



Wahpe Woyaka pi

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

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

Greetings! I hope that this newsletter finds you enjoying a favorite spring/summer beverage while reflecting on the school year. I know that it's not quite the end yet, but I find value in reflecting on the year (unit) before the end. May is always a time to reflect back on the year for me... to celebrate the things that went right and to learn from those that I'm not as happy with. I made a few changes in Geometry this semester that I have found value in and plan to carry forward. One simple change, or edit, that my students have appreciated is that I post a "Today we will..." list on the board each day. Our administration asked that we post learning targets for each day/week and I had been doing that on the whiteboard with the list of daily assignments. This semester, I added a "We will" page to my notes that are displayed on the Promethean Board. It is not a full page, it must fit on one screen and it lists all that is going to happen in class - including taking a pop quiz if I have one that I plan to give. It is displayed on the board when kids come into the room. It is nothing more than what we have all told the kids at the start of class for years. But, I have found that the kids like it written out. It is as if having a printed/displayed check list is more real for them than just having me tell them. The information from research that the administrators shared with us states that it gives the kids an idea of what to expect and a sense of what is coming next. One of my summer projects is to type up the "We will" pages for each of the lessons from the first semester for Geometry as well as for the full year for my other classes. What have you tried this year that was successful?



At the STEM Ed Conference in February, I had the honor of awarding the Friend of Mathematics award to Michelle Bartels from Hamlin High School. Michelle is the Past President of SDSTA. She is an integral part of the conference and conference planning. Michelle is always willing to do whatever she can to help a fellow teacher. I would list her at the top of my "People You Need to Know" list.

The Distinguished Service to Mathematics award was another opportunity to recognize someone who exhibits unselfish service to SDCTM. I had the opportunity to recognize Joan Lubben. Joan has been teaching at Dakota Wesleyan University since 2009. She has been very supportive of SDCTM in our many endeavors. Each year, she gives of her time to host us at DWU for the annual SDCTM Symposium. She is a gracious host and sets her summer schedule with our needs in mind. She is passionate about educating teachers and helping her students and fellow teachers succeed. It was great to have several of her colleagues and students make the trip to be at the banquet to see her recognized.

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Spring 2022-2023

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Calendar Notes:

- *SDCTM Summer Symposium July 11th*



Presidential Ponderings *continued*

I also had the honor of awarding Jean Gomer with the SD STEM Ed Legacy Award. Jean spent her life in service to education. She gave unselfishly to students, pre-service teachers, practicing teachers...and ultimately to the conference. She was the first ever Conference Chair for the joint conference... a conference that was unheard of 31 years ago. In the early years, she often invited us to her home to plan the conference...treating us as family and feeding us delicious home cooked lunches. She led us through the years we were bursting at the seams, through many stormy years, and even through the year of the construction of the Huron Event Center. Personally, she made a significant impact on my students in that she mentored me without knowing she was doing so. She has been a mentor, a leader, a role model, and a hero. I am honored to call her friend.

This will be my last Presidential Ponderings article as I am officially now your Past President. I have enjoyed my time as SDCTM's President and benefited from each of you! If I can be of assistance to any of you, please do not hesitate to contact me.

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O[†]Gorman High School
SDCTM President
SDCTM/SDSTA JPDC Treasurer & Registrar

Musings from Dan

The semester is winding down and I am sure that with the nicer weather the students are getting more than a little stir crazy. Here is to holding the reins to the end of the semester! Hopefully, as the semester winds down, you do have a chance to sit back and dwell on the positives from the year behind. You managed more than just a few snow days, your students progressed through their lessons, and your students had many of those great aha moments we all yearn for. Give yourself a pat on the back and say well done!

As you gear up for summer, I do hope you will consider some professional development in some shape or form. I would like to put a plug in for our summer symposium which will be held on July 11, 2023 at DWU from 8:00 a.m. to 4:00 p.m. Registration is \$60 for members and \$120 for nonmembers. The topic is going to be Building Thinking Classrooms presented by Chris Larson. The session will be capped at 30 and participants will get a free book, "Building Thinking Classrooms in Mathematics", by Peter Liljedahl. You can access the information from our SDCTM website. <http://sdctm.org/symposium/symposium.htm>

In closing, I do hope to see many of you at our summer symposium this summer. I also wish you all a great close to the semester and a very relaxing summer. Please know all your efforts on behalf of the state and our students is truly appreciated.

Sincerely,

A handwritten signature in black ink that reads "Dan VanPeursem".

