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

South Dakota Council Teachers of Mathematics Newsletter

SPRING 2017-2018

Presidential Ponderings

Wow! What a great conference. The SDCTM/SDSTA conference held in February provided a professional development opportunity that rivaled many regional and national conferences. I heard once again through conversations with featured speakers Lenny VerMaas and Bill Kring, that they were impressed with the variety and number of quality sessions that were offered. This impression is due to the hard work of many people behind the scenes as well as the many teacher leaders who "stepped up to the plate" by sharing a piece of their practice with attendees in their sessions. I would like to extend a huge thank you to all who worked behind the scenes and who put so much of their "free" time into making this year's SDCTM/SDSTA conference a success. It really takes a great TEAM of people to make this event an incredible professional development opportunity for mathematics and science teachers in South Dakota. A special thank you goes to Cindy Kroon and Jean Gomer, our conference coordinators, for taking care of the many of details and logistics for usJ.

As you prepare to attend next year's conference what are you planning to share with others? Our conference hosts sessions that are created and designed by teachers just like you for other teachers. Many share lessons and activities that engage their students. Never think your ideas are too small or insignificant. I remember attending for the very first time as a beginning teacher and I walked away from the conference with many ideas to try in my own classroom. You will never find a friendlier group of people to share your time, talent and passion for teaching with. Once again, please consider submitting a speaker proposal in the fall and sharing your gifts with others. The dates for next year's conference are February 7-9, 2019. Speaking of preparing for next year, I welcome your input about the conference. Are there topics of interest that you would like to see included in the programming? Is there an engaging speaker that you would like to see invited to South Dakota as a featured speaker? One of my duties as President is to invite featured speakers to our conference who can fill a need or address topics of special interest to our membership. If you are traveling to Washington, DC for the NCTM Annual Conference (or somewhere else) and come across a topic or presenter that would be a good fit for our conference, please feel free to contact me. I welcome your suggestions. Next year is also an election year for SDCTM. If you are interested in becoming more active or have a desire to expand your leadership skills by becoming an officer in SDCTM, please contact Crystal.McMachen (Crystal.McMachen@k12.sd.us) who is our President-elect.

As we move forward into the last quarter of the school year please consider attending our summer symposium entitled "Facilitating Productive Classroom Conversations Using Desmos" on July 11, 2018 in Mitchell, SD. More information is provided in this newsletter, but it promises to be another great opportunity to enhance one's teaching practice.

Thank you for all you do in providing a quality mathematics education for each of your students.

I wish you the very best as this school year comes to an end. Finish strong!

Allen Hogie
SDCTM President

Wahpe Woyaka pi

Inside this issue:

Calendar Notes:

- *PAEMST Applications Due May 1, 2018*
- *Mathematics Standards Work Groups Application Due April 1, 2018*
- *2018 SDCTM Summer Symposium July 11, 2018*
- *27th Annual SD STEM Ed Conference February 7-9, 2019*

Rebranding the Conference: 27th Annual SD STEM Ed Conference

"Change is the only constant in life" Heraclitus

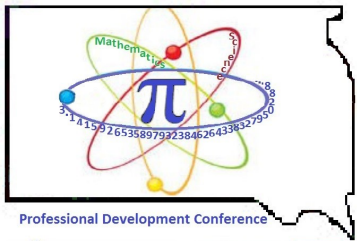
The 26th annual SDCTM/SDSTA Joint Professional Development Conference is now history. Once again, math and science educators came together for an amazing professional development experience. The format and overall excellence of future conferences will not change. What is changing however, is the name of the event.

After considerable discussion by the SDCTM/SDSTA joint board, the decision has been made to change the conference title to **SD STEM Ed Conference**. The feeling of the board is that STEM is more inclusive for subject areas including math and science, but also engineering, CTE, and computer science. Additionally, STEM professional development has become a priority in the budgets of many districts and departments.

Don't worry. The quality and variety that you have come to expect will be unchanged. Only the name is changing. Mark your calendars for Feb. 7-9, 2019 for the **27th Annual SD STEM Ed Conference** in Huron!

"A rose by any other name would smell as sweet." Shakespeare

Cindy Kroon
Conference Chair
Cindy.Kroon@k12.sd.us



With the renaming of the conference, a common logo was desired. The logos shown above and at left are the 1st iteration of the new SDCTM/SDSTA JPDC logo.

2019 SD STEM Ed Registration Open

Do you still have funds left that need to be spent from the current fiscal year? It is not too early to register for the 2019 SD STEM Ed Conference hosted by SDCTM & SDSTA (formerly known as the SDCTM/SDSTA Joint Professional Development Conference). On-site registration continues to be available, but at an increased cost.

