



Wahpe Woyaka pi (Talking Leaf)

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

I am really excited for our upcoming STEM Ed conference in Huron and strongly encourage all of you to attend. It really does help one to stay motivated and enthused about teaching after seeing friends and colleagues at the conference each year and it is a way to recharge your battery! It is also good to come away with a few new ideas for your classroom and I want to also encourage you to consider sharing some of your great ideas with the rest of your colleagues. We could really use some more talks this year so please hurry and fill out a [speaker form](#). I am even going to put my “money” where my mouth is and will fill out a proposal form as soon as I send this off. In thinking about the upcoming conference, one must recall a fond memory of the conference last year when Jean Gomer was awarded the Distinguished Service Award.



Pictured along with Jean Gomer (center) is Past SDCTM President, Sheila McQuade (left) and Conference Chair, Cindy Kroon (right). Jean Gomer was the glue that held this conference together for so many years and we were excited to be able to honor her with this award.

If I haven't said it often enough, I do want to thank each and every one of you for the job you do in teaching our students. Teaching at the college level may have a few trials, but when I hear two of my kids that teach at the K-12 level tell of all the behavioral issues they deal with, I know you are all very special people that are resilient to the core! Keep up the great work you are all doing, it is almost Thanksgiving Break and then we know Christmas Break is right around the corner. After we have a quick start to the next semester, we can all gather in Huron! But through all the hustle and bustle, I do hope you take some time to enjoy the positive moments, when you see the fruit of your labors and the students get that “Aha” moment. Again, I hope to see you all in Huron.

Sincerely,

President-SDCTM
Dan.VanPeurseem@usd.edu

Fall 2023-2024

Wahpe Woyaka pi

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Calendar Reminders

<i>SD STEM Ed Speak Proposals Due</i>	Oct. 31
<i>SD STEM Ed Early Bird Registration Due</i>	Dec. 15
<i>PAEMST Nomination Deadline</i>	Jan. 8
<i>SD STEM Ed Conference</i>	Feb 1-3



Mark's Thoughts

Open Middle Tasks

Happy Autumn!

If you are looking for Depth of Knowledge (DOK) level 3 tasks, I invite you to peek at some Open Middle tasks. Open Middle tasks have a beginning (the problem) and an end (a correct solution), but there are multiple ways to approach and/or solve the problem.

Here is a middle school level example:

SOLVING ONE-STEP EQUATIONS (GREATEST SOLUTION)

Directions: Use the digits 1 to 9, at most one time each, to create an equation where x has the greatest possible value.

$$\boxed{}\boxed{} + x = \boxed{}\boxed{}$$

And an elementary level example:

CREATE A PATTERN

Directions: Use the digits 0 to 9, at the most one time each, place a digit in each box to make a pattern that changes by the same amount each time.

$$\boxed{}\boxed{}, \boxed{}\boxed{}, \boxed{}\boxed{}, \boxed{}\boxed{}, \dots$$

The middle school level example turns out to have one correct answer. $12+x=98$ means $x=86$, which is the greatest possible value for x.

The elementary level example has many possible solutions.

There are many answers, and here are some of them: 19,28,37,46..., 18,27, 36,45..., 73, 62, 51, 40... 62, 73, 84, 95..., 92, 83, 74, 65...

To find more examples, visit [Open Middle](#). Example problems are sorted by grade level.

Have a great rest of 2023!

Mark Kreie
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“If you are looking for DOK level 3 tasks, I invite you to peek at some Open Middle tasks...”



Elementary Highlights

Subitizing

I was talking to a colleague one day about subitizing and she stopped me and asked what I was saying. We talked about subitizing for a while and realized that we all do subitizing on a regular basis but we likely don't even think about it and may have another name for it. Subitizing is being able to quickly recognize and name the number without counting. It comes from the Latin work "subitize" which means "to arrive suddenly". Research shows that children who can quickly recognize numbers without counting will be able to compose and decompose numbers easier in later math.

