

Welcome to MCTM's e-Newsletter!

MI Math Community April 2021



Michigan
Council of
Teachers of
Mathematics

Best viewed on a desktop or go [HERE](#) to see as webpage.

Worthy of Scrolling: Geo Proofs with Uno Cards & Lower El Geometry Activities



MI Math Community

MCTM:
Supporting mathematics educators in
Michigan and beyond.

Top Five Ways to Prepare your Kids (and Yourself) for the AP Test

MCTM is fortunate to have an experienced AP exam reader and former MCTM Board Member **Ruth Miller** share information about the various AP math tests with us. Ruth presents and trains nationally and we are grateful for her willingness to contribute to our community. Whether you are a new to teaching AP classes or a veteran, these top five ways are valuable. From information about **when and how to review** to Ruth's absolute **go-to resources** for AP Calculus to **spot-on test taking tips** for students, this article is a must read for those teaching AP classes. Thank you Ruth!



Top 5 Ways to
Prepare for the
AP Test

Disciplinary Literacy Essentials: Mathematics

Text is Not a “4-Letter Word” in Mathematics!

Ask a group of mathematics educators to sign up for professional learning on teaching students to access and create text, and you might just see them rapidly volunteer to attend online bloodborne pathogen and FERPA training instead.

Text is not to be avoided in mathematics, but to be embraced! Can you imagine not using **symbolic forms** like **equations** and **individual symbols** (including $,$ ∞ , $@$, and \wedge)? We would regress back to the 1300s when mathematics was expressed nearly completely in words! What about **graphing on the coordinate plane**? Whether graphing **systems, inequalities, functions, data, or geometric figures**, these pictures convey ideas rapidly instead of writing 1,000 words or more. Imagine making a statistical presentation without the use of **PowerPoint or Google Slides**, unable to share **data tables, scatterplots, or regression lines or curves**? And all those **videos** students have been watching during the pandemic? Imagine those without the **animated graphics, video footage, still photos, pictures and diagrams**, and the **voice-over to narrate** in mathematical language key points. Some students might have even heard or collected **sounds** to analyze mathematically (anyone got a tuning fork or some temperature-sensitive crickets?).

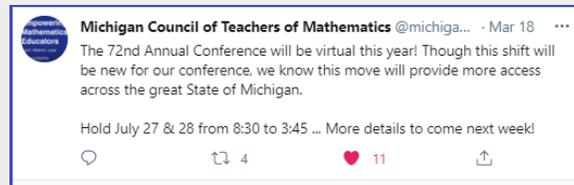
Whether we intend to or not, we use **disciplinary literacy** (mathematics-specific ways of thinking and communicating) - every moment while we are teaching. To begin to become more intentional practitioners of disciplinary literacy strategies, we first must recognize mathematical text in all its forms. Then we plan to explicitly teach what we (as the local mathematics experts) know about making sense of it and creating it to our students (all of whom are novices or apprentices at mathematics). We make explicit this “hidden curriculum” of our classes that so many students catch only bits and pieces of, which then hinders their mathematical understanding.

“But wait! How would I do this? Give me examples! You can’t leave now!” Stay tuned for the May and June editions for examples of manageable ways to identify and prepare to teach mathematical text, plus ways and to have students access and create text. In the meantime, read the [Math section](#) of “Michigan’s Essential Instructional Practices for Disciplinary Literacy, Grades 6-12”. Visit the [Home page for Michigan’s Disciplinary Literacy project](#). Check out the [upcoming professional learning](#), and [sign up for the newsletter](#), read the [December blog \(math!\)](#), and find other DL news.

Kathy Berry, Immediate Past-President, MCTM kathy.berry@monroeisd.us

Thinking about warmer weather? We are too!

We are planning for the return of our Annual Institute & Conference event!



For more details and information, visit:

[2021 Virtual Conference](#)

Next Session: April 15, 2021 7:00 - 8:30 p.m.

Register for April's Session Here!