Advance Registration Option 1: You may print the conference registration form found online or on page 17 of this newsletter and mail it with your payment to Sheila McQuade. Advanced registration must be postmarked by **January 20, 2019.**

Advance Registration Option 2: You may register on-line with a google form found on the SDCTM and SDSTA websites or by using this link: https://goo.gl/forms/Uz0UzwMNnJwtTkdv2
You will receive an invoice within 2 business days of completing registration. Payments can be made with a credit card or with a PayPal account. Online registrations are not completed until payment are received. **Online registration closes January 20, 2019** - all online registrations must be paid by **January 22, 2019** or they *will be cancelled.*

On-site registration will continue to be an option, but will be charged a higher rate. Due to changes at the Huron Events Center, meal counts must be turned in one week prior to the conference. The registration committee must estimate (and pay for) lunches prior to processing on-site registrations. Consequently, on-site registration will be charged a $35 late registration fee. *In the past, lunch counts could be turned in as late as 10:00 am each day, and the deadline for banquet meals was Friday at 1:00 pm. New management timelines for meal counts are much more strict.*

Registration Deadlines:

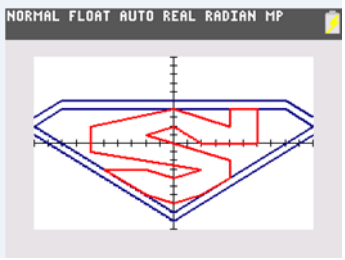
* *Advanced, mail-in regstrations—postmarked by 1/20/19*
* *Advanced, on-line registrations—paid by credit card or through PayPal by 1/22/19*
* *Late, on-site registrations—paid onsite & incur a $35 late fee*

6-8 Highlights

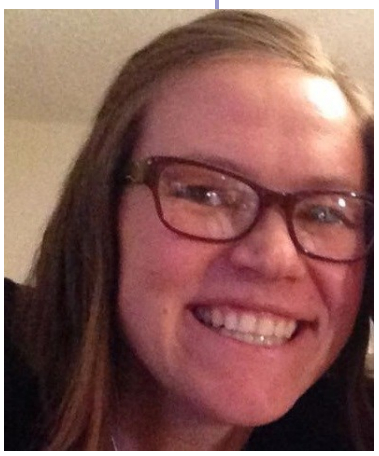
Calculator Images utilizing a Ti-84

It is the last day before a long weekend or break. Many teachers are showing movies or playing games, but you want to engage your students in something more substantial. There are inevitably several students gone, so what do you do? You need novelty. Piquing student's interest with calculators can provide just the right freshness for students in middle grades on these tough days.

According to articles dating back to the mid-1990s, appropriate use of technology associated pedagogy will get more students thinking and reasoning mathematically. Depending on grade level and ability, a transition day can be used to introduce graphing calculators to all levels. In sixth grade, students can utilize the the basic buttons to play with exponents, negatives, alpha characters and simple lines. In seventh and eighth, students can dive into the function row by creating pictures oriented to any theme of year. Eighth grade students can increase the rigor by playing with geometric transformations. If you are able to utilize TI-84s, there is a free download called Ti-Connect that allows you to upload the student screen and save their images. Students can then give their calculator cards to friends and family and show off their work for the day.



Sarah Gross
Sarah.Gross@k12.sd.us
SDCTM Middle School Liaison



"...appropriate use of technology associated pedagogy will get more students thinking and reasoning mathematically. "

Diana & Grant McCann Memorial Scholarship

A scholarship in memory of long time SDCTM member and officer Diana McCann & her son Grant 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.

The 2018 recipient was Theresa Godlewski of Vermillion. Theresa is a senior at the University of South Dakota.

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.

Valentine's Day Card

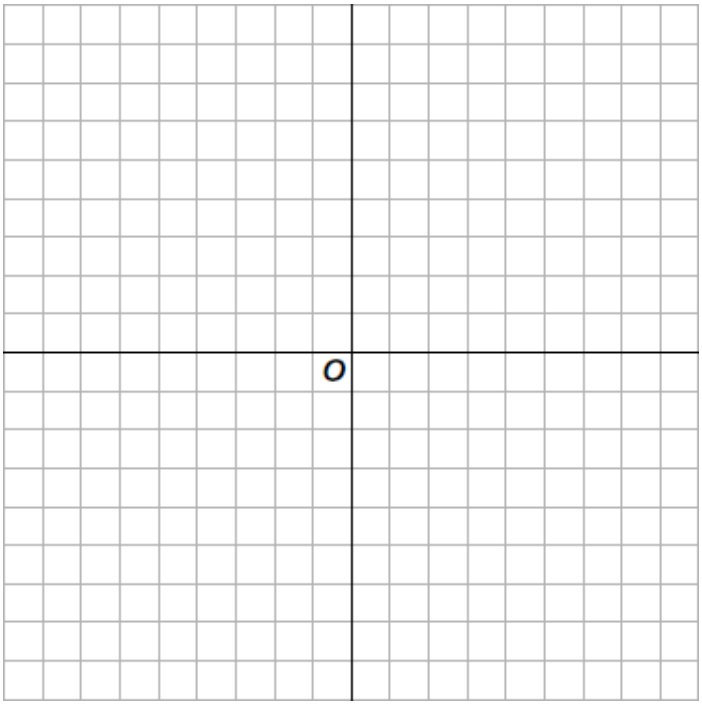
Calculator Activity utilizing Ti-84s

Part 1 – Graph the Picture

1. Go into Stat and Edit List 1 and List 2, entering the values as x and y.
2. Go to Stat Plot by pushing 2nd Y =.
3. Highlight On. Change Plot 1 from a dot plot to a line graph by highlighting the line graph.
4. Go to Graph.
5. Change the Window to -5 to 5 on both the x and y-axis.

X (L1)	Y (L2)
0	-4
3	-1
4	1
3	2
3	3
1	2
0	1
-1	2
-3	3
-3	2
-4	1
-3	-1
0	-4

Part 2- Create your own picture.