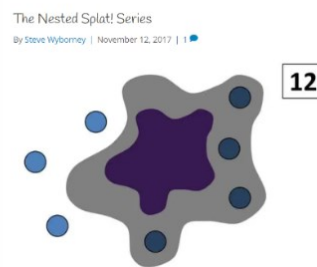
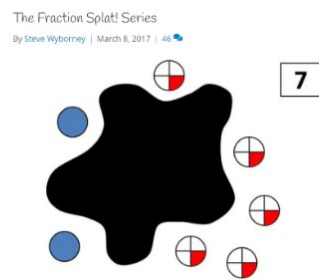
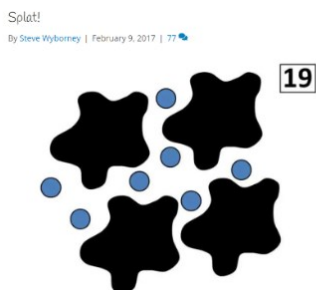
Think about playing a game and rolling dice. We no longer need to count the dots because we can look at the shape of 4 or 5 dots and just know how many there are. Playing dominoes you are likely able to match and count rather quickly thanks to your subitizing skills. Building number sense using visual representations helps students "see" the numbers and be able to develop the number sense more easily.

Elementary teachers build off the idea of dice and dominoes and work into ten frames and eventually into place value. Subitizing starts very basic at a young age but also goes across many levels, even into middle school. If you think about the number 325 you likely picture something in your mind. You maybe see three hundreds, 2 ten rods, and 5 ones. You may also see 3 dollar bills and a quarter. However you see the number, you can relate to it which helps you to then add, subtract, multiply or divide it.

It is hard to type an article about subitizing because it is something easier to show. I encourage you to search your grade level and subitizing to see what you can find. Any time you can add a visual "snapshot" it will help your students see the number they are working with. I like to use Steve Wyborney's website. He has many different things you can download and use for free. They are ready-made and easy to add to your classroom routine. I included pictures of splat, but esti-mysteries is another favorite of the students. You can see in the pictures of splat, there are various levels including some fractions. My students love to use these splat slides and are very focused and engaged as we use them.



"...we all do subitizing on a regular basis but we likely don't even think about it..."



Jodi Neuharth
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A Word from Stephanie

SDCTM Social Media Presence

Did you know SDCTM was tech savvy?

You can follow SDCTM on the following social media platforms:



Instagram: SDCTM_Math



Facebook: South Dakota Teachers of Mathematics



X (Twitter): @SouthDakotaCTM

For those of you who know me you know one of my favorite words and actions is *networking!* Social media is a great way to just that, network! Let's use these spaces to celebrate the wonderful lessons we teach every day, to learn from and with one another, and to check in with each other, give virtual high fives, smiles, pats on the back and hugs!

Let's make our social media presence heard SD Math Teachers!

Stephanie Higdon
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SDCTM Public Relations / Social Media



“Let's make our social media presence heard SD Math Teachers!”

MCM

(MONTROSE COMEDIC MATHEMATICIANS)

1. How did the Holsteins do math?
2. What did the mathematician farmer use to plow the field?
3. Where do math teachers go on vacation?
4. Why did the obtuse angle jump into the swimming pool?
5. Why did the student wear glasses to math class?
6. What is a butterfly's favorite subject?
7. What did the triangle say to the circle?
8. What was the mathematician's favorite tool?

Submitted by Montrose HS Algebra 2 class
(Class of 2025)

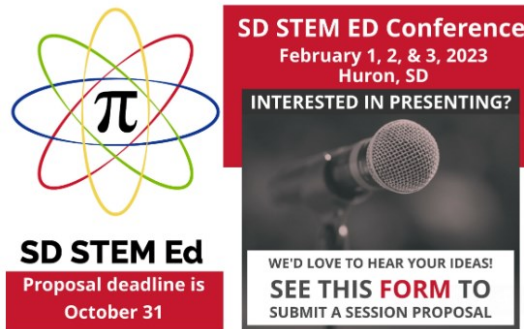


Save the Date!

The 32nd Annual SD STEM Ed Professional Development Conference will be held in Huron February 1-3, 2024. This annual conference is hosted by SDCTM and SDSTA.

