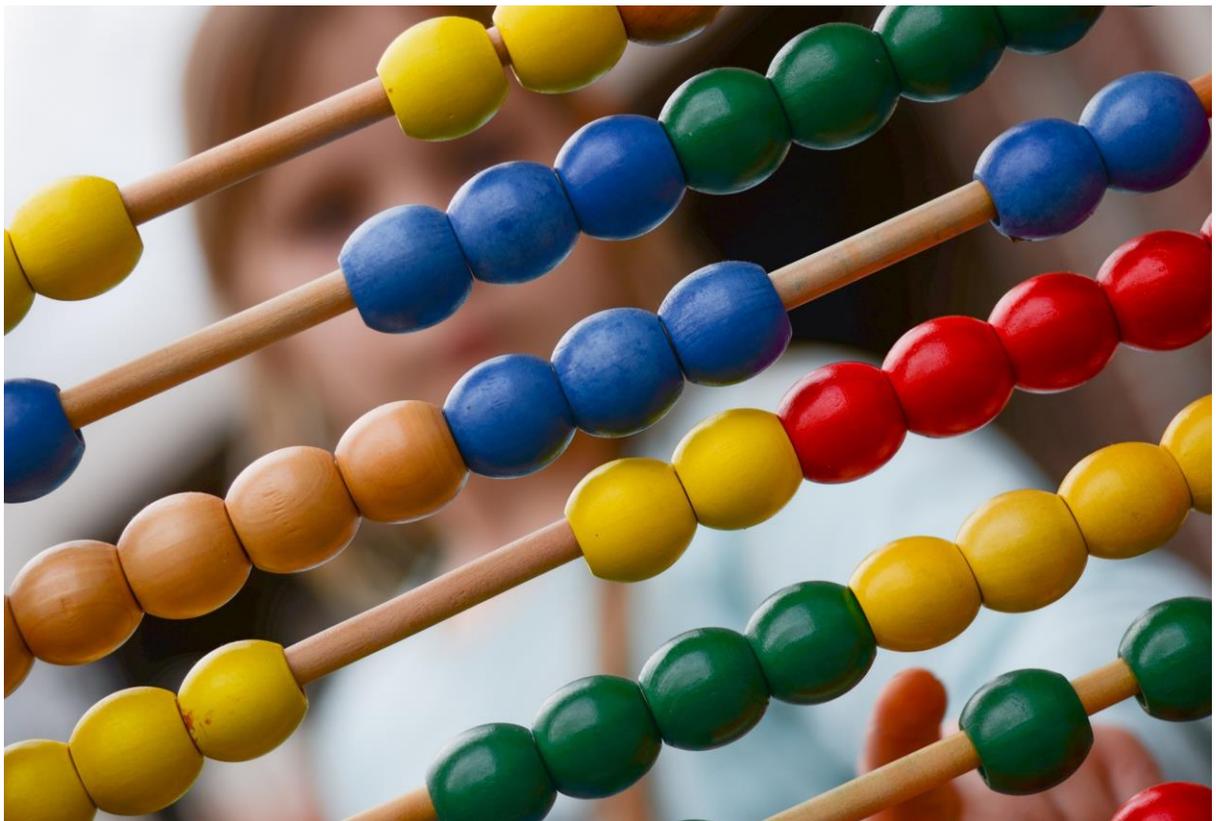


THE UPPER EAST TENNESSEE COUNCIL OF TEACHERS OF MATHEMATICS

NEWSLETTER



VOL 20, ISSUE 2

In This Issue:

- *Clock Partners: A Grouping Strategy*
- Julia Moore
- *In Your Student's Shoes*
- Breanna Conkin
- *Let's Climb Mountains*
- Makenzie Simac
- *Math Everyday in Construction*
- Jared Burgner
- *Puzzled About Math Discourse?*
- Julie Tester
- *New Challenges, New Opportunities*
- Helen Martin

MEETINGS FOR 2019-20

Next Meeting: Saturday, November 2

9:00AM-12:00 PM

Kingsport City Schools -Tennessee Room
400 Clinchfield Street, Kingsport, TN 37660

Workshop with Sherry Parrish, creator and author of
Number Talks

Pre-registration is required for this event and it is limited to the first 150 participants that register. Registration will open up at our first meeting and information about registration costs can be found on [this PDF flyer](#).