President Elect-SDCTM
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"...I do hope to see many of you at our summer symposium this summer."



Higher Ed Viewpoint



Even though spring is trying to break through, winter seems to be hanging onto every moment it can. However, spring will come, the end of the school year is near, and summer is around the corner. Finally, you will have time to relax, renew, rejuvenate, and reflect.



Reflection allows us to think about what went well this year, what could be better, what changes we should make, and how we determine what those changes should be. In all of our reflections, we need to consider what works best for our students.

Professional development opportunities in the summer allow you to connect with other teachers in your district and across the state: teachers doing fabulous things, teachers who have tried new ideas, and teachers experiencing similar joys and frustrations. There are many professional development workshops for South Dakota teachers throughout this summer. The following is a sample of what you can find:



“Professional development opportunities in the summer allow you to connect with other teachers in your district and across the state...”

Fundamentals of Three-Dimensional Science Instruction & Biofilms. This virtual workshop is intended for SD K-12 educators wishing to build an understanding of the three dimensions of science teaching and learning. Participants will also learn about the curriculum unit “Stuck Like Glue — Stuck on You” and **receive a \$300 stipend for full participation on all 3 days.**



Dates/Times: June 20 - June 22 from 8:30 am to 4 pm MDT (9:30 am – 5 pm CDT)

Planning for Sense-Making in 3-D Instruction. This virtual workshop is specifically designed for educators who already possess a fundamental understanding of the three dimensions of science teaching and learning. Participants will learn about science and engineering research underway at universities across our state while experiencing and learning about a curriculum module around the current science research of biofilms. Participants will **receive a \$300 stipend for full participation on all 3 days.**



Dates/Times: July 11 - July 13 from 8:30 am to 4 pm MDT (9:30 am – 5 pm CDT)

SDCTM Symposium “Building Thinking Classrooms in Mathematics” In this workshop, teachers will learn how to implement the 14 practices Peter Liljedahl has identified to build your own thinking classroom. In addition, teachers will receive advice from colleagues already using some of these practices while learning about the research behind each approach.



Dates/Times: July 11, 2023, from 8 am to 4 pm CDT

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Higher Ed Viewpoint *continued*

Dakota Dreams: Experiencing STEM. This workshop allows teachers in grades 2-5 to experience integrated STEM activities. Teachers will use their curriculum, the SD standards, the Science & Engineering standards, and the Standards for Mathematical Practice to create classroom activities.



Dates/Times: West River Workshop: July 17 – July 21 at BHSU
East River Workshop: July 31 – August 4 at SDSU

Rest, enjoy the warm weather, reconnect with family and friends, read a book, ride a bike, or sit in the sun. But also, find time to learn about new techniques, ideas, and experiences that can enhance your classroom for your students and yourself.

Christine Larson
SDCTM Post-Secondary Liaison
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Avera

2023 SDCTM Summer Symposium



"Building Thinking Classrooms"

Learn about 14 practices that can transform your classroom. Peter Liljedahl's book "Building Thinking Classrooms in Mathematics, Grades K-12" describes 14 factors that emerged from research in over 40 classrooms. Implementing these practices can help you build a thinking classroom. Discover how and why these changes are so transformative. Participants will work in a professional learning community, with opportunities to hear from teachers that have successfully implemented many of these practices and to ask questions about that implementation.

Featured Presenter: Dr. Christine Larson

SDCTM Post Secondary Liaison & SDSU Math Professor
South Dakota State University

July 11th, 2023

8am-4pm

Dakota
Wesleyan
University
Room TBD

*Registration deadline in June 10, 2023

**Registration Fee: \$60 for members, \$120 for non-members

Lunch will not be provided.

Registration link:

<https://forms.gle/jLHunJObgpREjKS89>





9-12 Spotlight

MathMedic

The hottest new thing in our math department this semester is Math Medic. Have you checked it out yet? It is a great source for those engaging lesson introductions that get your class off to the right start. The lessons are designed with their Experience First, Formalize Later (EFFL) approach that allows students to dive right into a topic before you begin formal instruction. The lessons also include a place to take notes and a Check Your Understanding practice for the end of the lesson. Currently there are courses set up for Algebra 1, Geometry, Algebra 2, and Precalculus. In addition, there is Calc Medic for AP Calculus AB or BC and AP Precalculus, and a Stats Medic for introductory statistics or AP Statistics.

