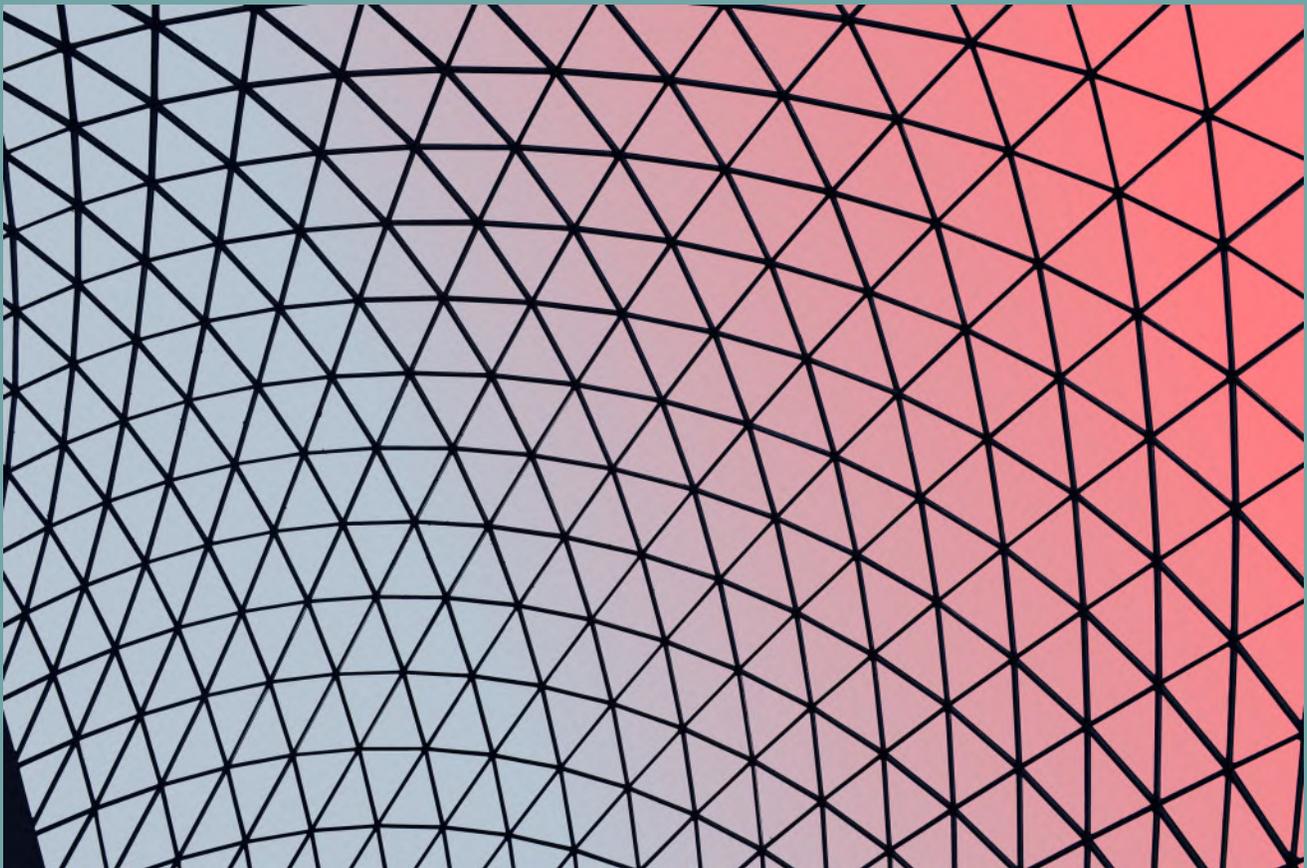


UPPER EAST TENNESSEE COUNCIL OF TEACHERS OF MATHEMATICS



IN THIS ISSUE:

Math Centers: A Journey of Student Input and Self-Reflection	Rebecca Schweiker	4
Lesson Hooks	Cindy Fields	8
Is Looping a Good Idea During a Pandemic?	Christol Hickman	10
When Will I Use This?	Haley Gregory	10
Differentiation in First Grade	Jennifer Rutherford	10
Using Google Classroom in the Math Classroom	Chelsea Seguin	13

MEETINGS FOR 2021-2022:

Please check the UETCTM website over the summer for updates on the schedule for the 2021-2022 school year. Have a great summer!