X (L1)	
Y (L2)	

Part 3 – Graph your drawing.

1. Clear the previous data by going to Stat. Clicking 4, to Clear lists L1, L2 (2^{nd} @1, use the comma, 2^{nd} #2). Press enter.
2. Enter your own coordinates as L1 and L2.
3. Go to graph to see your picture. Change the window settings as necessary.

Part 4- Print the Picture – bring your calculator to your teacher.

Sarah Gross
Rapid City North Middle School
Sarah.Gross@k12.sd.us

Higher Ed Viewpoint

I send you greetings from our universities. I trust you have all survived the long and cold winter and that you are anticipating the arrival of spring. Of course we all know that means our students will be less motivated in our classes, so maybe we want a few more good snow storms. ☺

Your universities are continually updating our curriculum to stay current with the demands of the workforce. As such, courses are always reviewed and being added so that our graduates are ready to meet the ever changing demands of the workforce. Currently there is a lot of attention being paid to data analytics, big data, or you pick your favorite buzz words to throw with data. We all know that this is just a new way to pose some good statistical analytics courses, but nonetheless, we will have our graduates ready to go into these fields if they so choose. Another relatively new area of interest is that of bioinformatics. This is a perfect marriage between computer science, biology, and mathematics. These students would work with pharmaceutical companies to do a lot of modeling with new drugs. If you think about where the future is going with medicine, it will be a lot more personalized. I always explain to folks that when you now go to the doctor's office, they will prescribe everyone the same antibiotic and if it doesn't work tell you to come back in 2 weeks for a stronger one. In the future, the drugs they prescribe will be based on your personal genotype. They already do a lot of cancer treatments this way but I think you will see basic medicine being done this way in the near future as well.

"Another relatively new area of interest is that of bioinformatics. This is a perfect marriage between computer science, biology, and mathematics."

On another front there are 2 big items in the hopper that are working their way through the system. Maybe in a near future newsletter I'll have more specifics on each of them. However, one item will address math placement for many students that need developmental courses. The Math Discipline Council met earlier this month to discuss the concept that Complete College America has been pushing with a co-req model. As I mentioned in a previous newsletter, this is where students needing developmental coursework in mathematics jump into a credit bearing course with a "just in time" component to provide them the needed support to succeed. Beginning in the Fall of 2019, we could potentially begin these programs. More information will be forthcoming I am sure.

The other item in the hopper has to do with offering graduate math credit for you teachers that want to get the 18 required hours to become eligible to teach dual credit courses at your high schools. There is a proposal going forward that I think all or most institutions will likely take turns teaching these courses online. If approved, there will be more information about that coming out in the near future as well.

I wish you all well in the final push to the end of the school year. We all know the craziness of testing and end of year exams brings, but I hope you can feel a sense of accomplishment at end of the whirlwind.

Sincerely,

Dan Van Peursem

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

A Word from Nicol

"...focused on purposeful questioning and eliciting and using evidence of student thinking for the last two years. Developing these teaching practices effectively in the classroom can be challenging."

As I sit down to put the finishing touches on my thoughts for this newsletter, I have just enjoyed a 50 degree day outside! How awesome that spring has come. Or has it? I am also watching school closings scroll across the television screen for the impending winter storm for much of South Dakota. What a roller coaster this time of year can be!

Recently, I had the privilege of attending a mathematics conference in Nebraska, and the presenters were authors from the new NCTM series called, *Taking Action: Implementing Effective Mathematics Teaching Practices. There are three books in the series: one for K-5, one for 6-8, and one for 9-12, and we were lucky enough to interact with an author from each book: DeAnn Huinker, Margaret (Peg) Smith, and Melissa Boston. Their passion for effective mathematics teaching and learning was evident and engaging. The books are an extension of the important NCTM work, Principles to Actions: Ensuring Mathematical Success for All. If you are looking for a good book (or two) to help you continue to grow in your teaching practice, any of the books mentioned are excellent choices.*

In the original book, *Principles to Actions: Ensuring Mathematical Success for All, there are eight teaching practices that are supported by extensive research as being essential for helping all learners have access to rigorous mathematics. The practices are listed below.*

1. Establish mathematical goals to focus learning.
2. Implement tasks that promote reasoning and problem solving.
3. Use and connect mathematical representations.
4. Facilitate meaningful mathematical discourse.
5. Pose purposeful questions.
6. Build procedural fluency from conceptual understanding.
7. Support productive struggle in learning mathematics.
8. Elicit and use evidence of student thinking.

In the Virtual Mathematics Coaching program in South Dakota, the participating teachers have focused on purposeful questioning and eliciting and using evidence of student thinking for the last two years. Developing these teaching practices effectively in the classroom can be challenging, and having a partner to help reflect upon lessons has been a great growth opportunity for everyone involved.

In the *Taking Action: Implementing Effective Mathematics Teaching Practices* series, the authors go a bit further and create a visual schematic for how the teaching practices fit together to make effective lessons. The following visual comes from page 245 in the K-5 book.

