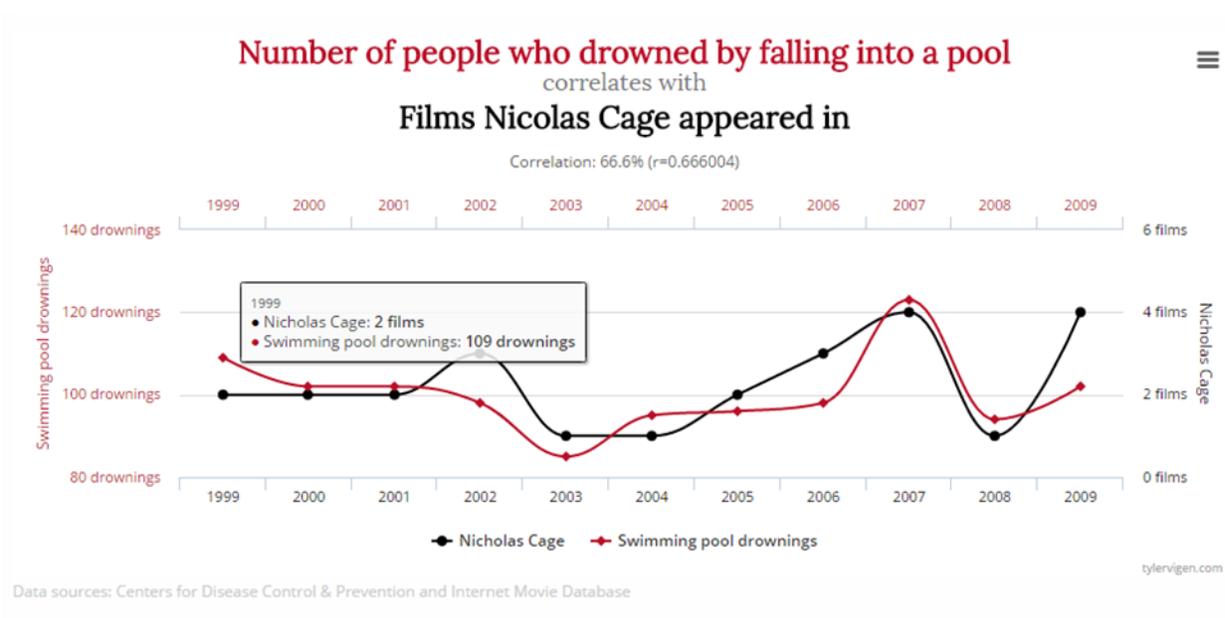
S.ID.6 Represent data on two quantities on a scatter plot and describe how the variables are related.

S.ID.9 Distinguish between correlation and causation

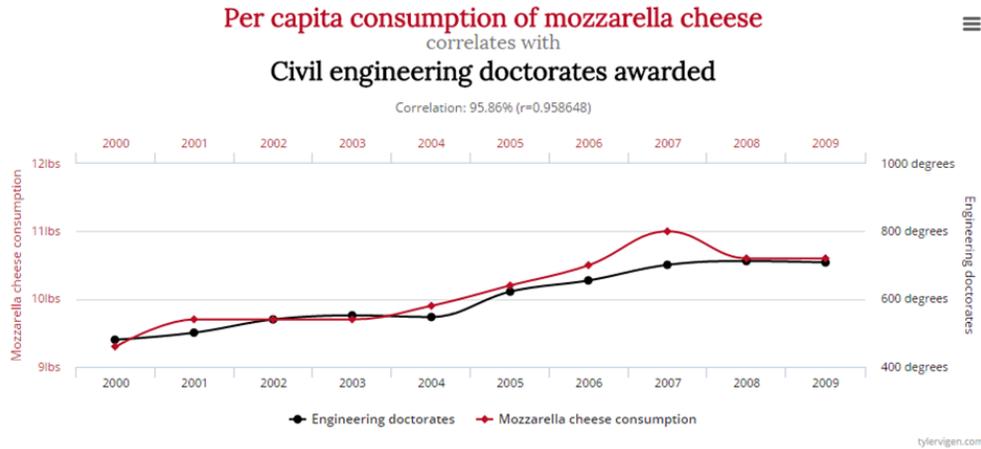
Spurious Correlations <http://www.tylervigen.com/spurious-correlations> provides a fun way to look at correlations and to think about data. Tyler Vigen has designed software that uses data mining techniques to scour enormous data sets looking for unlikely statistical correlations. He began pulling the funniest ones for his website. The charts on the site are intended to foster interest in statistics and numerical research.



