

Wahpe Woyaka pi

(Talking Leaf)

South Dakota Council Teachers of Mathematics Newsletter

Presidential Ponderings

One topic I would like us to ponder about for just a moment is the current state of math education in South Dakota in the area of filling needed vacancies. In viewing the South Dakota DOE website, one can see that in the 2021-2022 school year (most recent listed) there were 66.82 FTE math positions that were vacated, and of those, 4.01 were left unfilled. What is sadder is that this doesn't even account for the number of positions where the instructor is probably teaching outside of their expertise. School districts have a hard time recruiting high school math teachers and that is largely due to the small number of education majors our universities are graduating. We all know that part of it is the salaries, a large part of it is dealing with unruly students and parents, but a significant part of it is that our numbers of math majors in general has fallen over the last few years as well. At least at my university (USD) they have. For some reason, artificial intelligence in computer science, data analytics in business, and other recent hot areas seem to draw our best mathematicians away from the field of mathematics. I wish I had the answers of how to bring all these bright minds back into the fold, but I do appreciate all you can and are doing to promote the subject in your schools. Again, a hearty THANK YOU for all you do for our students and math education in the state.



TIME IS RUNNING OUT. That is the clear message I want to send to everyone reading this newsletter that still has not registered for the STEM ED conference. You can still register on sight and we do still hope to see you there. The conference leadership puts in a lot of time and effort for this conference each year and you will want to be sure to attend. The conference will be a time of renewal, a great chance to catch up with colleagues across the state and a time to meet new friends. I truly hope to see you in Huron on Feb. 1-3. You can find the schedules for Friday and Saturday sessions on our website. <http://www.sdctm.org/> Hurry and register today [2024 SD STEM Ed Registration](#)

Sincerely,

President-SDCTM
Dan.VanPeurse@usd.edu

Fall 2023-2024

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Calendar Reminders

<i>SD STEM Ed Conference</i>	Feb. 1-3
<i>PAEMST Application Deadline</i>	Feb. 6
<i>NCTM Regional Conference</i>	Feb. 7-9



6-8 Highlights

Welcome back! I don't know about you, but the last thing I want to do over Christmas break is work on, well, work. Yet, I spent my break reading math books! It is hard to believe that I found a math book so great that I wanted to read it even though I wanted nothing to do with school. Danica McKellar, who many may know from her work on *The Wonder Years* (I know her from all her Hallmark movies) also has a degree in Mathematics and is a coauthor of a mathematical physics theorem - that I don't understand at all!

McKellar is an advocate for math education, getting more girls interested in mathematics, and making math seem less scary. Right before Christmas, I picked up her book *Kiss My Math* and was instantly drawn in. I want to share with you her words of wisdom on integers. McKellar goes out of her way to make everything fun and easy to relate to. With this in mind, she renames integers "Mint-egers" and explains that positive numbers are like breath mints, and negative numbers are like Harry Potter jellybeans. The higher the value of the integer, the stronger the flavor. Then, she uses this language to explain number lines, absolute value, opposites, and even adding or subtracting integers. For example, subtracting a negative is similar to taking a bad taste out of your mouth, and adding a negative to a positive will cancel out some of the flavor leaving either bad or good depending which flavor was stronger. This whole concept was amazing to me, and while her books are aimed at preteen girls, there is a no reason boys wouldn't appreciate some of the explanations as well. In addition to *Kiss My Math*, she has written *The Times Machine* (multiplication facts), *Math Doesn't Suck* (middle school concepts), *Hot X* (Algebra), *Girls Get Curves* (Geometry), and a few children's books. I haven't read *Math Doesn't Suck* yet, but I hear that she shows factor trees as palm trees and circles the "PRIME-ates" at the bottom! I do caution you that she uses a sausage factory to explain functions, and I can't imagine talking about sausages in a room with middle school boys...

I think I will leave you with that lovely image of middle school boys giggling and wish you all good luck in the new year!