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pstidham@k12k.com

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Math Centers: A Journey of Student Input and Self-Reflection by Rebecca Schweiker

The title of this article was inspired by my students' viewpoints and my self-reflection during our math block this previous school year. My goal for any math center is to create hands-on engaging centers that will not only build upon the math concept being taught (or has already been taught) but also challenge each student. This essay highlights our story and journey this past year.

This past year was only my second year teaching kindergarten but the first year teaching kindergarten at my new school. What I learned this past year with my kindergarten class was that not all models work for them and their learning. At first I tried doing small groups every day, but that didn't work for this class. Even with explaining the centers each day, the students were confused and spent so much time asking me what to do that I could not teach my small math group without interruption. That's when I reflected on how the small groups were going and asked the students what was confusing about the group work. The students quickly informed me that they could remember what to do in their first center rotation but they forgot what to do in their second and third centers. With this new insight, I retaught the expectations, procedures, and materials used for the centers as well as what to do when they get done, and how to rotate between the centers. Principal John Konen states, "After a procedure or routine has been taught, it must be reviewed, modeled, and revisited routinely. Exemplary teachers empower the students to support in making the decisions when these need to be

reviewed" (Konen, 2017). I decided that I needed to take the time out to teach these centers to the students and not rush them. I spent three to four weeks teaching them the routines and procedures. I did not pull a small group at this time but instead I walked around to each center to check on students and answer their questions. I also learned that in briefly reviewing each math center and expectation before we started the math center rotation the students could complete the task without having to come and ask for clarification as much.

Over these weeks, I saw in my students' eyes happiness, confusion, and frustration. I asked them about each center and each rotation to get their perspective. They said they were getting confused and overwhelmed with the work in the centers changing daily. With this information, I moved to doing one center rotation each day. Once again I went around and asked students what they thought about the center and the time allotted for the center. Most of them said they were bored after they finished their work. With this feedback, I decided to incorporate early finishers as an extension of their center that were still educational but fun to do. I introduced the early finisher along with the center review before groups started. The students loved them! The students couldn't wait to finish to get to the fun new early finishers. At this point I decided to start pulling small groups and have students do their centers followed by the early finisher. I noticed that the students were finishing all their work before I met with all students in small groups. Upon self-reflecting, I decided something needed to change. I was spending a lot of time each day reviewing the new centers and early finishers because I was changing them every day so that the students would stay engaged.

This was a lot of work to get these ready each day and it wasn't working. So, as a class we decided to start doing "Wonderful Wednesdays" where the students would rotate to three math centers and then to me. Working with me was actually considered a math rotation and this allowed for four center rotations, twenty minutes each. In the beginning I stopped each math center a few minutes early so we could practice rotating and I could answer any questions students had about their next center rotations. While I did this, the small group that rotated to me was working on a task like matching numbers or addition flash cards to stay engaged while everyone got set up in their new center rotation. Jackpot! They loved this and were so eager and excited for each center change!

For student grouping, I decided to create flexible mixed-ability groups. Elizabeth Hemmons states, "Mixed ability grouping is great for discussion purposes and getting other's perspectives on things" (Mixed-Ability Grouping: Advantages & Disadvantages, 2017). In mixed-ability grouping, students are grouped with others that are not like themselves. I had a class of 16 students so my group sizes were four in each group. In these groups, I had students that had an understanding of the concept mixed with those who needed a little extra help in their understanding. I encouraged them to talk about the problem, how they solved it and how to help out their peers if they were having difficulty. Before I started pulling groups, I walked around to each group and worked with them on how to talk to each other, how to ask questions, and how to listen. Mike Flynn stated, "It can be tempting to move through it quickly in an effort to get students to solve problems faster. However, when we accelerate the process, we leave many students behind" ("Make Sense of Problems and Persevere in Solving Them," 2017, p. 29). It is important you make sure you take

this time.