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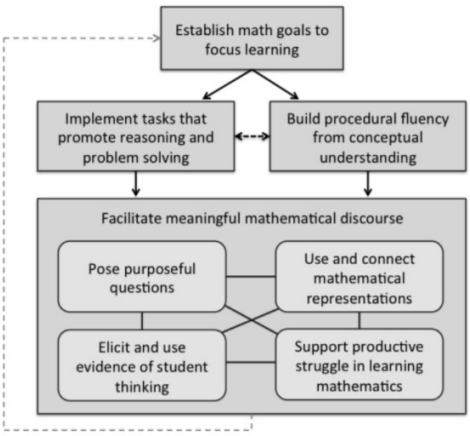
A Word from Nicol - *continued*



The authors gave a great explanation for how the model sets a path for everyday great teaching. We start with "establish math goals to focus learning," which sets us on the path to our destination. Establishing goals for the lesson guides all other decisions. These goals are not the "I can" statements for the students, but rather the mathematical goal(s) of the teacher. What math is the teacher intending to teach in this lesson through the chosen problems, activities, or tasks? The answer to that question is the goal and sets the stage for the learning. "Implement tasks that promote reasoning and problem solving" and "build procedural fluency from conceptual understanding" are the two teaching strategies that are the vehicles we use to get to our destination. It is so important to choose the right tasks and develop student conceptual understanding in order to build and enhance fluency.

The bottom box of the diagram includes the heart of the lesson and learning, which happens through the ways we "facilitate mathematical discourse." As we facilitate discourse we will want to "pose purposeful questions," "use and connect mathematical representations," "elicit and use evidence of student thinking," and "support productive struggle in learning mathematics." All of these teaching practices fit together like puzzle pieces. In the diagram, you may notice that there is a dotted line that runs from the bottom back up to the top to "establish math goals to focus learning." This brings a lesson full circle. Once we make it to the end of the learning or lesson, we need to reflect so that the experience can inform the goals for the next day or lesson.

The authors stated emphatically, this is the daily work of teaching, not just now and then. Kids need these kinds of quality math learning experiences every day in order to tackle the rigorous path before them. The model made the teaching practices so much easier for me to conceptualize, but I know it will still take lots of practice to grow to be effective regularly in all of them. Perhaps it will be a career long journey, but that is what our students deserve. I hope that the model for visualizing the teaching practices can be a great planning and reflection tool for many of you!

As a reminder, applications and information will be coming out for several opportunities this spring. We will be gathering K-12 mathematics teachers together this summer to create the resources and supports necessary for effectively rolling out the newly adopted South Dakota State Mathematics Standards. There will also be information coming soon about the Virtual Mathematics Coaching Program and the SDMath SDSci Leadership Program. I look forward to seeing your faces in these great programs!

Nicol Reiner
SD State Math Specialist

"What math is the teacher intending to teach in this lesson through the chosen problems, activities, or tasks? The answer to that question is the goal and sets the stage for the learning. "

Mark's Thoughts

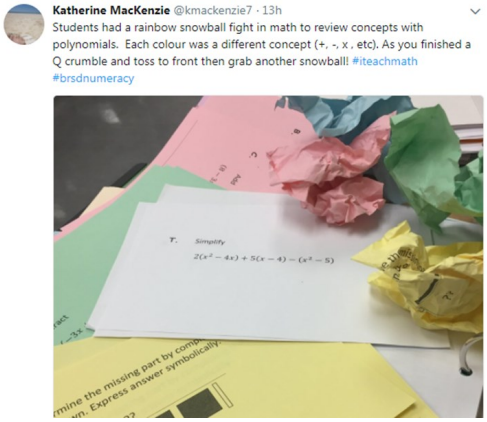
"...Twitter has helped me become a better teacher."

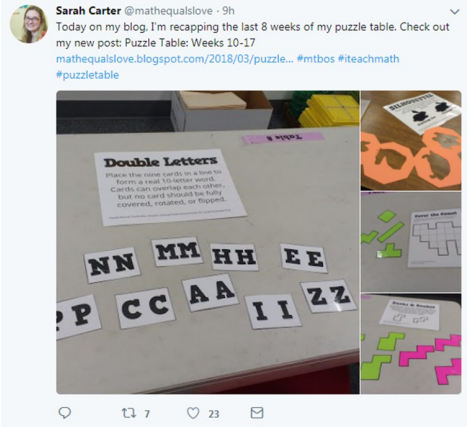
How Twitter Became My Personal Learning Network (PLN)

Note: Parts of this article are from a recent post I wrote for SDSU's Math 371: Technology for Math Educators blog (https://mathtechsdsu.blogspot.com).

I want to talk briefly about how Twitter has helped me become a better teacher. I first joined Twitter back in September of 2011. It wasn't until the spring of 2014 that I started being active on Twitter and using it professionally. Over the past four years, my use of Twitter has evolved into what I now consider my Personal Learning Network (PLN).

I first started following some of the all-stars of mathematics education -- Dan Meyer, Andrew Stadel, and Dr. Vestal to name a few. Over time, I've followed more and more people who I've met, read about, or heard of via re-tweets and likes. Each day, I spend between 5-10 minutes skimming through my Twitter feed, fishing for new ideas and resources. Tonight's catch was okay, with a couple of potential keepers:





If there is a resource or idea that I like, I will simply send myself a direct message of the tweet. If it is something really great, I'll implement the resource or idea as possible into my classroom. Also, I will often times search #MTBoS and #iteachmath to see what I can find. MTBoS stands for Math-Twitter-Blog-o-Sphere, and it is a collection of math teachers who love to share, collaborate through Twitter, and meet in the summer at Twitter Math Camp (TMC).