Sessions presented by South Dakota's best (**that's you!**) comprise a very large part of the success of this conference. If you have presented session(s) before, thank you! I hope that you will submit a proposal for the 2024 event. Note also that you can submit multiple session proposals. If you have not presented before, please consider it this year. Let others benefit from your ideas and experiences. You can present with partner(s) if you are hesitant to go it alone the first time. Presenting a session is a fun and rewarding experience. You can be certain that you will have a friendly audience! It also looks great on your resume as a professional development activity.

Speaker proposal forms are now available online [here](#) or you can follow the links from [sdctm.org](#) or [sdsta.org](#). **The submission window closes on Oct. 31, 2023, so don't delay!** I can't wait to see what you all have in mind for your sessions!



Cindy Kroon
Montrose High School
SD STEM Ed Conference Chair



“Sessions presented by South Dakota’s best (that’s you!) comprise a very large part of the success of this conference.”

Registration 2 days (1 day)

Early-Bird Registration
Ends Dec. 15th

Member—\$125 (\$100)
Student—\$75 (\$50)
Nonmember \$175 (\$155)

Pre-Registration
Dec. 16th—Jan 15th

Member—\$175 (\$150)
Student—\$75 (\$50)
Nonmember—\$225 (\$200)

On-Site Registration
Jan. 16th—Feb. 3rd

Member—\$225 (\$200)
Student—\$80 (\$70)
Nonmember—\$275 (\$250)



NCTM Representative Tips

It's a long way off but put on your calendar the NCTM Annual meeting and Exposition. Next year it will be held in Chicago IL on September 25-28, 2024. There will be hundreds of educational sessions that will help you collaborate, network, learn, and be inspired. You can always expect to walk away with more knowledge and inspiration to implement in your classroom.

If you're looking for something closer to home, our state STEM Conference is held in Huron on Feb 1-3, 2024. The plans are still being made and should be finalized soon. There are a lot of great local teachers coming to showcase what they do in their classroom. If you are from a small school, it is a great way to get to know the other teachers in the state. You get a lot of great ideas that you can bring back to your classroom. Being from a small school myself, some of my favorite parts are seeing familiar faces, talking about classroom happenings, and getting the feeling that I am not alone.

Susan Gilkerson
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“If you're looking for something closer to home, our state STEM Conference is held in Huron on February 1-3.”



MCM Answers

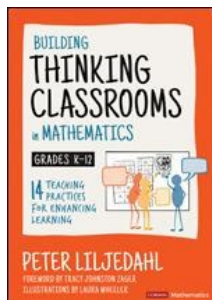
1. They used their cow-culator
2. A pro-tractor
3. Times Square
4. Because it was over 90 degrees
5. They improved da-vision
6. Moth-emathics
7. You're so pointless!
8. Multi-pliers





Higher Ed Viewpoint

I decided to try something new in my Calculus class a year ago. In my January newsletter, I talked about implementing several of the teaching practices from Peter Liljedahl's book



Building Thinking Classrooms in Mathematics. While it focuses on grades K-12, I thought it had relevance to my college classrooms as well. So, I implemented several techniques Liljedahl recommended, including nonpermanent vertical whiteboards, thinking tasks, and random grouping. At the end of the year, I was amazed at the growth in my students, as evidenced by both attitudes and data. I compared my students' achievements on exams and quizzes with past classes, with clear evidence that students were performing at a higher level. In addition to the quantitative evidence, in a mid-semester review, students were asked, "What were some things that your instructor is doing to enhance your learning?"

Some of the comments from students included the following:

- Using the walls to help teach us herself while also having us help each other, creating good student-to-teacher and teacher-to-student relationships. Everything we do in this class is for a purpose, and it is very effective in always improving our skills or learning new ones.
- Practicing the problems on boards in small groups is extremely helpful in the learning process.
- Checking over the mistakes as we go instead of at the end of the problem with the board work. Lots of quizzes so we know we can retain the information.
- She does a good job of looking at each person individually; we can get through specific problems as needed, and she encourages collaboration.
- The wall thing helps us have a better chance of getting help and feedback directly, whereas if we were doing everything individually, it would be impossible to do.
- She has us work on problems in class and have discussions; it isn't like a lecture.
- Sending us to the walls helps us work together, observe when we get stuck, and have mistakes corrected quickly.



