Welcome to MCTM's e-Newsletter!

MI Math Community
May 2021

Michigan Council of Teachers of Mathematics

Best viewed on a desktop or go HERE to see as webpage.

See the end for: Number Sense Progression TK-12 & Same but Different Math

Michigan Teacher Elected NCTM President-Elect

Congratulations to Michigan's -- and MCTM's -- own **Kevin Dykema**, middle school math teacher at Mattawan Middle School in Mattawan Consolidated School (southwest Michigan). In addition to his responsibilities at school, Kevin has played a pivotal role in MCTM over the years, serving as conference chair for 7 years and starting the MCTM Book Study. His sessions have always been in high demand at conferences across the state as well! Kevin was kind enough to spend a little time talking with *MI Math Community*'s editor. Here is part of our conversation:

You're a classroom teacher. What is one take-away from the last year of teaching that you will incorporate going forward?

Good question! A lot of things! My district mandated short video explanations of key concepts to be posted online for students. After rich conversations in class, these videos provide a quick summary for those students who need to go back and hear something a 2nd, 3rd, or 4th time. I will continue this as it provides extra support for students on the big, key ideas.

You are the first NCTM President-Elect that is a current classroom teacher in many years. (In fact, I really can't remember the last time the NCTM President WAS a sitting classroom teacher.) How do you think this will influence your leadership?

I'm hoping it helps teachers to get actively engaged in the organization and pursue an active role in leadership. It's not just an organization for district, county, or higher educational levels. It's an organization that is passionate about meeting the needs of teachers and helping teachers meet the needs of their students.

What prompted you to get involved in math professional organizations?

Shortly after I received my master's degree, I realized the onus is on me to grow professionally and I cannot just rely on my district PD. If I want to continue to grow as a math educator and continue to develop strategies to reach each and every student in math, then I really need to take on the responsibility myself to join professional organizations. When I started to get involved, I realized, "Oh, this is kind of fun!" Then you start to realize that you have an impact greater than just your classroom.

Joining a professional organize is something that professionals do. Think of doctors, lawyers, and dentists. It's a great way to network and learn new skills that ultimately help each and every student in your classroom to learn.

Looking forward, what are your primary priorities for your time as NCTM President-Elect and President?

- Focus on giving classroom teachers the tools they need to provide equitable, high-quality mathematics education in their classrooms every day. Work to provide resources, conversation, community, and training that expands on the nine equitable mathematics teaching practices laid out by Bartell, Wagner and colleagues in the 2017 *Journal for Research in Mathematics Education*. *[To be addressed in a future MI Math Community issue!]*
- Increase member awareness of the advocacy role that NCTM takes on Capitol Hill and at the state level on behalf of students and educators, and therefore have mathematics educators see the value of membership. Continue to help people see why they should spend their money on membership.

Disciplinary Literacy Essentials: Mathematics

Growing Our Intentionality with Disciplinary Literacy

In this series in April, I stated, "whether we intend to or not, we use disciplinary literacy every moment while we are teaching". This month, we begin thinking about how we might grow our practice and our intentionality in recognizing and using disciplinary literacy (DL) in mathematics teaching and learning. As promised, I'll share a practical example of how one might begin growing more intentional practice in DL.

In the MAISA GELN document, "Essential Instructional Practices for Disciplinary Literacy in the Secondary Classroom" , Disciplinary Literacy Essential (DLE) #1 points us to engaging students in "problem-based instruction". That's a great fit with recommended mathematics teaching and learning practices. Reading all of DLE #1, we are encouraged to engage students in inquiry into problems large and small, abstract and applied, theoretical and relevant to their lives and communities. Included in these inquiry problems are many "cognitively-demanding mathematical tasks" – problems which prompt deeper mathematical thinking and connection-making than provoking just an algorithmic or rote response. Some inquiry tasks can take students days (weeks? months?) to explore, understand, model, and present findings. Others take just a few minutes. Since we have just a few column-inches today, **I'll select a short task and use an inquiry approach in an article on the MCTM Publications Page**.

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

Full Article + Video

Thinking about warmer weather? We are too!

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

Our annual conference is going virtual on July 27 & 28, 2021.

Interested in attending this year's conference? Register here and receive early bird pricing!