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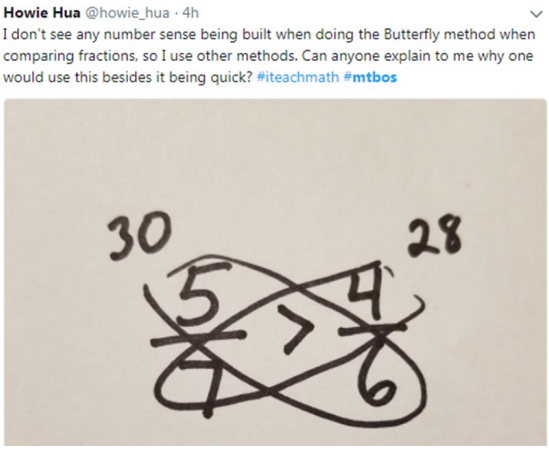
Mark's Thoughts *continued*

In addition to providing ideas and resources, Twitter can also provide answers to questions you might have. For example, just tonight this gentleman had a question he posed to #MTBoS:



Within four hours, there were more than ten replies and a pedagogical conversation taking place about this particular topic. These conversations can be extremely beneficial to teachers who are in small districts and have no other math teachers in their building to bounce ideas off of.

Over the past four years, I have borrowed dozens of ideas and resources from people on Twitter. I'm always looking for ways to improve my teaching and being active on Twitter has helped me grow as a educator.

If you're not on Twitter, I challenge you to sign up today and begin to grow your own network. I'd recommend these people as a great place to start:

- Dan Meyer (@ddmeyer)
- Andrew Stadel (@mr_stadel)
- Jon Orr (@MrOrr_geek)
- Fawn Nguyen (@fawnpnguyen)
- Michael Fenton (@mjfenton)
- Robert Kaplinsky (@robertkaplinsky)
- I Teach Math (@iteachmathAll)
- Classroom Chef (@classroomchef)
- Open Middle (@openmiddle)
- Sharon Rendon (@srendon2)
- Mark Kreie ;-) (@kreiem)

There are many, many more very good people to follow out there.
Best of luck on your journey!

Mark Kreie
NCTM Representative
Mark.Kreie@k12.sd.us

"Within four hours…(there was) a pedagogical conversation taking place about this particular topic."

Musings from Crystal

"At this point of the school year, I wanted to find something to mix things up..."

Happy Spring Everyone!

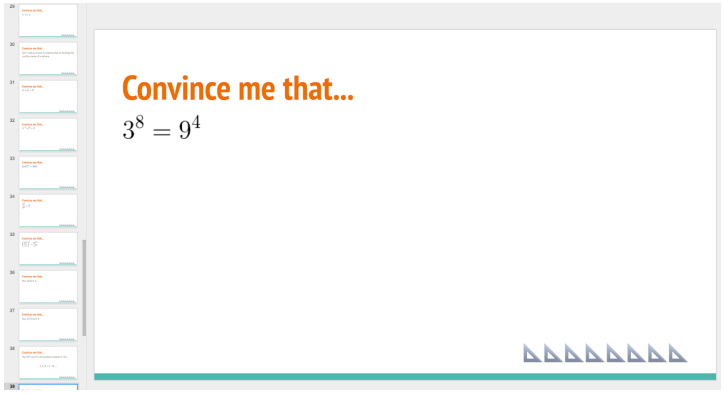
Middle school students are great problem solvers, but sometimes they cannot articulate what they are thinking. One of the Standards for Mathematical Practice that I am always working on with my students is number 3: Construct viable arguments and critique the reasoning of others. At this point of the school year, I wanted to find something to mix things up and provide something new and different while having my students work on articulating their thoughts. I came across a collection of slides called "Convince Me That." They are a range of slides from early elementary into high school. Each slide provides a picture, equation, number sentence, or statement that the students will need to convince someone is mathematically true. The web address for this collection is: tinyurl.com/ConvinceMeThat.

There is no lesson plan with these slides, but is more of a collection of ones to use, however you see fit. Personally, I would use them as a think-pair-share activity:

1. Give the students private-think-time to come up with their argument to convince their partner that the information on the slide is mathematically true.
2. Give the partners time to share and charge them with finding an even stronger argument.
3. Call on partnerships to share with the class.
4. Find similarities and differences between the arguments presented.
5. As a class, write the strongest argument from the combination of arguments presented.

The first time you do this activity would take time. After a few rounds, the students would get use to the procedure. The students will also learn what a good convincing argument looks and sounds like so it would take less time to get to the final version. Personally, I think I would only do one round a day as a start of the lesson or as a close to the day.

I hope you find this resource useful. I find that students start to become bored with the everyday routine, so hopefully this can help spice things up. Only a couple more months until summer!



Crystal McMachen
President-Elect
Crystal.McMachen@k12.sd.us

Composing your Symphony

Have you ever stopped to consider what elements go into a masterful musical composition? Recently I had the opportunity to see the Broadway musical Hamilton and was amazed at the music, costumes, and acting. This experience got me thinking about how this relates to the math classroom. What components are necessary to create a mathematical masterpiece? Three necessary components that contribute to mathematical experiences for students are the score or piece of music, the conductor, and the musicians. However, a wonderful masterpiece does not just happen because those three elements are present. Let's focus on two of those elements, the score itself and the actions of the conductor in relation to a math masterpiece.