OFFICERS FOR 2019-2020:

President:

Jamie Price (ETSU), pricejh@etsu.edu

President-Elect:

Pam Stidham (Kingsport City Schools),
<mailto:pstidham@k12k.com>

Past-President:

Sunshine Light (Kingsport City Schools), slight@k12k.com

Secretary:

Jill Burgner (Washington County Schools),
<mailto:burgnerj@wcde.org>

Treasurer:

Cameron Buck (Kingsport City Schools), cbuck@k12k.com

NCTM Representative and Newsletter Editor:

Ryan Nivens (ETSU), nivens@etsu.edu

Assistant Editor:

KB Gardner (ETSU), zbgg2@etsu.edu

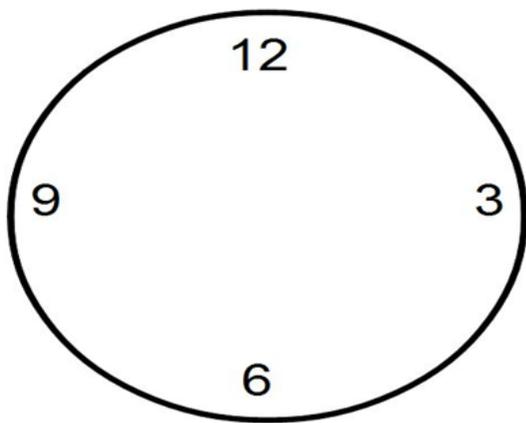
Webmaster:

Daryl Stephens (ETSU), stephen@etsu.edu

CLOCK PARTNERS: A GROUPING STRATEGY

- JULIA MOORE -

As a second grade teacher, I was looking for a grouping strategy to use in Math and decided to use Clock Partners...a great grouping strategy that can be utilized for Math as well as all other subjects when teaching in a self-contained classroom or in departmentalized content areas.



I became familiar with Clock Partners as it was used in teacher workshops I attended for my district. It is based on a strategy mentioned in *Worksheets Don't Grow Dendrites* by Marcia Tate. Everyone drew a clock face with the benchmarks of 12, 3, 6, and 9 and chose different partners for each of those times: 12:00, 3:00, 6:00, and 9:00. These groups met together for discussions and activities throughout the workshop until all times were used. After doing this process I wanted to create a way I could use it in my classroom to group my students.

To use Clock Partners in my classroom, I drew a large clock on chart paper with benchmarks of 12, 3, 6, and 9 (graphic posted above). I began by grouping my students heterogeneously and homogeneously: Boy/Girl, Boy-Boy/ Girl-Girl, Above Average/Below Average, Above Average/Average. There are 4 types of grouping for partners so that groups will be differentiated for each of the 4 clock times. This type of grouping is at the discretion of the teacher. For example, there may be students who work well with certain other students or students with behavior challenges, or other factors to be considered that will aid in the decision process for grouping the students.

I group my students as mentioned and put their names on post-it notes. I then placed the post-it notes for each group next to each time on the clock. Each student in the class will have 4 different partners for each of the 4 meeting times. The clock visual will stay posted in the classroom for students to refer to so they will know which partners to meet with. Having the student names on post-its is also helpful in the event the teacher needs to make changes within student groups (e.g., a behavior issue arises with a single student or group, a student moves away, a new student arrives, etc.) During my lessons I call on students to meet with their 12:00, 3:00, 6:00, or 9:00 partners to work on skills in pairs/small groups. This works best in pairs, however if you have an odd number of students or if a student

is absent, etc., then you may add to existing groups and create a group of 3 as chosen by the teacher.

Clock Partners works well not only as used in Math, but can be used cross-curricular in all other subjects. Personally, I like to make sure I have students meet with each Clock Partner each day if possible to give them a variety of peers to work with, and I change out the groups quarterly or as needed depending on student growth levels. Students enjoy the differentiation of Clock Partners and look forward to doing it daily. Teachers will enjoy the organization of Clock Partners with little upkeep to maintain academically and socially strong groups in the classroom to maximize student growth.