Next we worked on how to help our peers as opposed to just telling them the answer. With this type of questioning, students were able to help their friends get to the answer as opposed to just telling them the answer. At their centers the first task they had to do was required like comparing numbers, sequencing numbers, addition, subtraction, number identification, matching and so forth. Within these centers, students had manipulatives they could use to help them if needed. What I saw was that some students used the manipulatives, some used their fingers, some drew pictures, and some just solved the problem in their head. Once again I asked the students how they felt about their groups, how they were working together, and how they came up with certain answers. Students were excited about "Wonderful Wednesdays" because they knew they would get to do centers and they now had an understanding of how centers should go and what they should do at each. They looked forward to the pace they could take with their work and the early finisher that awaited them when they finished. Mike Flynn stated, "For students to truly engage in these practices, the math work needs to be more student centered and less teacher directed" (Introduction. (2017). In *Beyond Answers* (p. 11). Stenhouse Publishers). When the principal would come in and ask them what they were doing and why they were doing it, they could all tell her the reason for the task, why they were doing it, how they were going to do it, and what they were going to do when finished. They students would sometimes even tell the principal what center they were going to next or how excited they were to get to a certain center in a certain number of rotations. This small group math rotation idea was a success in my eyes. My

students were happy, enthusiastic, and engaged with the materials.

Now let's fast forward to the summer of 2020. This summer, I had the privilege to participate in Eastman's Math Elites and can't wait to take what I learned and put it into play in my classroom next year. Next year's classroom might be a mixture of traditional and virtual learning due to the COVID-19. One important thing I learned from Math Elites was about how we see our numbers. The first day of Math Elites we learned about the ORPDA number system. At first I was so lost and understood nothing. I got frustrated that I couldn't make sense of it and couldn't answer any questions on it. It made me reflect and think about how my struggling math student feels when I am teaching something they don't understand. As the lesson went on and on we worked more with the numbers and symbols I started feeling more comfortable. The thing that sealed the deal with my understanding was being able to work with my peers to bounce ideas off of. With my peers we were able to talk, ask questions, and laugh about our mistakes with each other. What a great feeling and one that I want my students to have. This situation reminded me of the journey I took with my students last year with math groups and getting them set up and going. I can't wait to continue to learn new materials, manipulatives (whether virtual or hands-on), and hands on activities that not only challenge, but question my students' thinking. I feel like what I learned from Math Elites will greatly improve my understanding and I can't wait to use it.

I am so appreciative of the tools, guidance, and strategies that I have learned this summer through the Math Elites program. One of the coolest things I learned about was Three Act Tasks. In Three Act Tasks, students are shown a picture or video about a topic and then asked what they wonder and what they noticed about the video or picture. The students' questions lead

into seeking information to solve the problem and then onto the problem being solved. The visuals allow for all students to participate in the learning experience no matter their ability level. I also learned how to use different virtual templates to create digital math resources that students can do on computers in the classroom or at home. I feel like now I have a better understanding and can use the virtual math resources to help my math groups engaging for students whether it be in person or virtually next school year. Thank you to Math Elites for continuing my journey and giving me even more tools I can utilize next year with my students. ■

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TENNESSEE MATHEMATICS TEACHERS ASSOCIATION

TMTA offers two scholarships each year:

- **The Dr. Henry Frandsen Scholarship for Teachers is awarded to a promising undergraduate committed to teaching mathematics at either the secondary or elementary level.**
- **The TMTA Desiree McCullough Advanced Degree Scholarship Award is awarded to a TMTA member currently teaching in Tennessee and pursuing either a Masters, Ed.S., or doctoral degree to improve his or her mathematics teaching.**

The deadline for application is May 1.

**Now accepting applications at:
<https://tmta.wildapricot.org/page-18062>**

Lesson Hooks by Cindy Fields

Have you ever started watching a movie and in the first scene something super dramatic happens? A murder, for example. You, as the audience, are given no background information. You have no information on the characters and you have no idea why this murder occurred. You are left wondering why. Why did this happen? You have to keep watching to find out. You are hooked!

We, as teachers, strive for the same reaction in our classroom. We strive to create lessons that hook our students from the start. To engage our students. To make lessons fun and entertaining. To create lessons that the students find meaning or connection to. To have the students wondering why. To have the students wondering how.

One way to accomplish this goal is to promote curiosity before the instruction even begins. By doing so it opens up conversation with your students. It teaches them that there is no “right or wrong” way to think about a situation, ultimately building their confidence in your classroom. You will find that you create a connection with your students.

Of course you can come up with your own ideas to pull your students into a lesson, but a lot of times we are short in the amount of time we have to plan out a lesson. We know what we want to do, but we just don't have time to create it. Chances are somebody else out there already has created it! I have searched many sites online and listed a few of my favorites below that I use to help me create my lesson openers.

Video

Engaging your students with a video or video clip is a great way to start a lesson. Kids love watching videos, so why not find a way to pique their curiosity from the beginning.