A symphony will start with a great score. The foundation of a great math experience is to have a well-designed progression of concepts and learning opportunities A powerful example of this is during the development of linear relationships. Students should have the opportunity to start with tile patterns and growth problems before moving to the more abstract concepts of slope and y-intercept. A careful selection of tasks allows students to develop understanding and make connections over time.

It is critical that the conductors use the score as intended, with minimum adjustments. If the cognitive level or design of the tasks or progression is altered greatly, the masterpiece will be affected. Imagine a conductor deciding to play the reprise at the beginning and then move the prelude towards the end of the piece. Or if the conductor decides to have the trumpets play the flute parts, because it is too difficult for the flute section, the musical piece may not be as beautiful as intended. The conductor must carefully consider the effect changes to the score will have on the final production.

The second element necessary to produce a masterpiece is the actions the conductor might take to create an amazing experience for the instrumentalists. This is related to the mathematics instructor and their students. First, instructors must be learners themselves. There are always ideas and strategies to be learned and developed. There are many different venues to use in one's learning path. Some of the best learning an instructor can have comes from observing their students. Many times students will be more creative problem-solvers and creative thinkers. Other important learning opportunities provide teacher leaders who offer strategies and feedback through workshops, site visits, and coaching. An additional learning opportunity can be found in the power of collaboration with each other by creating collaborative work teams. Seek out a couple of colleagues that would be willing to learn alongside you. If you have a formalized "PLC" structure take advantage of that in order to impact both your practice and student learning. And finally, an instructor might participate in a book study or use the power of social media to facilitate their learning. Jo Boaler's Facebook page, Twitter, and blogs provide a great opportunity to collaborate virtually with other instructors.

Becoming a reflective practitioner is also a key action mathematics classroom conductor might take to produce a mathematical masterpiece. One method of reflecting is to ask a colleague to observe you. See #observeme for more ideas on how you might incorporate this strategy. Another fairly new strategy, called Pineapple Charts, allows teachers to post on a calendar when they will have lessons to watch or strategies they would like feedback on.

continued

"…instructors must be learners themselves."

Composing your Symphony *continued*

There is also the power of using a coach. If you have coaches in your building or district, reach out to them and ask them to collaborate with you to focus on an element of your practice. Working with a coach is a great way to focus on the next step in your journey as a practitioner. Coaches are not in the business of "fixing" teachers, just supporting them in taking risks and look at student learning.

Finally, mathematics instructors will be successful at creating masterful learning experiences when with they are committed to continual growth. This process will take time and require extended efforts. Mastery takes time. This is not only true for students, but also for teachers as well. When you are in the midst of practices that do not sound great, that are messy, and you think are not working, you must remember that great results take work and practice. Stay committed to the process and continue to be committed to improving as time goes on.

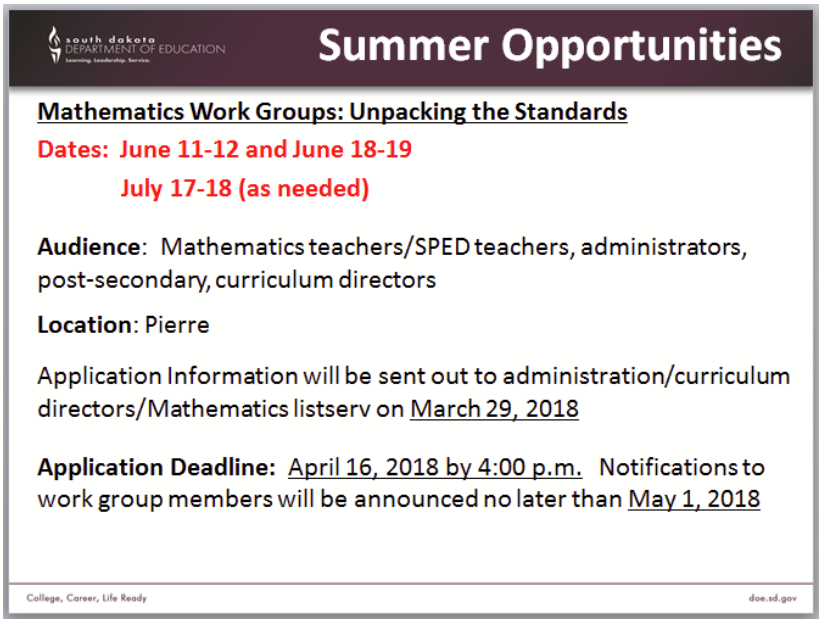
Which of the ideas in this article need attention from you? How might you commit to making those actions happen? As you are continuing to craft your masterpiece and create sense-making, meaningful learning experiences, remember to take intentional actions toward improving your practice.

Sharon Rendon,
CPM Educational Program Director of Professional Learning
sharonrendon@cpm.org

"Mastery takes time. This is not only true for students, but also for teachers as well. "

SD Math Standards Rollout

What's next? We need to roll out the standards with support and resources so that all educators can effectively implement them in their classrooms! Workgroups will be convened and brought together this summer in order to accomplish this task. Applications will be coming out soon! See the information below about the timeline, and watch for applications to come so that you can apply! Tell your friends, too!