IN YOUR STUDENTS' SHOES

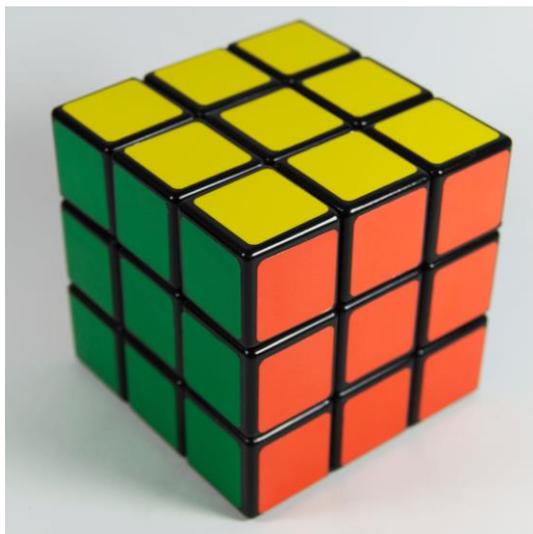
- BREANNA CONKIN-

Have you ever found yourself explaining the same problem to your students multiple times and thinking “why can they not get this”? If so, I am right there with you. We look at the problem $2+5$ and automatically know it's 7, and when a student is unable to grasp that concept, it's easy to become impatient. These simple operation problems come easy to us; we don't even have to think about them and we start to expect that from our students as well. My first day in MathElites this past summer helped give me a different perspective to take into this school year. Let me tell you how.

We have all been raised to count using our base ten system. After you develop an understanding of our number system, you can do most anything with the numbers. What if all of that changed? What if suddenly 5 wasn't 5 and $5+7$ didn't equal 12? It is hard for us as humans to even fathom that and being teachers, we find it impossible. Theresa Hopkins and Jo Ann Cady of the University of Tennessee created a new number system to help pre-service teachers grasp a deeper understanding of the struggles that students may face when we begin teaching them place value concepts. To young students moving from 9 to 10 or 99 to 100 is very abstract; they don't understand why that's what they need to

do. How well can you answer that question? If a student walks up to you and asks you why they need to do that, some of us might just say, "that's just what comes next." Working through the orpda system can help you gain a better understanding of our number system and can build our empathy for students.

For me, spending the first two days of MathElites diving into the Orpda system and having that productive struggle, I get it. I understand why some of my students need me to rephrase or reteach these concepts in a different way. There are countless resources available if you look up the Orpda number system. I think this could be a wonderful activity for all teachers to take part in. To take us out of our comfort zone and put ourselves in our students' shoes. If only we could empathize a little more and accept that math isn't a black and white subject to our students, we could help them reach an even better understanding of our own number system.



LET'S CLIMB MOUNTAINS

- MAKENZIE SIMAC -

As I reflect back on my first year of teaching I am filled with a mixture of emotions and thoughts. As many people had informed me, teaching is a roller coaster and you better be strapped on for the ride. Being a first year teacher brought many things: joy, happiness, tears (some of laughter and some of stress and anxiety), lots of coffee and lesson plans, but mainly it brought me to the realization that teaching is without a doubt my life's calling.

Not many people expect to land a job as soon as they graduate from college, especially one in their ideal grade and subject, but I was a lucky one who landed my dream job. Math. Fourth grade math. Yes, you heard right, math is my dream. Growing up math was always my strongest subject and favorite subject. I knew from an early age that teaching was the career path I wanted to follow and later on I realized my love and passion for math. And so I looked back on the math teachers I had as a child and teen and realized that very few had a passion and desire for math that showed through in their teaching. I was lucky and have always been good with numbers but it led me to question: what about my classmates who struggled with math? Did they gain a love and an understanding from our teachers? While I cannot say for certain the answers to these, I can assume they lived in constant frustration of numbers, which is a sad realization to come to.

Numbers are DEAD. Numbers DO NOT control me, they DO NOT control you, and they DO NOT control our students. Math has such a negative connotation because of the difficulty of the subject. Yes, I know, math is hard. I remember taking Vector Calculus (in case you're wondering, that's Calculus 3...) in college and thinking I would never make it through, but I did. It may have taken me four hours to work out one problem, but I passed (with quite a good grade, I might add). I made it through the hardest math class I have ever taken because I was persistent. Because I had a teacher who did not give up. Because I knew I was capable of finding a solution to every problem.