Math Medic was created by Lindsey Gallas, Luke Wilcox, and Sarah Stecher while teaching at East Kentwood High School in Michigan. The lessons and guidance are free to anyone. For a fee, there is an online homework and assessment platform for the Math Medic courses. For the AP courses, there are review courses for a fee.

If you are looking for a great way to engage students and refresh your teaching, give this resource a try.

Quick peak at the Experience First, Formalize Later introduction to the elimination method of solving linear equations. Taken from Math Medic Algebra 1, Unit 4, Day 7:



Gas Station Snacks



The best thing about a road trip is the gas stations snacks! See if you can use the customer purchases below to figure out the costs of various snacks at this gas station.

1. Two gas station purchases of Combos and packs of gum are shown.

a. What is the same about the two purchases? What is different?

$$\text{Candy} + \text{Gum} = 4.67$$

b. How much does a bag of Combos cost? How do you know?

$$\text{Candy} + \text{Candy} + \text{Gum} = 9.25$$

c. How much does a pack of gum cost?



“It is a great source for those engaging lesson introductions that get your class off to the right start.”

Jennifer Haar
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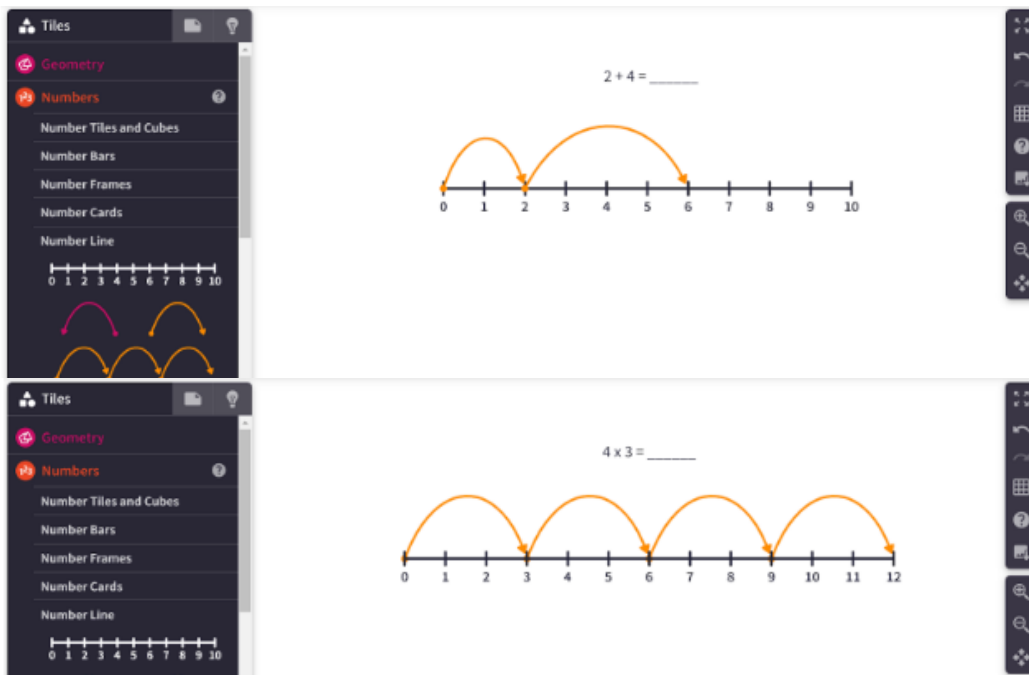
Mark's Thoughts

MATHIGON: Grades K-6 tips

Spring has finally arrived!

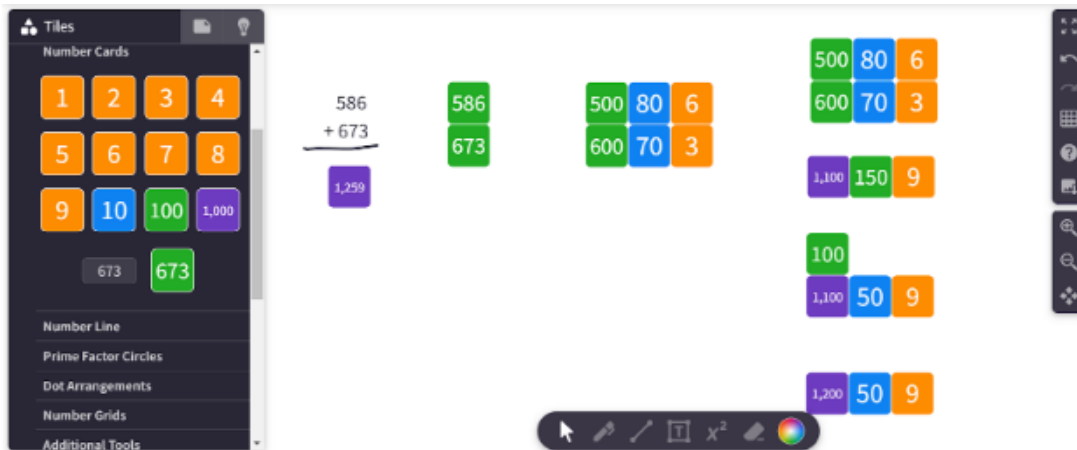
In the [previous Wahpe Woyaka pi newsletter](#), I shared a few of my favorite Mathigon (<https://mathigon.org/>) features for grades 6-12. In this edition, I'd like to focus on grades K-6.