This year's conference will provide sessions and experiences in four strands on:

- Effective Teaching Practices
- Building Knowledge for Teaching
- Teachers as Leaders & Change Agents
- Creating Inclusive Spaces & Promoting Social Justice

For more details and information, visit:

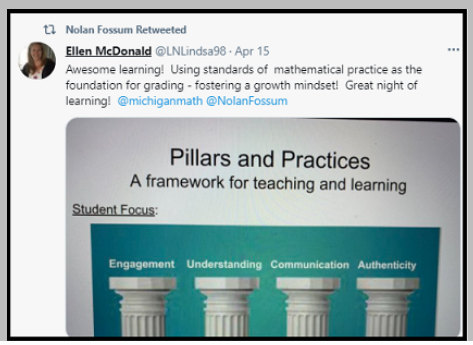
2021 Virtual Conference

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

Register for May's Session Here!

#EmpoweringMathEd Series APRIL

Dr. Shelbi Cole (Student Achievement Partners) @ShelbiCole1 and Nolan Fossum @NolanFossum led a session about grading for equity.



About A Pathway to Equitable Math Instruction Toolkit

"Racism isn't all about individual acts of prejudice, whether deliberate or accidental. It's also about systems—rooted in history and infused in institutions, policies, and culture—that benefit White people and hurt people of color. **Anti-racist education is about understanding and unraveling those systems so that all students can thrive.** To do so, we must be open to learning how our communities, schools, and classrooms could be affected by systemic racism, regardless of individuals' good intentions.

We know that many teachers recognize the ways systemic racism plays out in our school systems and want to learn new ways to approach their teaching. **The toolkit provides many 'onramps' to support teachers on this journey.**"

https://equitablemath.org/

May 17th

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

Detracking as an Equi
Practice

Join us for our final event of this school year!

PDF: A Pathway to Equitable Mathematics Instruction

PARTNERS IN PRACTICE:

SPONSORED BY: TEXAS INSTRUMENTS

Catalyzing Change and Focus in High School

Does the scenario below sound familiar? Wondering what YOU can do to help spur change and focus in high school mathematics curriculum? Click the link to the PDF below or go to our Publications website page to learn more of Joanie's journey and what individual teachers can do.

For nearly twenty years, I had a similar conversation every time I met someone new. It would go something like this:

New Friend: "What do you do for a living?"
Me: "I'm a teacher."
New Friend: "What grade?"
Me: "High School."
New Friend: "What subject?"
Me: "Math."
New Friend: "Oh my goodness, I hated math! I was fine until fractions (or variables or algebra or geometry) came along. You must be a genius. I can't imagine teaching math, and to teenagers, no less!"

Although I definitely don't consider myself a genius, I do understand that growing up enjoying and feeling successful in math class was not the norm. And truth be told, my biggest motivation to become a math teacher actually arose from the struggles I experienced taking calculus in college, when I realized for the first time that what I did well – memorize and follow someone else's computation steps to arrive at a correct answer fairly quickly -- was not all there was to mathematical success. I needed to truly understand what was going on behind all of those procedures in order to be successful in college-level math, and I wanted to create those "ah ha" experiences for my students much sooner than I had them. So, I became a math teacher.

Joanie Funderburk, Strategic Alliance Director for Texas Instruments' Educational Technology Division

Full Article: Catalyzing Change & Focus in High School

NCTM Key Recommendations for Catalyzing Change in School Mathematics (NCTM 2018)

Broaden the Purposes of Learning Mathematics	Each and every student should learn the Essential Concepts in order to expand professional opportunities; understand and critique the world; and experience the wonder, joy, and beauty of mathematics.
Create Equitable Structures in Mathematics	High school mathematics should discontinue the practice of tracking teachers as well as the practice of tracking students into qualitatively different of dead-end course pathways.
Implement Equitable Mathematics Instruction	Classroom instruction should be consistent with research-informed and equitable teaching practices
Develop Deep Mathematical Understanding	High schools should offer continuous four-year mathematics pathways with all students studying mathematics each year, including two to three years of mathematics in a common shared pathway focusing on the Essential Concepts, to ensure the highest-quality mathematics education for all students.

About Texas Instruments Education Technology

For more than 30 years, TI has been an active member of classrooms around the world, empowering teachers, and inspiring students to succeed in mathematics and science. Through our calculators, coaching and classroom resources, TI Education Technology is transforming the way teachers teach and students learn STEM (science, technology, engineering, and mathematics) subjects. With our award-winning products, engaging lessons, real-time assessment and top-notch professional development, TI is leading the way in mathematics and science education.