Changing how you teach something you have taught for a long time is scary, but it can also be fantastic. Read Liljedahl's book and consider how it could change your teaching. I did with excellent results.

Christine Larson
SDCTM Post-Secondary Liaison
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"Changing how you teach something you have taught for a long time is scary, but it can also be fantastic."



6-8 Highlights

Currently I am taking a break from getting my first quarter grades posted to write this article. I can't believe how fast this year seems to be going! I feel I should share a little about myself as this is my first article as SDCTM middle school liaison. I am currently teaching at the Northwestern Area School District, and I have the joy of teaching 6th and 8th grade in addition to high school math courses. My sixth graders are my favorite each year as they are always so full of energy, and most of them still want to learn new things. This year, over half of my 6th grade class is begging for opportunities to attend Math Counts competitions. If you didn't see the article on Math Counts in the last issue of Wahpe Woyaka pi, I encourage you to look into the program now, because it is a great program! If you think that competition math isn't for you or your students, I would encourage you to join the National Math Club. Registration is free at mathcounts.org, and they even send you free pencils! They also send games, activities, and problem sets in a monthly email and have everything available online to search by topic. If you really want to get your students involved in National Math Club, you can apply for silver or gold level status. Last year, my students achieved gold level status by collecting measurements (height, arm span, even time spent on homework) from other classes and creating a statistical comparison. One of this year's gold level activities is an art project. My kids are super excited to start working on it!

One of my favorite resources from Math Counts (or the National Math Club) is the Problem of the Week. Every Monday a new problem set is released with answers posted on each Thursday. The Problem of the Week is available to everyone, so your students can even access them throughout the week too. I print a copy each week and give my students a chance to earn prize points if they get the solution before Thursday. You can visit <https://www.mathcounts.org/resources/problem-week-archive> for the current Problem of the Week.

Each day when I drive to school, it seems to be getting a little darker each morning. Before we know it, it will be time to change the clocks. Last year, one Problem of the Week centered around the time change and time zones. With a little bit of history and geography mixed in, the first math part of the problem was, "Over the course of Luther's summer break he visited four of the six time zones shown. What is the minimum number of states that Luther could have visited?" For the rest of the problem, a map of the time zones, and the solution visit <https://www.mathcounts.org/resources/time-changes-0>.

I am looking forward to sharing more ideas and resources with you this year. Feel free to reach out with any questions you have or ideas you want to share!

Allison Schmitz
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"One of my favorite resources from Math Counts...is Problem of the Week."



Presidential Award for Excellence in Mathematics and Science Teaching

Know a Great K-6 Mathematics or Science Teacher? Nominate him or her to receive the Presidential Teaching Award!

The PAEMST program was established in 1983 by the White House and is sponsored by the National Science Foundation. The award is the nation's highest honor for math and science (including computer science) teachers. The program identifies outstanding math and science teachers in all 50 states and four US jurisdictions.

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.

This year's cycle will recognize outstanding **elementary teachers in grades K - 6**. The application deadline will be **February 6, 2024**. Nominations will be accepted until January 8, 2024. You can nominate a deserving teacher by visiting www.paemst.org.

Other than this, WHY would someone want to complete the application process?

Forty-five Continuing Education Contact Hours from the South Dakota Department of Education can also be earned toward certificate renewal by completing the application process. To be eligible, a PAEMST candidate must complete all components of the application process and submit a scorable application that can be sent on to the state selection committee. All applicants submitting a scorable application will earn credit, not just the state finalists whose materials will be sent on to a national selection panel. The PAEMST application consists of three components: Administrative, Narrative, and Video. The components allow the applicant to provide evidence of deep content knowledge and exemplary pedagogical skills that result in improved student learning. After eligibility is confirmed and technical specifications are met, each application will be evaluated using the following five Dimensions of Outstanding Teaching:

- Mastery of mathematics or science content appropriate for the grade level taught.
- Use of instructional methods and strategies that are appropriate for students in the class and that support student learning.
- Effective use of student assessments to evaluate, monitor, and improve student learning.
- Reflective practice and life-long learning to improve teaching and student learning.
- Leadership in education outside the classroom.

If you have any questions, please contact:

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“This award is the nation’s highest honor for math and science teachers.”



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