So with all this being said, I want to challenge you reading this article. Help your students be persistent and not give up. Help them find a solution to every problem by giving them the materials and knowledge they need. You have the power to help your students overcome their fear and doubt of numbers. You have the capability to impact a student's life so much so that they could turn around their whole attitude on math. You. You are the one in charge of your classroom. If I could go back to year one, day one of teaching, this is the advice I would want to hear. I would want someone to tell me to stay positive and let the kids see my passion and love for math shine through me. If students see the love, they will work harder and harder and maybe, just maybe, see math as a mountain they can climb.

MATH EVERYDAY IN CONSTRUCTION

- JARED BURGNER -

Introduction

As a teacher who has a background in construction I feel very strongly about how we as teachers can relate mathematical practices that we teach our students in the classroom in "real world" practices. How does math lessons we all learned in elementary of middle school carry over to our adult life?

Measurement

One of the most elementary (pun intended) skills needed in just about any construction trade is knowing how to read a tape measure and be able to accurately measure items. I was a foreman for a tile company for close to six years and part of my job duty was to make sure that my crew could read a tape measure as I hired them. I quickly realized that the lessons taught to them in elementary did not carry over to their adult life. Teaching adult men how to break down an inch into $1/16$ " is a lot harder than teaching elementary students how to break down an inch into $1/16$ ", I assure you. Before my career in tile I spent a couple years in an industrial paint shop. It consisted of mostly mindless work until it came time to mix the paint, thinner, and hardener. I had to use ratios to correctly mix the components to industry standards so the mix would adhere and

cover correctly. Was mixing the paint the end of it? After the paint dried it had to be measured to make sure it had a thick enough layer on it for it to pass OSHA standards for a glass factory.

Area, Perimeter, Pricing, and All That Fun Stuff...

When looking at a potential job of installing floor covering there is a ton of math involved. After a while it is just second nature to do it mostly in one's head, but if it is somebody's first time it can be the difference of "feast or famine." To correctly figure the square footage of a floor a person will need to find the area. Length \times Width. Something we all learned at some point in our educational career. As we know though, not all rooms are created in a perfect rectangle. They have legs that stick out, walls that cut some out. There are multiple rectangles to add and subtract to get a true measurement of the floor to be covered. Once the floor is measured there is material to figure. How many square feet does a bag of concrete mortar cover? How many boards of tile underlayment are needed to cover the floor? How much square footage is each piece of tile, how many is in each box, and how many boxes to buy? Once all the material is tallied up the price of the material must then be found to accurately give a price to the customer. This is certainly something that should not be left up to guess work.

When Am I Ever Going To Use This?

We have all had that question asked to us. No matter how interesting the lesson may be, how relevant it may be to life, or how we teach it. I find it handy to have an answer to that question that can relate to almost any student. Ask any student in high school Geometry where they will ever use Pythagoras' theorem in their lives. Blank stares. Give them an example to build something as simple as a porch on the back of their house. How do we know everything is square? Will they be able to remember the theorem? How to correctly apply it? Did they know it was something used or was it just a triangle on a paper where one side was missing?

Closing

Students need to realize that they may have a job in the future that heavily depends on basic elementary math practices. Math is not as complicated once it is laid out in a real world scenario right in front of you. Most construction jobs require zero amount of college credit, yet can pay as much or more than many, many jobs requiring a college degree. This is because there is a certain amount of mathematics involved that must be accurately figured. We as teachers need to take action and prepare our students to perform simple task like read a tape measure, figure the area of an ugly kitchen straight from 1982, or make sure our buildings are straight and square.

PUZZLED ABOUT MATH DISCOURSE?

- JULIE TESTER -

How do you take that chatty class and direct their talking into something constructive? It seemed like the talking in my classroom was either too social or non-existent. I was determined to find a way to get students talking about their mathematical thinking. I tried modeling math discourse. I wrote sentence starters and posted them on the wall. I used these signs to guide in our math conversations. I was proud of my wall. It was so pretty, but it seemed useless. I prompted; I pleaded, but the desired discourse was not happening.