Watch a video about how TI technology inspires students to succeed in the classroom, college, and into their careers.

http://education.ti.com
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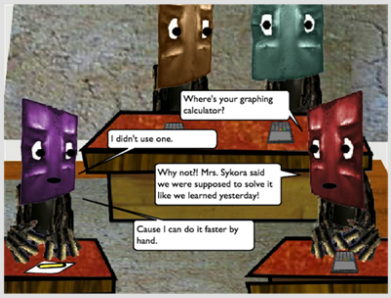
Focus on:
Standards of Mathematical Practices

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 5: Use Appropriate Tools Strategically

The Common Core State Standards for Mathematical Practice #5 states that students should learn to "use appropriate tools strategically". 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 solving a linear equation. In the scenario, students disagree on what tools to use to find a solution, and come to multiple perspectives on how to determine a solution. After considering various ways the teacher could support SMP #5 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).



On a blog post entitled "Three Ways to Use Appropriate Tools Strategically," Jeff Todd discusses **physical, cognitive, and software tools for K-8**. He also includes a tip sheet with examples of tools teachers can put into practice to teach certain topics by grade level.

West TN PBS has a module that explores SMP #5 in a series of four short videos include three activities (4-6, Middle School, and Algebra I) provided as PDFs. Developed by the EDC, Inc., a lesson on Creating a Polynomial Function to Fit a Table, appropriate for **high school** students, involves students choosing appropriate tools to create functions.

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!

Call for Speakers:

7th Annual Conference
Mathematics: Reaching All Learners Together

The **Michigan Council for Exceptional Children (MCEC)** and the **Michigan Council of Teachers of Mathematics (MCTM)**, in conjunction with **Alt+Shift**, seek presenters for their 7th annual joint conference ***Mathematics: Reaching All Learners Together.***

What is it?

This virtual conference is designed to increase collaboration and shared learning between general and special education math teachers. Collaboration occurs at all levels including the planning committee, session presenters, and attendees. Participants learn about strategies, tools, and techniques that aid teaching and learning of math for students with IEPs.

When and where is it?

As the conference will be virtual, sessions will be pre-recorded and available for attendee viewing from October 18-29, 2021. Sessions should be approximately 30 minutes in length and should be submitted by October 11, 2021. More details will follow if your session is accepted. Additionally, presenters should be available for a web-based 30 minute question and answer session on October 25 between 3:00-6:30 (a schedule will be created for this).

Why should I present?

Both general and special educators are discovering and creating ways to increase math achievement for students with IEPs. Solutions exist at large systems levels like creating opportunities to collaborate or improve communication, and also exist at the personal level, like aligning instructional strategies to the needs of individual students.

Presenting would be a great way for you and your colleague(s) to model collaboration and help support other teachers who want to improve. Presenters are also offered a discounted rate for the conference.

What could I present?

If you are using or supporting instruction that is having a positive effect on students, including those in inclusive environments, resource rooms, self-contained rooms, and center-based programs, please consider submitting a proposal to share those ideas with others.

Topics could include, but are not limited to:

- Co-teaching strategies
- Instructional strategies
- Concrete-Representational-Abstract models for math content
- Intervention tools
- Assessment tools
- Assistive technology supports

How do I submit a proposal?

Submit online: Proposal form
Due Date: June 15th

Questions?
Please contact Kevin Dykema at kdykema@mattawanschools.org

Conference Flyer

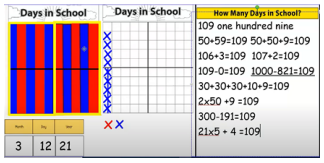
DACTM: Teacher Next Door
1st Grade Classroom Number Routine

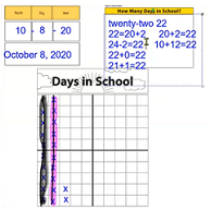
Detroit Area Council of Teachers of Mathematics (DACTM) launched a new series this school year. They call the series Teacher Next Door. This series works to showcase the story of one teacher and their experience with implementing a routine, idea or resource into their classroom. We all know the importance of collaboration among colleagues, this series is meant to provide a forum for educators to learn and grow from each other. In the brief one-hour sessions, the **Teacher Next Door** spends about 15 minutes sharing their story. We then engage participants in conversation around the teaching practice. Participants are often given time in breakout rooms to engage with colleagues from different districts to imagine and discuss how to implement the practice into their own setting. This series has been offered for free to educators in the live session. The sessions are recorded and will be posted on the DACTM website for members to view.

We are PROUD of Southeast Michigan educators and have enjoyed showcasing teachers and building a community of educators who continue to learn and deepen their practice through collegial conversations.