1. In Polypad (<https://mathigon.org/polypad>), I really like the **number line** features to help students visualize various operations. My screens shots do not do justice to the neat functionality and how interactive the number lines are.



“I really like the number line features to help students visualize various operations.”

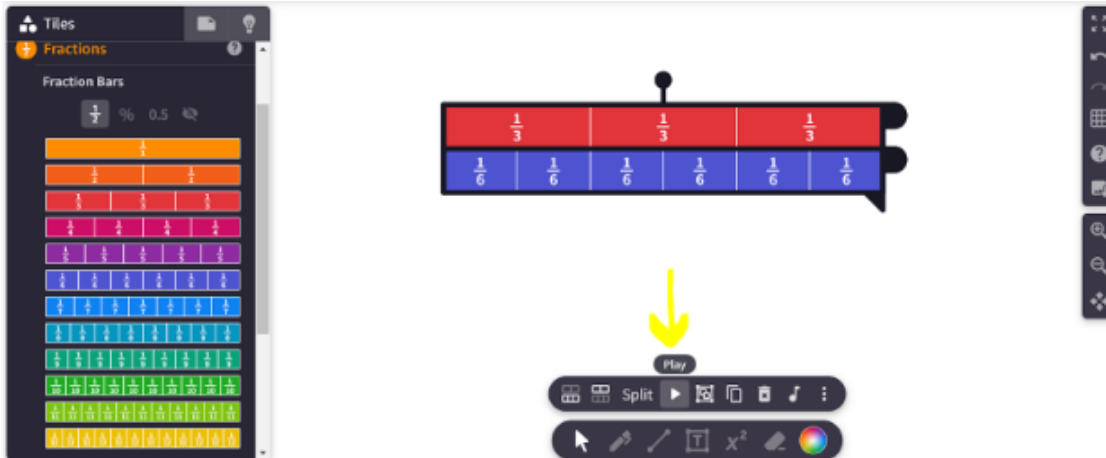
2. In Polypad (<https://mathigon.org/polypad>), I also love the **number cards**. In this screenshot, I tried to demonstrate how teachers can model three-digit addition problems using number cards. Check out this [quick video](#) I created to help talk you through the model.





Mark's Thoughts *continued*

- The last Polypad feature is one I want to learn a lot more about: **Fraction Bars**. I know there are really cool ways to model operations with fractions using these, but I can't say I'm an expert at it. If you want to see something super cool, I invite you to throw a couple of fraction bars on a blank Polypad, select them with the cursor to open the option menu, and press the "Play" button (highlighted below). You'll be in for an acoustic surprise!



As I continue to learn more about Mathigon, I will continue to share neat things I find. Keep in mind, Mathigon is free! For more info, visit <https://mathigon.org/learn>.

Mark Kreie
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Elementary Highlights

As the weather finally starts to warm up and it feels nice outside, the students start to get the summer itch and may be slightly less focused on schoolwork. This time of year is a great time to start incorporating even more games and manipulatives to engage the students and keep them learning, even when the sun is shining. Some of my favorite manipulatives for math include dice, cards, and dominoes. Dice are very common and easy to incorporate into any topic and playing cards seem to be a go to when playing a math game. So, I am going to focus on dominoes and share a few things I like to use them for.

Starting very basic with dominoes you can take the two sides of the domino and add, subtract, or multiply the numbers. I have domino sets up to double sixes, double nines, and even double twelves so depending on the level, you can differentiate using higher or lower numbered dominoes.