Puzzled, I decided to try something different. I found some math puzzles, primarily from MashupMath.com, and I began to use them as starters. Soon students began to share their strategies on how to solve the puzzle, but these puzzles only had one set of solutions. Thus, our conversation was limited to either the correct answer or incorrect answer and why.

I began to look for things with multiple solution paths. I wanted to have students see that there may be more than one way to look at something. It was at this point that I found "which one doesn't belong." This activity gives four numbers, shapes, or images and the students must pick one that they feel

did not belong with the other three. These activities have multiple solutions. As the students chose their answers, they must also be ready to justify their choices. Students began to interact with each another. They would ask each other questions about their strategy. They would debate their choice justifying their thinking. Through these debates, vocabulary became more than just a definition in their notes; it was a key part of their justification.

When I added low ceiling-high floor math tasks, students knew how to talk about their strategies and their thinking. The act of asking questions was second nature. They were no longer timid about their ideas. Math discourse was no longer puzzling!

Puzzle Resources:

MashupMath.com: Equation puzzles, area puzzles, multiplication table puzzles

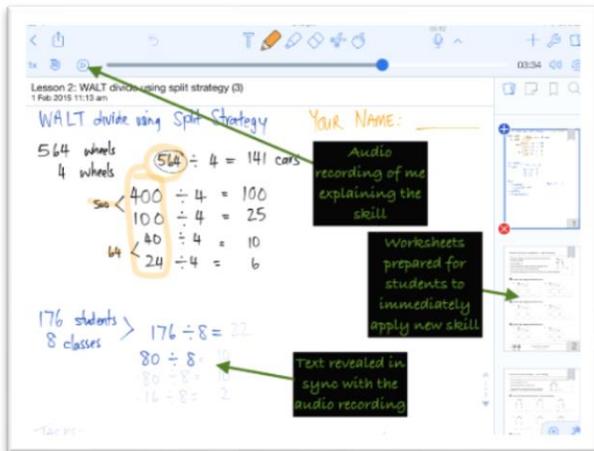
WODB.ca: Which One Doesn't Belong

Solveme.edc.org: Balance puzzles, number puzzles, who am I puzzles

NEW CHALLENGES, NEW OPPORTUNITIES

- HELEN MARTIN -

A long time ago, when I had to walk uphill to school both ways (true – but a story for another day), I scrambled to look up sine, cosine, and tangent values in the back of my encyclopedia-sized math textbook as my teacher sat at his desk yelling out questions. Fast forward a decade or two – okay, three – and today I find myself feeling incredibly uninhibited as I walk around my classroom, writing math gems on my iPad for the whole class to engage with as they are displayed on the TV. This awesome capability is one of the many ways I have tried to embrace technology in my math classroom.

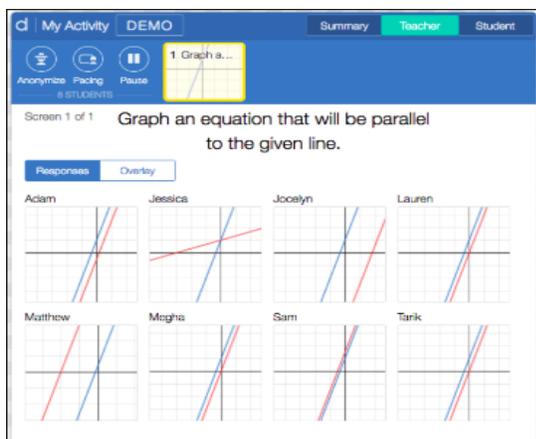


Through the use of the Notability App, I can use my lessons in most any format and project them on my TV. Last year, I took the plunge and switched from a SMARTBoard to a large flat screen television. The picture is crystal clear for the entire class no matter where they are seated. In addition, I can write on the

iPad while I am walking around the classroom helping individual students. The versatility of the Notability App allows me to change colors, fonts, etc., so that I can emphasize steps, alternative strategies, etc. The iPad allows me to take pictures to display student work on the TV, and record videos of student presentations. We learn from our mistakes and celebrate all of our successes in this new interactive way. The door has been opened to allow many great discussions, collaboration, and team building.