Our latest Teacher Next Door showcased **Amanda Goedge**, a first-grade teacher from **Chippewa Valley Schools in Macomb Township**. Amanda shared a routine that she facilitates daily with her students that connects the number of days in school to different representations of that number. Amanda showcased virtual routines from the 22nd and 109th days of school. The growth in student thinking over that time was celebrated among the participants.

"The Days in School Routine is the students' and my favorite part of the day. It is a time to listen to each other think, try out new ideas, and celebrate each day that we have been together. The routine also provides an opportunity to build community within the classroom and establish trust. The daily repetition offers students who struggle extra time to understand concepts while allowing those that need extension a chance to seek out patterns and relationships. If allowed to, my students would generate and play with equations all morning." Amanda Goedge,1st Grade Teacher



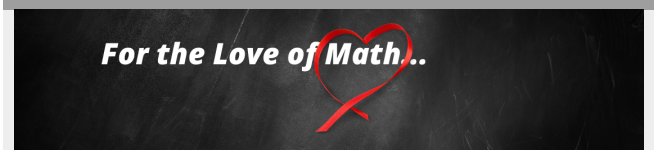


Adventures with Mathematics Activities: Focus Middle School

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. Both would make a nice addition to end-of-year plans! They are free of charge on the Publications page of the MCTM website. We are working on making all 12 books accessible for members for FREE!

Link to Publications Page

Grade Level	Activity	Description
Climbing from Grade 7 to Grade 8	Beautiful Bracelets 	By Danielle Poll, this activity uses algebra and measurement. Students can make friendship bracelets, gather data, and analyze the result to predict the length of string needed to make the right size bracelet.
Climbing from Grade 8 to Algebra I	GeoArt 	Created by Charlene Beckman, this unique activity explores geometric transformations through tessellations. Use the coordinate plane to analyze and create. Optional technology piece.



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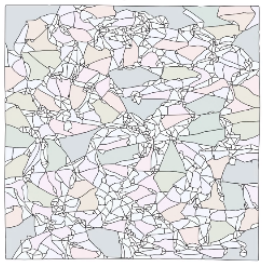


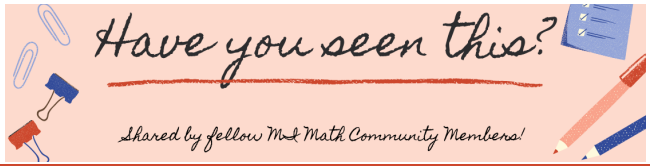
NYT - Latest Wrinkle in Crumple Theory

"Geometric Frustrations"

Remember that last piece of paper your crumpled up? (Are you even using paper anymore this school year?) Well, it is suffering from something we all can related to -- frustration -- geometric frustration, that is.

“The formation of a crease is how the stress is relieved,” Ms. Andrejević said. “The role of the creases is effectively to protect as much of the sheet as possible from further damage.”

Learn more about fragmentation and the mathematical models developed by this recent mathematical research by clicking the button.



Progression of Number Sense: TK-12

TK–2	3–5	6–8	9–12
• Organize and count with numbers • Compare and order numbers on a line • Operate with numbers flexibly	• Extend their flexibility with number • Understand the operations of multiplication and division • Make sense of operations with fractions and decimals • Use number lines as tools	• Number line understanding • Proportions, ratios, percents, and relationships among these • See generalized numbers as leading to algebra	• Seeing parallels between numbers and functions in grades 9–12 • Developing an understanding of real and complex number systems • Developing financial literacy

Here's a recommended resource at what the TK-12 progression for Number Sense looks like, as presented in Chapter 3 of the California 2021 revision of their Mathematical Framework. Keep in mind that the approved chapters are in draft form, as the input survey just closed on April 8, 2021.

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

Link to Approved Chapters of CA 2021 Revised Math Framework

Same But Different Math: Routines to Develop Thinking Skills

Use image like the one below in a group discussion.

Step 1: Show image & pose question - How are these images the same but different?

Step 2: Have students think silently for 1-2 minutes.

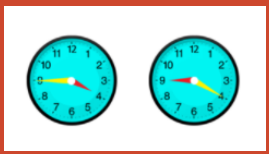
Step 3: Have students turn & talk to share ideas, orally or using whiteboards.

Step 4: Whole class share.

Step 5: Summarize & restate student ideas and math concepts.

Step 6: Generalize & apply. Ask students to create another same but different image that shows the same mathematical idea.

Want to learn more? Visit HERE to learn more about these low floor/high ceiling tasks and grab free student pages. Topic range from early numeracy to ratios and algebra.



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