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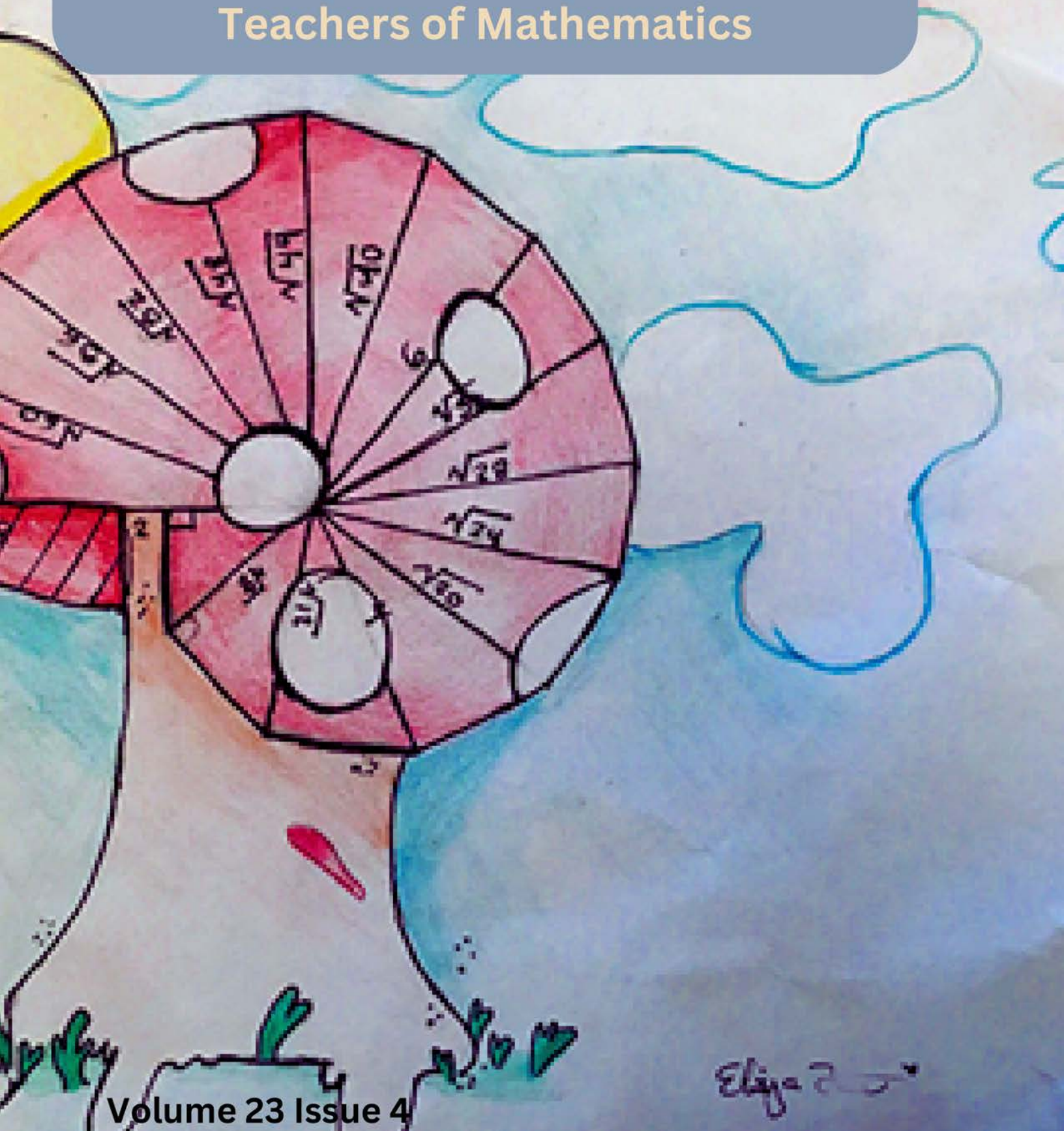
Upper East Tennessee Council of Teachers of Mathematics



Volume 23 Issue 4

In This Issue

Changing It Up

By Melissa Barrett

Around this time last summer I landed my first teaching position, teaching fifth and sixth grade math intervention. I was super excited to be starting a new chapter in my life, and using everything that I had learned in college to help the little faces that would soon make up my classroom. The funny thing that I did not realize was that my excitement soon turned into nerves and stress. After I was told that I was partly responsible for student growth for the whole school in math.