My venture into the 21st century has not stopped here. I have also begun to use and, honestly, grow to enjoy Google Classroom. I have assigned videos, collaborative projects, homework assignments, and writing assignments all with the click of a few buttons. It is a great tool for communication between the students and between the kids and myself. I can upload lessons for absent students or those who need a refresher at home. I am able to provide my kids feedback in a timely and efficient manner. I can grade assignments and provide individual and/or group feedback. I can also import grades seamlessly into my gradebook.

Desmos and its teacher partner website, teacher.desmos.com, are engaging, easy, and time saving technological tools I also use in my classroom. The best thing about this amazing program is that it is absolutely free.



I use Desmos to graph equations quickly, easily, and accurately for the whole class to see. The time saved with this part of Desmos alone quickly added up in my classroom. Teacher.desmos literally has too many lessons, bundles, and activities to count. All of these materials can be quickly and easily assigned to my classes. Students can collaborate, explore, and investigate mathematically rich texts with the click of a button. I can also see their answers real-time. The insight from this program is invaluable to me in allowing me to help each student individually. Did I mention that this program is completely FREE?

Continuing my classroom-transforming exploration into technology led me to sign up for an online Google Infused Classroom book study this summer. While I have not had the opportunity to use the tools I learned about during the course in my classroom, I am definitely excited to give them a whirl this school year. One such program is called Padlet. This program is like an online bulletin board. Once a question is posed, students can

answer and respond to others answers. Videos and graphics can easily be added to answers. Padlet can be used to make math vocabulary walls, formula walls, exit tickets, reviews, and even used by students to post questions that both students and the teacher can respond to allowing for collaboration 24/7.

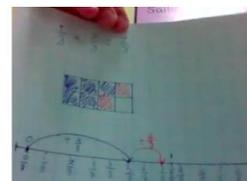
Adding & Subtracting Fractions

17 videos 127 views

Follow Share Topic Topic Actions

$$5/8 + 2/8 = \underline{\quad}$$

1. Solve the problem on a blank sheet of paper.
2. Be sure to show your work with an area model and a number line.
3. Create a video to show how you use the models to check your work.

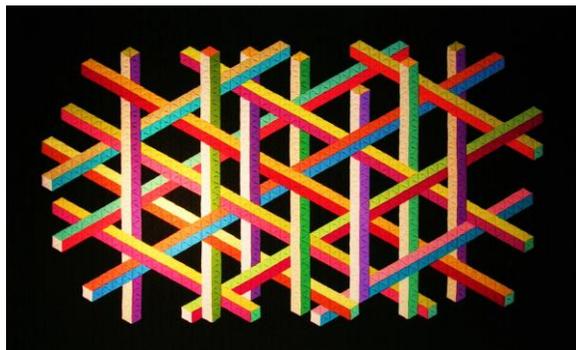


Another great tool is Flipgrid. At first, I was very unsure of this platform and using it in my class. Why? Because it is a video platform and I teach 8th graders. I will just leave that there. Anyhow, after exploring how other math teachers successfully use it in their classrooms, I am on board now and will definitely be giving it a try this school year. There are many ways Flipgrid can be used in class, but I will begin with very strict ground rules about digital citizenship before using it in class. Once the expectations and consequences are laid out, we will hopefully be able to utilize this tool in many ways: weekly math challenges, searching for mistakes in solved problems, student-created math tutorials, and math notes just to name a few. On their website, Flipgrid asserts, "Flipgrid is a video discussion community for your classroom that supercharges your students' voices. You add the topics, your students respond with short videos, and everyone engages!" There are many online examples of how math teachers

are using this tool in their classrooms if you are not sure how to get started.

My students are digital natives. They thrive on technology, so I must meet them there. Accepting this challenge has not been pain free for me. However, it supports student learning and my teaching, so I am traveling down this unfamiliar road. Technology has really helped me bring math to life in my classroom. I am able to connect real-life math to the classroom in ways that engage the students like I have not been able to in the past. Open a systems of equations lesson with a car crash video. Then ask them to respond on Seesaw with how the crash could possibly relate to systems and they are all invested in the lesson. Technology is just one tool to help students develop a deeper understanding of the math I am trying to teach them. It will never replace an effective teacher. However, effectively using technology will help engage students and bring math to life for all learners, thereby making me a more effective teacher.