PAEMST 2017 State Finalists

At the SDCTM/SDSTA Conference banquet this year we recognized Mark Kreie, Leah Oxner, and Shana Ward as state level finalists for the PAEMST award. Here are the biographies each finalist:

Mark Kreie, a mathematics teacher at Brookings High School in Brookings, SD, has been teaching for 16 years. He currently teaches three sections of geometry and two sections of applied geometry. Mark graduated from the University of Minnesota – Morris with a Bachelor's degree in Mathematics in 2002. Since that time he has earned his Master's degree in Curriculum and Instruction from Black Hills State University. Outside of his classroom, Mark has presented sessions at the SDCTM, TIE, and DSU STEAM conferences. He has hosted a Desmos camp for teachers, served as a virtual math coach, blueprint writer, and South Dakota Counts instructor for the SD DOE, and has been selected by Desmos as a Desmos Fellow. Mark is a SDCTM member and serves on its executive board as the NCTM Representative.

Leah Oxner, a mathematics teacher at West Middle School, Rapid City, SD has been teaching for 14 years. She currently teaches regular and advanced eighth grade mathematics. Leah graduated from Northern State University with a Bachelor's degree in Mathematics Education in 1999. Since that time she has earned her Master's degree in Curriculum and Instruction as a K-12 Math Specialist. Leah has served on numerous Rapid City School District committees, served on Praxis Series standard setting workgroups, and hosted pre-service teachers in her classroom. Leah is also a SDCTM member.

Shana Ward, a mathematics teacher at East Middle School, Rapid City, SD has been teaching for 30 years. She currently teaches eighth grade math and Integrated Math 1. Shana graduated from Oklahoma Panhandle State University in 1987. She will obtain her Master's degree in Curriculum and Instruction as a K-12 Math Specialist in 2018. Shana has presented at the SDCTM Conference, participated in SD Counts, served as Math Department Head in her school, served on the District Math Leadership team, was a Golden Apple winner for the Rapid City Area School District, and hosted pre-service teachers in her classroom. Shana is also a SDCTM member.

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

SDCTM Awards & Recognition

SDCTM Friends of Mathematics

Allen Hogie described this year's recipient of the Friend of Mathematics as someone whom he would call the energizer bunny, a math super hero, a great leader in math education, and someone who knows a lot of movers and shakers in math education. She has proven to be an invaluable resource in helping SDCTM bring top level presenters to South Dakota. This year's recipient was Sharon Rendon.

SDCTM Distinguished Service Award

Sheila McQuade was recognized for her service to SDCTM. Allen Hogie surprised Sheila with the award at the banquet Friday night. He even managed to have her family put in a surprise appearance Friday night.

SDCTM Past President

Cindy Kroon has served as President of SDCTM twice (2008-2011 and 2015-2017). Her service to SDCTM also includes the years serving as President Elect and Past President and her work as SDCTM's webmaster. Cindy has recently accepted the responsibility of serving as the SDCTM/SDSTA Joint Professional Development Conference Chair. Allen Hogie presented Cindy with a plaque in recognition of her most recent term as SDCTM President.

2018 Dakotronics Math Teacher of the Year

Sheila McQuade was the 2018 Daktronics awardee. She has been teaching for 32 years, currently teaching Geometry at O'Gorman High School in Sioux Falls. Sheila received her Bachelor of Arts in Math and French from Augustana College in 1985 and her Masters of Arts in Education from Augustana University in 2014.

2018 Marian Fillbrandt Endowment

Christopher Smith, Matt Haynes, and Isaac Piepszowski were selected to receive the Marian Fillbrandt Endowment Stipend to attend the SDCTM/SDSTA conference in Huron, February 8-10, 2018. The $400 stipend intends to defray the costs of conference registration, accommodations, a substitute teacher for the Friday of the conference if a district will not provide one, and other costs associated with conference attendance.

(picture not available)

Special Characters Tutorial

How do you access the ***pi*** or ***degree*** characters when typing in Word? How about ± or other mathematical operators? Using the "Insert Character" function in Word (fig. 1) includes letters and symbols from the Greek alphabet. But I can never find the character that I want, and I waste a lot of time scrolling through the alphabets searching for the right one. MathType and other mathematical editing software include menus. But sometimes, I just want π or ° in my document without needing a full-blown math editor. Several keyboard shortcuts are available.

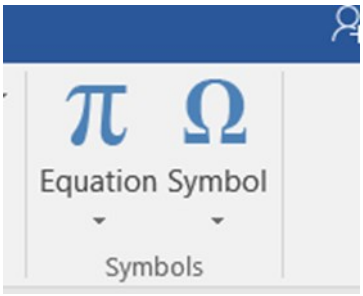


Figure 1: Insert Character Toolbar

One simple way to access the π symbol from the keyboard is by using an ALT code.

Hold down the ALT key on your keyboard. It is typically found next to the space bar.
While holding down the ALT key, use your numeric keypad to type 227.
When you release the ALT key, the symbol π will appear.
Hint: to remember ALT 227 as the code for π, you could associate it with 22/7, the well-known approximation for π.

See figure 2 for other commonly used mathematical ALT codes. Musical symbols, punctuation symbols, and many other characters are also easily accessible using ALT codes. See https://m.wikihow.com/Type-Symbols-Using-the-ALT-Key for a more complete list.