Three times during a school year our students are given a test for basic math skills on a universal screener. The assessment uses two types of measurements: curriculum- based measures (CBM) and brief measures of math fluency on essential basic skills. After the whole school is tested I then would review and identify students that are classified as at risk. After identifying students I would then place them into small groups to target the gaps they have in their learning, so students would not fall further through the cracks.

After about three weeks into teaching my first group of kiddos I soon realized that all of these students were lacking one thing, being able to take a risk on thinking. They were all waiting on me to give them the answer. When asked why they all responded with, “because all of our teachers do.” While teaching I noticed that students were either mimicking, faking, slacking, stalling, or tried the problem and “failed.” As a result of their so-called failure, I soon realized that if I wanted these kiddos to close their learning gap I was going to have them take risks on thinking.

The next few weeks while teaching that same class, I changed my teaching in order for more students to think. I switched up my questioning, instead of asking the basic intervention questions “Rose, what did you get for number two?” I added, “Explain your thinking and/or reasoning to the class.” At first this stumped them.

They did not know how to respond, but after giving them a few sentence stems and a whole lot of Jolly Ranchers they totally rocked this.

Students not only started to make connections in my classroom, but also started to improve in their classrooms as well. Then shortly after they make weekly gains on their progress monitoring. A big part of me was so excited for them. We would have class dance parties to celebrate their success and improvements. After making a considerable amount of progress, students were tested out of my class and grouped with their tier one classmates to reinforce grade level standards.

In conclusion, I now understand how important it is to build a thinking classroom. I learned that kiddos need a sense of understanding instead of mimicking. My kiddos learned that they could not hide or fall through the cracks when they entered my classroom. My kiddos learned that their thinking matters.

2023 NCTM Board Election
The 2023 NCTM Board of Directors election will open on February 13.

Be sure to log in to your account profile by January 27 to ensure your membership is up to date so you can participate in the election.

It's A Fact!: The Importance of Math Facts from 3rd Grade to Adulthood

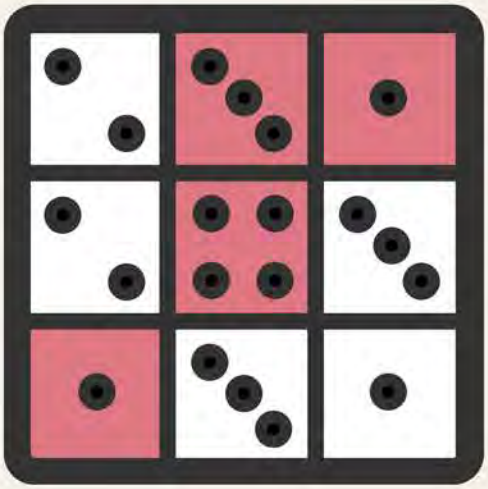
By Tiffany Honeycutt

As math professionals, I'm sure that we would love to think that concepts that we spend so much time covering everyday have some relevance to the real world-every day of the lives of the students that we are teaching. However, it would be unrealistic to state that as fact. The kids are always hoping to see some kind of connection to how they will be using this in their lives. As a teacher, I'll be honest, sometimes that question can be difficult to answer when I feel like I don't have desks filled with future math professors. Bring in multiplication facts! When teaching multiplication, I always tell my students, I used multiplication many times a day and even before they walk through the classroom door! This is important in order to get their buy-in to the amount of time that we put into learning multiple strategies in order to fully understand it as well as gaining the fluency needed to use it beyond multiplication concepts. Engagement is crucial, so I thought I would share some multiplication activities that my students have enjoyed in order to practice this skill and move it from short term to long term memory. These games should be simple to understand and not require a ton of prep for the teacher! It's a WIN-WIN!

1. The Great Multiplication Race - This is a more engaging way to get students excited about timed tests! Set up a racetrack somewhere in your room and have them each have their own game piece or car to race along the track. As you pass the fact timed test (starting at 0's and ones and go to 12's), the students will move along the racetrack to race each other to the finish line! This is a visual way of exciting the students to motivate them to practice their facts!

2. Multiplication War Card Game - Students can play this game in pairs or larger groups if they would like. The teacher will need to remove the Jacks, Queens and Kings. Pass out the same amount of cards to each student playing. The students will each put down 2 random cards and multiply the cards together. Person with the highest products gets to keep all of the cards. The goal is to collect all of the cards until all of the other players are out of cards. When a student runs out of cards, they are out of the game.