The number of suicides is strongly correlated (r=0.99789) with US spending on science, space, and technology. Really?

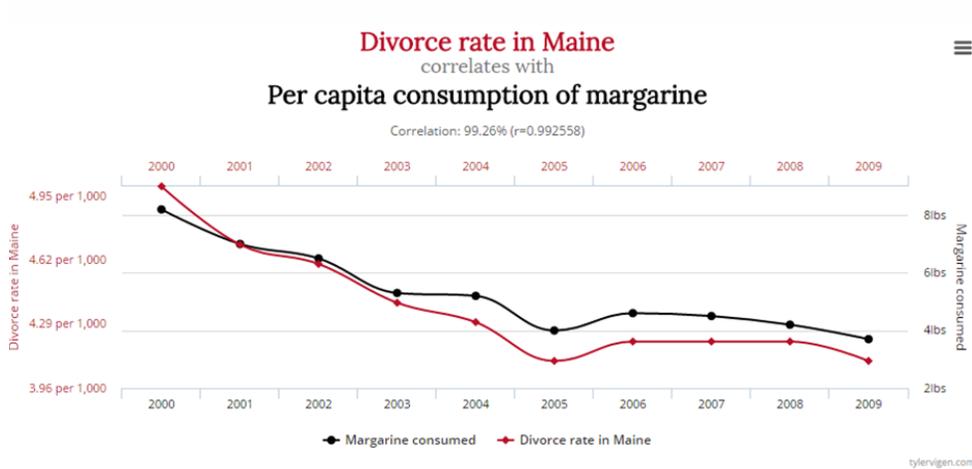


Nicholas Cage films? Who knew?



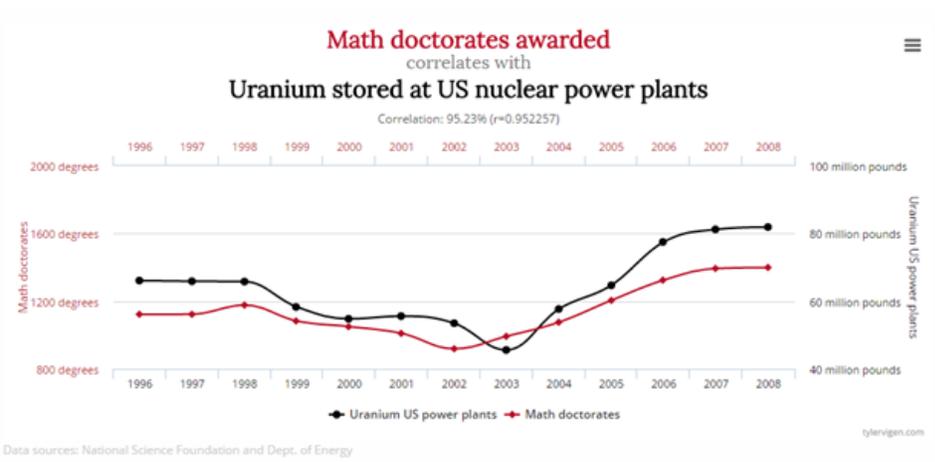
Data sources: U.S. Department of Agriculture and National Science Foundation

Deteriorating infrastructure? We need to eat more cheese!



Data sources: National Vital Statistics Reports and U.S. Department of Agriculture

Could it be cholesterol related?



Data sources: National Science Foundation and Dept. of Energy

What are those math PhDs doing to encourage uranium storage? What is the link between beef consumption and people getting struck by lightning? Number of pirates and climate change? Statistics lovers rejoice: there is even a book. Tyler Vigen tells all!



McCann Scholarship

A scholarship in memory of long time SDCTM member and officer Diana McCann has been established for the benefit of college students preparing to become a math teacher. Rising seniors studying math education at any post secondary institution in South Dakota are eligible. The scholarship will be awarded at the annual SDCTM/SDSTA Conference.