Symbol	Name	Code
÷	Division (Obelus)	246
×	Multiplication	0215
±	Plus or minus	0177
≈	Approximate	247
√	Square root	251
n	Power n	252
²	Squared	253
¼	Quarter	0188
½	Half	0189
¾	Three quarters	0190
∞	Infinity	236
≥	Greater than or equal	242
≤	Less than or equal	243
π	Pi	227
°	Degree	248

Figure 2: ALT codes for frequently used mathematical symbols

Theta (θ) is a character frequently used when writing about trig functions. You can access the entire Greek alphabet by changing your font to "Symbol." The letters a-z are then rendered as αβχδεφγηιφκλμνοπθρστυϖωξψζ respectively. Using the CapsLock will give you ΑΒΧΔΕΦΓΗΙϑΚΛΜΝΟΠ ΘΡΣΤΥςΩΞΨΖ. (θ is found on the q key and π is found on the p key) Am I the only person who didn't know about this?

Cindy Kroon
Montrose High School
cindy.kroon@k12.sd.us

Conference Wiki

While attending the February Conference, did one or more of your presenters post some information or handouts online at our free Wiki space? The quickest way to get there is http://wiki.SDSTA.org

For the last several years, we have set up a spot at Wikispaces to allow presenters to upload things to share with conference attendees. If you would like a copy of any of that material, please make sure that you download any wanted materials before the end of July 2018. At that time, Wikispaces, which started in 2005, will be shutting down it's free service. (Plus services will have till either September 2018 or January 2019 to download their materials.)

James Stearns
SDSTA.org

When is Wikispaces closing?

To enable us to offer maximum support to customers off-boarding from Wikispaces we will be undertaking a phased shutdown approach. This will help us regulate the system load on the export tool as users depart from Wikispaces

Scheduled Closure dates:

Classroom and Free Wikis end of service	31st July 2018
Plus and Super Wikis end of service	30th September 2018
Private Label Wikis end of service	31st January 2019

South Dakota Council of Teachers of Mathematics

July 11, 2018

SDCTM 2018 Summer Symposium
Dakota Wesleyan University, Mitchell SD

Facilitating Productive Classroom Conversations Using Desmos

Wednesday
July 11, 2018

Instructor: Mark Kreie Brookings High School
2017 Desmos Fellow, 2016 SD Outstanding Mathematics Teacher

Cost:
SDCTM Members
$50.00
Nonmembers
$100.00
Registration: 8:00 am
Session 8:30-4:00

DWU Graduate credit is available (+$70)

Registration deadline: May 30

Activities will be applicable for grades 5-12.

Bring your laptop or tablet computer.

In this workshop, teachers will experience Desmos activities through a student lens and learn how to utilize the teacher dashboard and classroom conversation toolkit to facilitate individual and collaborative student thinking.

Participants will also learn ways to adapt and create their own high-quality Desmos activities by using the Desmos Activity Builder and applying the Activity Building Code. This workshop is appropriate for grades 5-12 and for all levels of Desmos users.

- Location: DWU Campus Mitchell, SD
- Registration: $50 for SDCTM members or $100 for nonmembers.
- Questions about registration? Contact 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.

Check www.sdctm.org for symposium information and updates.

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

To register for the symposium:

- Complete this form and mail with payment
  $50 (SDCTM member)
  $100 (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 11.

Name _____

E-mail address_____

Home/Summer Address _____

Home phone _____

School_____

2019 SD STEM Ed Conference

Hosted by SDCTM and SDSTA

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

ADVANCE REGISTRATION

Huron Event Center, Huron South Dakota
February 7-9, 2019 1-800-876-5858

Download and complete this form. Postmark by January 20, 2019. After this date, please register on-site (+$35)

Name _____

Permanent Address _____

City _____ State_____ Zip _____

School/District _____ **E-mail** _____

Home phone _____ **School Phone** _____

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

NOTE: *First year teachers are eligible for a scholarship providing a free registration. See www.sdctm.org for details.*

2. CONFERENCE ADVANCE REGISTRATION (+ $35 On-site/after Jan. 20)

Please select 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 $25 each.*

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

SDCTM or SDSTA Member
- ◯ One day $55
- ◯ Two days $80

Non-Member
- ◯ One day $105
- ◯ Two days $130

Student Member
- ◯ One day $15
- ◯ Two days $25

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

3. PAYMENT: *By Check Only*

Make checks payable to SDCTM/SDSTA JPDC.
SD STEM Ed does ***NOT*** *accept purchase orders.*
To use credit card, you ***must*** *register and pay ONLINE:*

Membership(s) total	$ _____
Registration	$ _____
Friday Night Banquet ($25 each)	$ _____
On-site Late Registration Fee (+$35)	$ _____

TOTAL ENCLOSED $ _____

Requests for refunds must be received by January 20, 2019
The conference does not issue refunds due to weather events.

4. SEND THIS FORM WITH PAYMENT

Sheila McQuade
3201 S Kiwanis **School phone (605) 366-3644**
Sioux Falls, SD 57105 **Home phone (605) 371-1803**
If you have not received email confirmation of registration after one week, please contact: smcquade2@sfcss.org.

Advance registration must be postmarked by ***January 20, 2019.***
After this date, please register on-site (Additional $35 fee).

Please check here if you have also submitted a speaker proposal form for the 2019 Conference. ☐

Contact SD STEM Ed with any special needs requests as defined by ADA by emailing cindy.kroon@k12.sd.us by January 20, 2019.

Your contact information may be shared with Conference Exhibitors/Sponsors. Check here to opt out of sharing your contact information. ☐

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

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

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
C/o Sheila McQuade
OGHS
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