I also teach the students to look at the two sides as one number. For example, if I have a 2 on one side and a 6 on the other, I could make 26 or 62. This works out well to do greater than and less than using a marker board to draw the symbol, or play with a partner to see who gets the bigger number. Sometimes I will have students take 6 dominoes and put them in number order from least to greatest or greatest to least. Using the two-digit numbers, you can have them stack the dominoes and add or subtract the numbers. A good challenge is adding more than two numbers. The students are often excited to tell me they have added 4 and 5 dominos together. For higher levels, you can use two dominos across to make 4-digit numbers and then have them do the math.

Most recently I used dominoes to have my students show fractions. They chose a domino and then used manipulatives to show me what $1/6$ or $2/3$ may look like. They were excited with the task and since I teach 2nd grade and fractions are new, this generated a lot of conversation. They realized they should put the bigger number on the bottom as well as what $6/6$ would mean as a fraction. It was a good exploratory lesson and kept the students questioning.

Once you start looking at dominoes, you will start to see all the possibilities and hopefully come up with new games and ideas for your students. As the weather warms up outside, grab some dominoes and keep the students engaged with some hands-on math.

Jodi Neugebauer
SDCTM Elementary Liason
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“Some of my favorite manipulatives for math include dice, cards, and dominoes.”



Lesson Highlights

Slope Bingo

The classic game of Bingo using slopes.

1. Cut out the ordered pairs and shuffle before use. (see below)
2. Students create their own Bingo card using values provided. (see next page)

Notes: Not all numbers will be used on a card. Students can choose which numbers to use and which to leave off the card.

Students could use graph paper or the slope formula to determine the slopes.

Technically “undefined” is not a number. You might choose to discuss this with your students.

8.A.3.1. Students are able to describe and determine linear relationships.

Determine slope from a line or ordered pairs on a graph.

(0,0)	(1,4)	$m=4$	(-3,4)	(-9,8)	$m=-2/3$
(1,1)	(2,-3)	$m=-4$	(3,-2)	(-8,3)	$m=-3/5$
(3,1)	(-7,0)	$m=1/4$	(2,7)	(-3,4)	$m=3/5$
(-4,2)	(0,1)	$m=-1/4$	(-1,0)	(-3,-3)	$m=3/2$
(-6,0)	(-5,5)	$m=5$	(4,0)	(8,-6)	$m=-3/2$
(-1,6)	(1,0)	$m=-5$	(-5,4)	(8,-1)	$m=5/3$
(-3,-4)	(2,-3)	$m=1/5$	(0,-4)	(-6,6)	$m=-5/3$
(-4,-1)	(1,-2)	$m=-1/5$	(5,5)	(2,2)	$m=1$
(2,1)	(8,5)	$m=2/3$	(3,1)	(2,2)	$m=-1$
(-2,3)	(4,9)	$m=2$	(-3,1)	(0,2)	$m=1/3$
(0,0)	(4,4)	$m=1$	(1,-1)	(2,-4)	$m=-3$
(-6,3)	(-5,2)	$m=-1$	(4,-2)	(7,-3)	$m=-1/3$
(0,6)	(2,2)	$m=3$	(-1,-1)	(-2,-1)	$m=0$
(-3,-3)	(-6,-1)	$m=-2$	(-2,4)	(6,4)	$m=0$
(1,4)	(3,3)	$m=-1/2$	(-2,0)	(-2,-5)	$m=\text{undefined}$
(3,0)	(5,1)	$m=1/2$	(8,0)	(8,5)	$m=\text{undefined}$



“The classic game of Bingo using slopes.”



Lesson Highlights *continued*

Slope Bingo

Fill in each empty square with a number from the following list. You will not use every number. You get to choose which numbers to leave off your Bingo card.

- 1 -1 2 -2 $\frac{1}{2}$ $-\frac{1}{2}$ 3 $\frac{1}{3}$ -3 $-\frac{1}{3}$ 0 undefined
 $\frac{2}{3}$ $-\frac{2}{3}$ $\frac{3}{2}$ $-\frac{3}{2}$ $\frac{3}{5}$ $-\frac{3}{5}$ $\frac{5}{3}$ $-\frac{5}{3}$ 4 -4 $\frac{1}{4}$ $-\frac{1}{4}$
5 -5 $\frac{1}{5}$ $-\frac{1}{5}$

B	I	N	G	O	<input type="text"/>
		Free Space			



Presidential Award for Excellence in Mathematics and Science Teaching

Presidential Award for Excellence in Mathematics and Science Teaching 2023 South Dakota State-Level Finalists

2023 Mathematics Finalists

Brittany Green, a mathematics teacher from Brandon, SD has been teaching for 12 years. She is an Algebra I and Advanced Algebra teacher at Brandon Valley High School. Brittany graduated from South Dakota State University in 2009 with a Bachelor's degree in Mathematics with a specialization in education. Brittany was a state-level finalist for the PAEMST in 2021, has participated in the SD Mathematics and Science Leadership Program, is a member of the South Dakota Council of Teachers of Mathematics, and has been recognized as the 2023 South Dakota Outstanding Mathematics Teacher sponsored by Daktronics.