Donations to the McCann Scholarship can be sent to Security State Bank 1600 Main Street, Tyndal SD 57066. One hundred percent of all donations will be used to fund the scholarship.



PAEMST News

Congratulations to the following secondary mathematics state-level finalists for the 2017 Presidential Award for Excellence in Mathematics and Science Teaching:

Mark Kreie	Brookings High School, Brookings	Geometry, Adv Algebra
Leah Oxner	West Middle School, Rapid City	7 th and 8 th Grade Math
Shana Ward	East Middle School, Rapid City	8 th Grade Math, Integrated Math 1

As state-level finalists, they are automatically candidates for the National Presidential Award. The teacher selected as South Dakota's Presidential Awardee will be notified officially by the White House. 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.

SDCTM will celebrate the achievements of each of the state-level finalists on Friday, February 9, 2018 in Huron, SD during the evening Banquet at the SDCTM/ SDSTA Joint Conference. Each finalist will receive a paid two-day conference registration, a paid one year's membership to SDCTM, and 3 CEU's toward certificate renewal.

Beginning this fall, SDCTM will be looking for outstanding K-6th grade mathematics and science teachers for the 2018 Presidential Awards for Excellence in Mathematics and Science Teaching. Do you know a GREAT K-6th grade mathematics or science teacher? Nominate him or her to receive the Presidential Award! Nominations for the 2018 cycle will open shortly after the 2016-2017 school year begins.

For more information, including nomination and application forms as they become available, please visit www.sdctm.org and click on the Presidential Awards link.

Allen Hogie
SD PAEMST Mathematics Coordinator
Allen.Hogie@k12.sd.us



SDCTM 2017 Summer Symposium

Collaborative Classrooms In Action



Guest Presenter: Chris Mikles

Director of Teacher Education, CPM Educational Program
chrismikles@cpm.org

Wednesday July 12, 2017

Cost:
SDCTM Members
\$25.00
Nonmembers
\$50.00

Registration: 8:00 am
Session 8:30-4:00

DWU Graduate credit
is available (+\$70)

Registration
deadline May 30
*Deadline extended -
Space available basis*

Activities will be
applicable for grades
6-12.

Bring your laptop or
tablet computer.

SDCTM is an Affiliate of the National Council of Teachers of
Mathematics. (www.NCTM.org)

Name _____
E-mail address _____
Home/Summer Address _____
Home phone _____
School _____

Teachers report challenges in implementing the strategies that make students college and career ready in the 21st century.

- How do you keep students engaged on interesting math problems?
- How do you make sure students are discussing rich, mathematical concepts and ideas?
- How do you shift the teaching focus from covering topics to deepening students' understanding of the mathematics in each course?

In this workshop, teachers will experience the excitement of engaging mathematical lessons while discussing the mathematics with colleagues. Participants will learn how to adjust lessons to promote mathematical discourse while also experiencing strategies they can use to facilitate discussions as students grapple with engaging problems. This seminar is appropriate for grades 6 -12 teachers.

- Location: DWU Campus Mitchell, SD
- Registration: \$25 for SDCTM members or \$50 for nonmembers.
- Questions about registration? Contact Steve Caron: steve.caron@k12.sd.us

Don't delay! Registration is limited to a maximum of 32 participants (first come basis) for the session. Minimum 16 participants required.

To register for the symposium:

- Complete this form and mail with payment
\$25 (SDCTM member)
\$50 (nonmember)
- Please send this form and check payable to SDCTM to:
**Steve Caron 907 South 16th ST
Aberdeen, SD 57401**
- Questions: email steve.caron@k12.sd.us
- Not a member yet? Join now! Go to
<http://www.sdctm.org/joinsdctm.htm>
- **DWU Graduate credit**

Do not send payment for DWU credit with your registration. You will register and pay for credit (\$70) when you arrive on campus July 12.



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

Jay Berglund
204 S. Exene Strert
Gettysburg, SD 57442

Name _____

School Name _____

Subjects or Grades Taught _____

Addresses

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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

We now offer the option to use PayPal to pay your dues for a minimal processing fee of \$1.00. The processing fee will cover the processing fees incurred by SDCTM and fees charged for having checks cut by PayPal.

Instructions can be found online at:
<http://www.sdctm.org/joinsdctm.htm>



SDCTM Newsletter
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