#EmpoweringMathEd Series MARCH

Dr. AJ Edson and Yvonne Grant from Michigan State University lead the March session on Equitable Instructional Practices using a Pi Theme. The PDF of their slides can be accessed at the link below. They capitalized on Pi Day with a focus on engaging tasks that incorporated technology while discussing teaching practices and equity. Participants had valuable discussions around the role of mathematical understanding and equitable practices the sample tasks afford.

Initial Challenge

- Find as many different ways as you can to find the area of each circle.
- Record the size, diameter, and area in the table.
- Examine the data in the table and your strategies for finding the area. Describe any patterns you found for finding the area of a circle.



Size	Diameter (in.)	Radius (in.)	Area (in. ²)
Small			
Medium			
Large			

© 2021 Connected Mathematics Project at Michigan State University. Do not copy, share, or duplicate without permission.

#EmpoweredMathEd March

Join us for April and May's events!

April 15th



Dr. Rochelle Gutierrez
University of Illinois

Rehumanizing Mathematics

May 17th



Dr. Kris Childs & Ja'Lise Hammond
U of Central Florida

Detracking as an Equi Practice

Focus on: Standards of Mathematical Practices

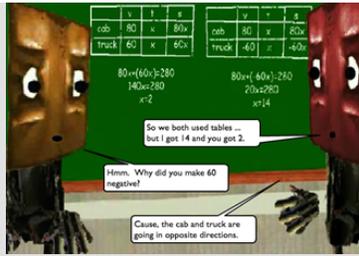
This our series that focuses on the SMPs across grade levels. We are coordinating with Professor of Education and Mathematics [Patricio Herbst](#) and Assistant Research Scientist [Amanda Milewski](#) from the University of Michigan to bring *MI Math Community* readers information and opportunities around the Standards of Mathematical Practices. District math specialists and curriculum leaders are encouraged to reach out to discuss ways of providing professional development to larger groups of teachers.



SMP 3: Construct Viable Arguments & Critique the Reasoning of Others

The Common Core State Standards for Mathematical Practice #4 states that students should learn to "model with mathematics". In this module, participants will have the opportunity to engage with an instructional scenario drawn from the secondary algebra curriculum. Specifically, participants will observe, annotate, and read other participants' annotations of a scenario in which students are working on a moving car problem where they are asked to determine when two cars moving in opposite directions meet. In the scenario, students disagree on the answer and reconcile their different modes of reasoning by "identifying important quantities in a practical situation and map their relationships using such tools as diagrams." After considering various ways the teacher could support SMP #4, participants will have the opportunity to try implementing the SMP with their own students and receive feedback from an online facilitator.

The course will award 5 SCECHs upon completion. Visit <https://lessonsketch.catalog.instructure.com/> to enroll for \$75 (use the code MCTM1).



There is a difference between modeling THE mathematics and modeling WITH mathematics. ("[Digging Deeper into SMP4](#)") Perhaps the post will make for a good discussion with fellow colleagues. The image below would be a good conversation starter.

Item Types Frequently Mistaken for Modeling Mathematics:

- 1) A 500 gallon fish tanks is emptied at a rate of 20 gallons per minute. Sketch a graph to model this scenario.
- 2) Use an array to model the following multiplication problem:
 $5 \times 7 = \underline{\quad}$

Example of Modeling with Mathematics

- 1) Your Aunt Jane wants to host a party for 18 people. She wants everybody to sit at the same rectangular table. Each person needs 2 feet of space at the table to sit and eat comfortably. Aunt Jane is asking for your help to design the table.
 - a) What would be the perimeter of the table?
 - b) What dimensions could you use for the design of the table?

The [Chasing Einstein Challenge](#) is a 9-week activity for 3rd-12th grade students designed to help them become creative and persistent problem solvers. Click on the image below to go to the video or click [HERE](#). These materials are free for classroom teachers to use!



[Click here](#) to check out our latest blog from Jason Gauthier, on High Quality Math Instruction. He follows up his [previous posts](#) by making the connection to and naming the importance of fostering mathematical agency, identity, and authority in the classroom. He says this "is what makes teaching mathematics effectively so challenging—and so rewarding when we do it well." [Click here](#) to read this powerful and inspiring post in its entirety!