References: McKellar, D. (2009). *Kiss my math: Showing pre-algebra who's boss*. Penguin.

Allison Schmitz
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“McKellar goes out of her way to make everything fun and easy...”



Mark's Thoughts

Delta Math

Greetings!

DeltaMath is a digital math resource that I frequently use to supplement my algebra 2 curriculum. I want to share with you what exactly DeltaMath is, how I use it in my classroom, and other ways you could implement it in your building.

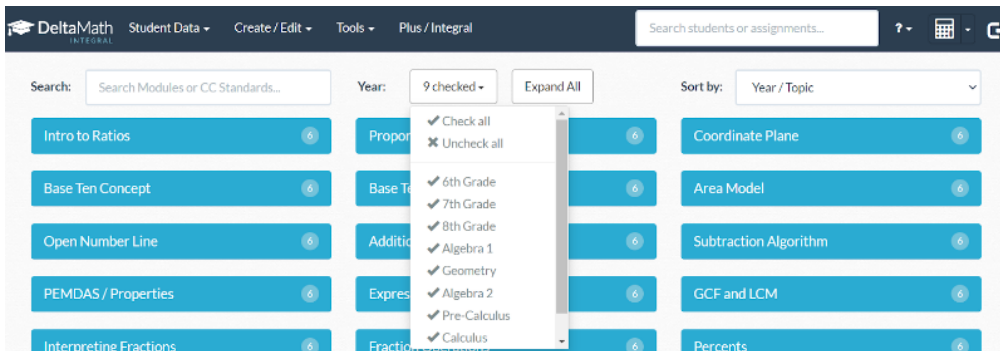
What is DeltaMath?

DeltaMath (www.deltamath.com) is a website designed by math teachers that is used by over 100,000 teachers and 4 million students. It currently supports grades 6-12, including calculus. I like to think of DeltaMath as a huge bank of questions, searchable by grade/course or by standard.

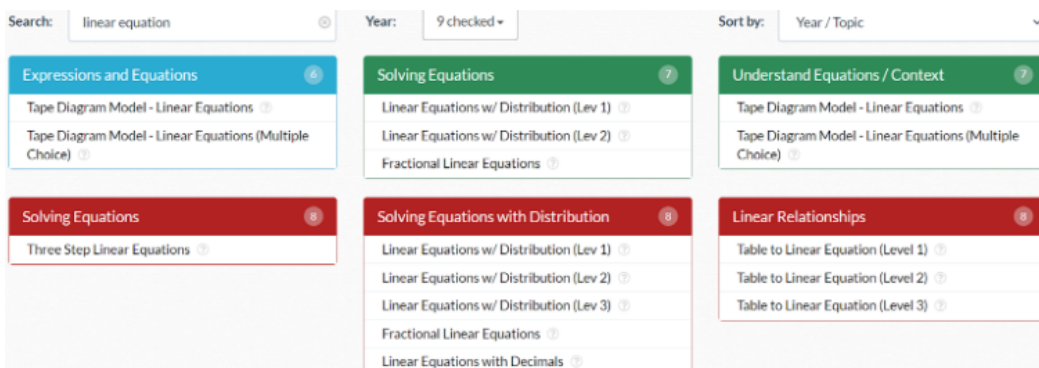
DeltaMath has three levels of teacher accounts:

DeltaMath Teacher	DeltaMath PLUS Individual Teacher	DeltaMath INTEGRAL Individual Teacher
FREE	\$95/teacher <small>23-24 School Year</small>	\$145/teacher <small>23-24 School Year</small>

The free version is a great place to begin exploring DeltaMath. Student accounts are free. Once you log into your account, you can search for topics by grade level, course, topic, or Common Core standard.



Depending on the skill and grade level, you may find a variety of options to choose from. For example, a search for "linear equation" yields results in many courses. (Note: grades/courses are identified by different colors. The icon on the top right of the module indicates the grade/course.) Also note that some of the skills are found in multiple classes / courses and some skills have multiple levels of difficulty.