Now, back to walking uphill to school both ways...



2020 NCTM CENTENNIAL—CALL FOR PHOTOGRAPHS

NCTM is looking for photos or memorabilia from previous NCTM conferences and events to share at the 2020 Centennial Celebration. If you have any mementos from 1920–1970 that you would be willing to share, please submit scans of the documents to centennial@nctm.org for consideration.

WRITE AND REVIEW FOR MTLT

NCTM will launch its newest journal, *Mathematics Teacher: Learning and Teaching PK–12*, in January 2020. Visit Manuscript Central to create an account and submit articles for peer review and publication. View the guidelines and submission process online for more details.

Authors are encouraged to submit article and department manuscripts to NCTM for consideration in the 2020 journal. Find more details about types of feature and department articles here.

Reviewers may be asked to evaluate two or three manuscripts per year that closely match areas of interest and expertise listed on their profile.

CALL FOR SPECIFIC MANUSCRIPTS

NCTM is looking for submissions focused on the PK–2 and 3–5 grade bands.

MEANINGFUL MATHEMATICS FOR ALL: THE WHY, THE WHAT, AND THE HOW

ONE-DAY WORKSHOP: FRIDAY,
NOVEMBER 8, 2019

DALLAS/FORT WORTH AIRPORT
MARRIOTT*

8440 FREEPORT PARKWAY
IRVING, TX 75063

Registration Fee: \$250

Space is limited. The deadline to register is October 28.

Audience: Middle School & High School teachers/teacher leaders/administrators

Catalyzing Change in High School Mathematics charges all of us involved in education to recognize and address the inequities in the way mathematics programs, particularly in middle and high schools, are structured and enacted in way too many schools and districts. Join us with other educational leaders to discuss key elements in successful detracking and the difference between tracking and acceleration. We will consider key elements in beginning the process of changing the status quo and provide examples from a real context where these changes were successfully implemented.

Participants Outcomes:

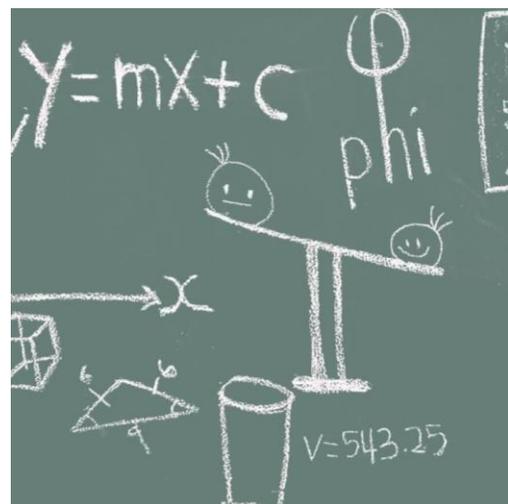
- Understand the systemic structures that inhibit student opportunities to fully participate in school mathematics, in particular traditionally marginalized groups
- Understand the difference in tracking and acceleration
- Consider key elements in successfully detracking
- Identify steps to begin the process in your school/district

Facilitators: Angela Torres, Ho Nguyen, and Karen Graham

Need more information or have questions? Email us at profdev@nctm.org

*The Dallas/Ft. Worth Airport Marriott is offering a special room rate for workshop attendees if you reserve your room by October 17.

[Register Now at NCTM.org](https://www.nctm.org/registration)





Upper East Tennessee Council of Teachers of Mathematics

Membership Application, 2019-2020

Complete and Return to Jamie Price with a dues of \$10, or bring to a meeting

Make checks payable to UETCTM.

Name _____

Address _____

Phone (_____) _____ - _____ text call

District _____

School _____

School Address _____

School Phone (_____) _____ - _____

Email Address _____

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

Please check all applicable statements below.

- I am currently a member of NCTM
- I would NOT like my information to be shared
- I am interested in leading a session at UETCTM
- I am interested in serving as an officer at UETCTM