Kelli VanSetters, MCTM Membership Chair

[Visit Our Blog Page](#)

Writing Assessments:

"What else do you know about the topic that I didn't ask you about?"

Teacher **Julie Arsenault** shared this in the FB group Teacher2Teacher (edited for length):

"This year, I changed my assessments by adding a piece of paper at the end, asking 'What else do you know about the topic, that I didn't ask you about?' Another teacher suggested this idea online.

Answering the question is completely optional, and when students do show more understanding on the sheet than they did on the assessment, I'll point it out to them. Afterward, I'll follow up about how to recognize and answer test questions asked in different ways. While it's great that they've shown me their learning, they won't always have a chance to answer questions in an open-ended way, and I want them to succeed when they encounter assessment-style questions in the future.

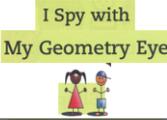
I love what this change has done. This strategy has made my assessments more inclusive. It helps me communicate to my students: When I assess your understanding, I'm looking for what you DO know."

Responses also indicated that it adding this question might also help teachers to examine the wording on their questions and revise. Others pondered the question of altering the student's grade to reflect their understanding. Another example of a community of educators pooling their knowledge/experiences to help each other.

Adventures with Mathematics Activities: Focus LowerEI Geometry

An MCTM initiative created a series of books called **Adventures with Mathematics**, designed for students as summer activities but can easily be used in the classroom -- F2F or for remote learners. Here are the two activities we are highlighting this month. They are free of charge on the Publications page of the MCTM website. Are you a member? We are working on making all 12 books accessible for members for FREE!

[Link to Publications Page](#)

Grade Level	Activity	Description
Climbing from Kindergarten to Grade 1		Created by Laura Philips, this activity has students doing a Geometry Walk to identify shapes. It could be easily done at home -- inside or outside and has a pictograph option.
Climbing from Grade 2 to Grade 3		Marge Friar has designed an activity that has students designing rectangular gardens using repeated addition in a game for two players. Game boards are provided.

For the Love of Math..



[Link to Po-Shen Loh's Webpage](#)

"I've recently been thinking about how to explain school math concepts in more thoughtful and interesting ways, while creating my [Daily Challenge](#) lessons. One night in September, while brainstorming different ways to think about the quadratic formula, I came up with a simple way to solve quadratic equations that I had never seen before. I was very surprised, as this method was easier to understand than what is typically written in textbooks. Adding this technique as a standard method would directly improve the learning experience for anyone trying to understand this topic, which is part of the regular mathematical curriculum everywhere in the world." Po-Shen Loh

Interested in reading [more](#)? Click on the image to watch the video on YouTube.

Free Resources Suggested by MiMC Readers:



A MI Math Community Reader suggested we share this Lesson from GeometryCoach.com on introducing students to proofs using Uno[®] cards. There is a free download of the activity [HERE](#) that includes a PowerPoint presentation, student activity, and digital Uno[®] card images.

Have a resource or lesson to share? Email Publications@mictm.org for it to be considered by the Publications Committee.



Who has been a mentor to you? To whom have YOU been a mentor?

We would like to give our Community an opportunity to acknowledge the mentors in their teaching life. These are the people who encouraged, inspired, and supported you in this complex journey of being an educator. Send your story (and a picture if possible) to publications@mictm.org.

Welcome to **MI Math Community!** One of MCTM's renewed initiatives is a monthly e-newsletter to share information about mathematics, mathematics education, and the happenings of MCTM.

Have an idea or topic you'd like to see included? Have a short article to submit for publication consideration? Want to give feedback? Please email MCTM Publications Director and MI Math Community Editor **Christine Kincaid Dewey** at Publications@mictm.org. Look for the e-newsletter to develop and grow over time based on member input.

This message has been sent to you {Organization Name}.

If you no longer want to receive these letters, you can [unsubscribe](#) at any time

Contact the e-Newsletter editor at Publications@mictm.org