“The free version is a great place to begin exploring DeltaMath.”



Mark's Thoughts (continued)

Teachers can preview the types of questions for each skill. The most common type of question is open ended, free response.

[Watch help video](#)

Solve.

$$2(6y + 3) = 18$$

Answer: $y =$

Submit Answer

Some questions are multiple choice.

[Watch help video](#) [Problem types](#)

At the beginning of spring, Addison planted a small sunflower in her backyard. The sunflower's height in inches, h , after w weeks, is given by the equation $h = 12 + 3.5w$. What is the meaning of the h -value when $w = 1$?

- The sunflower's final height
- The rate of change in the sunflower's height.
- The sunflower's height after 0 weeks.
- The sunflower's height after one week.

Submit Answer

And some questions allow teachers to select the problem type. For example, in this interpreting linear equations in context problem, the teacher can choose what they would like students to be asked to interpret.

[Watch help video](#) [Hide types](#)

Current type:

Interpret the y-value for given x-value

Similar Problem

- Interpret slope
- Interpret y-intercept
- Interpret the y-value for given x-value
- Interpret the x-value for given y-value

At the beginning of spring, Addison planted a small sunflower in her backyard. The sunflower's height in inches, h , after w weeks, is given by the equation $h = 12 + 3.5w$. What is the meaning of the h -value when $w = 1$?



Mark's Thoughts (continued)

There are occasionally questions that are “guided” and intended to help walk students through a solution method.

Watch help video [Problem types](#)

Fill in the missing values below one at a time to find the quotient when $2x^3 + 5x^2 - 18$ is divided by $2x - 3$.

	<input type="text"/>		
$2x$	$2x^3$		
-3			

How do I use DeltaMath?

I primarily use DeltaMath as a supplement to the skill development in my algebra 2 class. I find the skills that align with the unit we are in and create assignments for students to complete. Each assignment will typically have several different skills and I require students to complete different numbers of questions for each skill.

Teachers can customize a lot of settings for each assignment, including how students are graded. I set the assignments so that students need to meet a goal number for each skill. For each correct answer, students earn 1 point. To deter students from simply guessing, I set the assignment so that each incorrect answer is minus one point.

For the student below, notice that they got the first two questions correct (score = 2), missed the third question (score = 1) and then completed three more questions (score = 4) to meet the required target.

Due Date	Assignment Title	Grade	Complete
Nov 01, 11:00 pm	AA2 - Complex Numbers	100%	100%
Add/Subtract Complex Numbers	4/4	✓ ✓ ✗ ✓ ✓ ✓ ?	
Multiply Complex Numbers	3/3	✓ ✓ ✓	
Complex Numbers to Powers	3/3	✓ ✓ ✓	
Complex Roots (Level 1)	2/2	✓ ✓	
Complex Roots (Level 2)	2/2	✓ ✓ ?	
Complex Roots (Level 3)	2/2	✗ ✗ ✓ ✓	

[reset assignment](#)

Also notice that for the last skill (complex roots level 3), the student missed the first two questions (score = 0), but then got the next two correct to meet the required target.

I feel this setup is a strong form of differentiation and meets the needs of individual students. Students who need more practice to master the skills are provided with that opportunity without negatively affecting their grade.



Mark's Thoughts (continued)

Teachers can access a lot of information and data about the student's progress. Teachers can view the percentage of completion for each skill, how long students have worked on the assignment, and how many students watched the help videos.

The Integral paid version integrates beautifully with Canvas, which helps me save time when it comes to grading.