Allison Schmitz, a mathematics teacher from Mellette, SD has been teaching for 8 years. She is a teacher for grade 6 through Advanced Algebra at Northwestern Area School District. Allison graduated from Northern State University in 2013 with a Bachelor's degree in Mathematics and earned her Masters of Education degree in Curriculum and Instruction and Classroom Technology from Concordia University - Portland in 2014. She has participated in the SD Mathematics and Science Leadership Program, is a member of the South Dakota Education Association, the South Dakota Council of Teachers of Mathematics, and has presented sessions at the SD STEM Ed Conference.



Megan Wilson, a mathematics teacher from Forestburg, SD, has been teaching for 12 years. She is a teacher for Algebra, Geometry, Algebra 2, Trigonometry/Pre-Calculus, Business Math, Personal Finance, and Accounting at Sanborn Central. Megan graduated from Eastern New Mexico University in 2010 with a Bachelor's degree in Mathematics. She has participated in the SD Mathematics and Science Leadership Program and has presented sessions at the SD STEM Ed Conference.



2023 Science Finalists

Michelle Bartels, a science teacher from Hamlin School District, has been teaching for 22 years. She spent many years in the middle school and now is enjoying high school science. Michelle earned her bachelor's degree in teacher education from Mount Marty College in 2000 and her master's in Curriculum and Instruction from Black Hills State University in 2011. Since then, she has also completed the K-12 Math and Science Specialist Endorsements program at BHSU. For several years Michelle has been an active member of the SD Science Teaching Association, currently serving on the board as Past President and newsletter co-editor for the organization. She is a National Geographic Certified Educator and is an EdReports science content team member.



“Nominate a deserving teacher who exhibits a passion for the subject they teach...”

(continued p. 10)



PAEMST *continued*

Kristen Gonsoir, a science teacher from Groton Area High School, has taught 30 years. She currently teaches high school Physical Science and Chemistry. Kristen earned her bachelor's in Chemistry and Education in 1992, and her master's in Teaching and Learning in 2015, both from Northern State University. In 2019 she was a Japan-U.S. Fulbright program teacher. The program focused on utilizing technology to promote global citizenship with students. In 2022, she participated in a National Education Foundation Global Learning Fellowship. At the state level, Kristen has been involved with the DOE Mentor Teacher program and Science Standards Translations Team. She has received multiple awards while serving as her district's debate coach.



Landra Knodel, a science teacher with Irene-Wakonda Jr/Sr High School has taught 22 years. She is teaching 7th and 8th grade science along with high school Physical Science, Biology, Chemistry, and Human Anatomy. Landra graduated in 1999 from University of South Dakota with a bachelor's degree in Biology Education and in 2007 with a master's in Natural Science with an emphasis in Physics. She also completed the Science Specialist Endorsement through Black Hills State University in 2011. Landra's passion for science professional development includes leadership roles with SD EPSCoR and the SD Math and Science Leadership Program.



Presidential Award for Excellence in Mathematics and Science Teaching

The Presidential Award for Excellence in Mathematics and Science Teaching (PAEMST) is the highest recognition that a kindergarten through 12th grade mathematics or science teacher may receive for outstanding teaching in the United States. Since 1983, more than 5,200 teachers have been recognized for their contributions to mathematics and science education. Awardees serve as models for their colleagues, inspiration to their communities, and leaders in the improvement of mathematics and science education.

Presidential awardees receive a citation signed by the President of the United States, a trip to Washington DC to attend a series of recognition events and professional development opportunities, and a \$10,000 award from the National Science Foundation.

Anyone--principals, teachers, parents, students, or members of the general public--may nominate a teacher by completing the nomination form available on the PAEMST website. For more information, please visit www.paemst.org. The nomination window will be open this Fall to recognize K - 6th grade mathematics and science teachers. **Nominate a deserving teacher who exhibits a passion for the subject they teach; who approaches their work with creativity and imagination; and who strives daily to improve their individual teaching practice.**

If you have any questions, please contact:

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2021-2023

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