3. Fireworks! Tick, Tick Boom! Multiplication - This is a whole class activity that the kids will LOVE! You will need a flashcard person for each team and someone to be the “firework” in the middle. You will also need two sets of multiplication flashcards (one for each team). The rest of the class will be split up and placed in a line on each side of the “firework.” Your goal is to answer the math fact as quickly as possible to explode the firework in the middle. I like to have some sort of buzzer or noise maker that the “firework” holds and uses when a team makes it to the middle. You begin by the flashcard person for each team showing the first random flashcard to the student on the end of the line. They need to shout out the product as quickly as possible. If correct, it moves to the next person in your team, if incorrect, the flashcard person goes to another card until they get it correct. First one to set the firework off, wins!



4. Dominos - Work with a partner and put dominos in a bucket/bag that will be easy for the kids to pick them out. Take turns randomly picking one domino at a time out of the bag. Multiply the top number of dots to the bottom number of dots then write the product on a piece of paper or whiteboard. Add your scores together. The first person to 100, 200, or whatever number you decide on, is the winner! This also works with rolling a pair of dice as well!

5. Flashcards - And lastly, the tried and true, trusty flashcards. Who has ever had a student that came to you and said “but I don’t have time to study! I have baseball, gymnastics, [insert anything here]”? I hear this every year and I always tell them there is always time in the car! Keep a set of purchased or self made multiplication flashcards and go through them on the way to practice! Problem solved!

As you can see, there are many different ways to practice and drill those facts into your students' heads rather than boring old drills. There are MANY more online as well so Google them up and start engaging your students in this extremely important skill that they will use their entire lives!

Register for the 2023 Virtual Conference

Registration for the 2023 Virtual Conference is now open! Join your colleagues for four days of learning, networking, inspiration, and much more. Our exciting online platform will provide opportunities for small chat rooms, discussions with exhibitors, and various options to learn at your own pace.

Take advantage of early bird rates when you register by March 1.

The Math Gap

By Kathi Hill

If you ask a group of people who are not educators how they feel about math many of them will say they hate math or they cannot "do" math. I have many students who say my parents can't help me with math or I will not be good at math because my parents are not good at math. Yet, how many kindergarten students come in day one saying "I can't do math"? Where does math become about anxiety and fear and less about discovery?

Kindergarten is full of pictures and color. There are manipulatives as far as the eye can see, students draw and color to show their work. First graders and second graders use manipulatives and crayons to begin to solve equations. Third graders begin to learn rules such as area equals length times width. So when does math become more about memorization and less about discovery? Crayons eventually go off the supply list and become pencil and lined notebook paper.

As students get older they are supposed to move from the concrete to the more abstract learning. Yet our teaching goes from being abstract to more concrete. In most instances a fun math activity that shows students how something works becomes the abnormality instead of the norm. I am in no way saying that teachers inject anxiety into math, or that any particularly set of teachers teaches math correctly.

The conundrum that should be addressed is when and why does it become more important to memorize than to discover. All teachers want their students to learn and to have amazing classroom experiences that stick with them throughout their lives. We crave those aha moments, especially in math. So why do those discovery moments become less frequent as students get older and the math becomes more complicated?

In Japan they concentrate on about ten standards per year. The teachers there can really dive into and spend lots of time on each standard, making sure that students engrain these standards into their

long term memory. They can do lots of practice, and activities that are meaningful. Yet, in America students are expected to learn on average, according to Google, at least thirty math standards each year. So students learn a little about a lot of different topics, but not enough to become a master of any. When it is considered that there are 36 weeks in a school year, and considering time lost for school related activities that is basically one standard a week. So the question then becomes is one week enough time to teach a standard, put it into long term memory, do meaningful activities, extensions, and also help students who are struggling with the concepts? I think the answer is obvious. This requires teachers to pick and choose carefully those extension and fun math activities. So crayons or manipulatives may not be able to be used for every standard, but I hope that we as teachers never lose those hands-on moments that make math fun and meaningful.

Success Stories from "Catalyzing Change" Webinar Series

Two webinars remain in the "Success Stories from Catalyzing Change" webinar Series, which features case studies from our latest release, "Success Stories from Catalyzing Change: Pillars and Practices: A Framework to Catalyze Change at the Margins," January 23

"Using an Asset Lens for a District-Wide Assessment," January 30

Past recordings for all webinars are also available on the NCTM website.