Grade	Complete	Add/Subtract Complex Numbers	Multiply Complex Numbers	Complex Numbers to Powers	Complex Roots (Level 1)	Complex Roots (Level 2)	Complex Roots (Level 3)	Time Estimate [?]	Video Plays	Last Improvement	Last Attempt
92.7%	92.7%	95%	95%	93%	93%	92%	88%	0 hr 38 min	1	Last Improvement	Last Attempt
100%	100%	4/4	3/3	3/3	2/2	2/2	2/2	0 hr 52 min	0	n/a	Nov 15, 04:15 pm
100%	100%	4/4	3/3	3/3	2/2	2/2	2/2	0 hr 20 min	0	Oct 29, 09:50 am	Oct 29, 09:50 am
100%	100%	4/4	3/3	3/3	2/2	2/2	2/2	0 hr 39 min	0	Nov 01, 10:29 am	Nov 01, 10:29 am
100%	100%	4/4	3/3	3/3	2/2	2/2	2/2	1 hr 15 min	0	Nov 07, 11:16 am	Nov 07, 11:16 am

Also note that students can complete more problems than required if they choose to do so. I have several students who will go back and use the assignments as a review for the assessment by completing more problems. I also have created review assignments that are not required for students who would like more practice before taking the assessment.

Other ways you can use DeltaMath...

In the past, I have found DeltaMath very useful to review skills from previous courses. At the start of the year, I have created an assignment that requires students to complete one problem from the essential skills found in previous courses. For example, the first assignment I give my algebra 2 students is a review of skills aligned to linear equations.

At Brookings, we also use DeltaMath in our credit recovery program. It is very easy to create pre-tests, post-tests, and customized skill lists for individual students in a small group setting. The YouTube videos and example problems are very useful for students to receive content if needed. Students can work at their own pace efficiently and remotely if needed.

I have also seen examples of teachers using DeltaMath in an enrichment setting to challenge students with deeper content than they provide in their regular curriculum. Again, it would be very easy to create skill lists to challenge students.

I hope this gives you a little taste of what DeltaMath has to offer. If you are at the SD STEM ED conference and have any questions about DeltaMath, please don't hesitate to find me and ask!

Mark Kreie
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A Word from Stephanie

SDCTM Social Media Presence

You can follow SDCTM on the following social media platforms:



Instagram: SDCTM_Math



Facebook: South Dakota Teachers of Mathematics



X (Twitter): @SouthDakotaCTM



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. What did the mathematicians do when it snowed?
2. What is a math teacher’s favorite dessert?
3. What number can’t stay in its place?
4. What was the swimmer’s favorite kind of mathematics?
5. What was the math professor’s favorite snake?
6. What did the triangle say to the circle?
7. I am an odd number. When you take away one letter, I become even. What am I?
8. Ever notice what’s odd?

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



NCTM Representative Tips

This year the NCTM Regional Conference and Exposition is in Seattle from February 7-9. The week right after the SD Stem Conference. There are over 250 sessions at the conference that will focus on grades 8-10 and 10-12. You will walk away with tools and resources that you can implement into your classroom right away. Regular registration ends on February 7th, with an increase in price for on-sight registration during the conference.

The NCTM Annual Meeting and Exposition is located in Chicago, IL on September 25-28, 2024. That sounds like a long way off, but it will be here before you know it.

If you don't like to travel, the South Dakota Stem Conference is in Huron SD, on Feb 1-3, 2024. Graham Fletcher will be the Banquet Speaker. Fletcher is continually advocating for elementary mathematics. He is a coauthor of "Building Fact Fluency: A toolkit for Addition and Subtraction." The STEM Conference is a joint conference with the South Dakota Teachers Association (SDST) and the South Dakota Council of Teachers of Mathematics (SDCTM). There will be workshops available for all student groups, whether you teach elementary, or high school, there is something there for you.

Susan Gilkerson
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“You will walk away with tools and resources that you can implement into your classroom right away.”



MCM Answers

1. They made snow angles
2. Pi
3. A roamin' numeral
4. Dive-ision
5. A Pi-thon
6. You're so pointless!
7. Seven
8. Every other number!





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**.

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.”



2021-2023

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