Show Me What You're Thinking!

by Kristi Presley

When my niece, Emma, was very young, around 3 or 4 years old, she would play a little math game while we were in the car. From her car seat in the back, she would say, “Kristi, if I give you 3 apples, and you eat two of them, how many of them would you have?” I would answer, and then it would be my turn to quiz her. We did addition and subtraction with numbers 1-10, and she was pretty good at it.

One day in the car, my dad was in the backseat playing the game with Emma. As we pulled into the driveway, she asked my dad, “Poppy, if you have 5 apples, and you eat 5, how many would you have?” My dad very excitedly answered her, “Zero! Zip! Zilch! Nada!” Emma burst into tears. Through her tears and frustration, she began to scream, “No! It’s FOUR! It’s FOUR!” I turned around and asked her to show me how it was four. She held out her left hand with all 5 fingers open, and she said, “If you have 5 apples.”

Then she began to count each of the 5 fingers she was holding out with the forefinger on her right hand. She started with her pinky and worked her way over to her thumb as she counted, “One, two, three, four, five.” Then, she stated, “And if you take away 5....” as she took her left thumb and folded it in (taking away 5), and she proceeded to explain, “You have 4 left.” Even though she’d played this math game many times with great success, somewhere in that math problem, she’d gotten confused. Somehow, in her head, she’d named her fingers according to the number she was counting, and her thumb was “five.” When she took away “five,” there were still 4 fingers remaining. When she explained her reasoning, I completely understood her frustration and why she thought she was right.

I wasn’t in the classroom that day. but it was one of the greatest learning experiences that I’ve ever had as a teacher.

When I stopped to listen to her mathematical reasoning, I understood her thinking, and I was able to see where she'd made a mistake. Then, I was able to help her understand her mistake and how to fix it. As a student, math was always such a struggle for me. I wanted to "get it," but it never came naturally to me. I survived on memorizing formulas and working through steps as I was told. I even used the strategy of trying every answer on the multiple choice test to see which one fit into the question, like trying to find the perfect puzzle piece to make it all come together. This actually worked for me, but I still struggled with mathematical concepts. I don't ever remember anyone actually asking me what I was thinking in math. I remember them asking me to show the steps, but I don't remember anyone asking meto show them what I was thinking.

In my classroom, it is critical for me to create a positive, safe environment, where it's okay to make mistakes because we're all in this together, and we're all on the same team. Building positive relationships with my students is the first step to creating an environment where my students feel comfortable being vulnerable with sharing their thinking as we work together in the class. From the very first day of class, I try to have class meetings where we build and develop those relationships. We use that time to talk honestly with each other, and we also use that as a time for students to share with their peers about anything that they have on their heart. I do my best to try to see and hear the thinking in my students' work. They know I will never give them an answer, but I will coach them until they are successful in finding the answer on their own. I also teach my students to know how to be a coach to their peers. In coaching, we don't give the answers. We ask more questions, we listen to the thinking, and we point out when we see an error. We might give advice, but we never give the answers. Coaching conversations happen daily and in all subject areas in my classroom, but they are particularly effective during my math class because they help me to know what my students are thinking. I want my students to always feel safe in showing me what they are thinking. When I know what they are thinking, that's when I can truly see what they are learning.

Convert Your Precalculus or Trigonometry Classes to AP®

Available to offer in the 2023-24 school year.

Explore the New Course

Why Teach AP® Precalculus?

AP® Precalculus students build the math skills needed for STEM and other majors, avoid remedial coursework when they reach college, and increase their chances of degree completion. This course is designed for students who have taken both Geometry and Algebra 2 (or Integrated Math 3). Schools can make these benefits broadly available by converting existing sections of Precalculus to AP Precalculus. Learn more about adding this course for the 2023–2024 school year.

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Complete the application and return to the address below with a check for $10.00 made payable to UETCTM.

Sevier Middle School
C/O Julie Tester-UETCTM
1200 Wateree Street Kingsport, TN 37660
Kingsport, TN 37660

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UETCTM may be asked to share your information with other math organizations (NCTM, TMTA, etc.) that promote mathematics education.

Please check the following statements if applicable:

- ☐ **Please check if you do NOT want your information to be shared.**
- ☐ **I am a current member of NCTM.**
- ☐ **I am interested in leading/presenting a session at UETCTM.**
- ☐ **I am interested in holding a leadership position with UETCTM**