- Resources:
 - Edpuzzle:
<https://edpuzzle.com/home>
 - Class Hook:
<https://www.classhook.com/>
 - Graham Fletcher's Three Act Tasks:
<https://gfletchy.com/3-act-lessons/>

A real world question

Not every hook has to have a visual component. Sometimes just asking a real world question opens up a discussion to relay into a math lesson.

- Resources:
 - Would You Rather Questions:
<https://www.wouldyourathermath.com>
 - Estimation 180:
<https://estimation180.com/>
 - Mathalicious:
<https://www.mathalicious.com/>

A picture

“Notice and Wonder.” This hook ensures student participation. The teacher would simply show a picture and students would write down or discuss things that they notice from the picture and things that they wonder from the picture. You may have student responses that are completely off topic from where you hoped they would go, but that's okay. At least the student is engaged and participating in class. At least they are curious.

- Resources:
 - Which One Doesn't Belong:
<https://wodb.ca/>

Using a hook to open your lesson can really change the dynamic of your classroom. If your students are hooked from the beginning, it is easier to keep them engaged and participating throughout the entire lesson. ■



TENNESSEE MATHEMATICS TEACHERS ASSOCIATION

The Tennessee Mathematics Teachers Association will award a \$1,000 mini-grant to a Tennessee classroom teacher to be used for technology or manipulatives.

In order to be eligible:

- **Your school or district must demonstrate financial need;**
- **You must attend this year's TMTA Fall Conference to receive your award**
- **You must report about your use of the minigrant (speaking at the next TMTA conference, speaking at a similar conference, or submitting a written report for publication in the TMTA Bulletin)**

Application deadline is September 1.

<https://tmta.wildapricot.org/Grant>

Is Looping a Good Idea During a Pandemic?

by
Christol Hickman

With the beginning of the school year just around the corner, every student and teacher feels anxiety in preparing for the first day. This year provides us with even more reason for nervousness as we are all facing a shortened previous school year. With the threat of starting schools online or at a later date due to COVID 19, would looping with a class be the best practice?

The idea of looping is assigning a class with the same teacher the students had the previous year. This would allow a teacher, specifically in K-2, to know his or her students when the school year begins. This would eliminate the “getting to know each other” period that often comes at the beginning of the year for both students and teachers. In this scenario, the bond has already been created and this is the basis for building a positive classroom culture.

Another benefit of beginning the year with the same class, is that the relationships and classroom routines have already been formed. This allows the students to have consistency that can be so important in the early years. Looping also allows teachers to start the year knowing each child’s learning styles, test scores and where in their learning that they need the most support or enrichment. This could prove to be very beneficial when considering a teacher would know exactly where he or she left off in the learning with students the previous year.

Personally, I have had the opportunity to loop with two of my classes. Once, I looped

with a kindergarten class up to first grade. The second time, I looped with a first grade class up to second grade. It was a bit challenging to learn new curriculum on short notice and the students often learned my “tricks” by the end of the second year, but I feel that the benefits of looping could outweigh the risks, especially in the uncharted times that we are experiencing in education now. ■

When Will I Use This?

by
Haley Gregory

Every year, I have several students ask, “When am I ever going to use this stuff?” I usually reply by asking “What kind of job or career would you like to have? Where will you live? How will you pay your bills? Will you have a car to drive or a cell phone to use? My friends, I hate to break it to you, but math is involved in all of that - it’s everywhere.”

Math definitely is everything we do and it is a very important part of our day to day lives. There are times, when you may not even realize it, you’re using some sort of math. You may be trying a new recipe, baking a yummy cake, building a house, or checking your bank account balance to see if you have enough money to pay all of your bills. If you’re driving your car, you’re constantly measuring the distance you need to travel or the distance between your car and the other cars around you.

Math seems to bring a sense of order to our lives. Learning strategies in math can help us to become better problem solvers in the real

world. Math teaches us to practice patience, because let's be honest, sometimes solving some math problems seems to take forever. It can also teach us to be creative, ask questions, and be curious. Math is about relationships or functions – how a variable will change when other related variables change. It's the same for us as we go through our day to day tasks and make decisions. In math, and in our lives, our successes are a function of our efforts. You get what you put into it.

Trying to live your life without math would be next to impossible. You don't have to be a math teacher or an accountant for math to play a big role in your life. Think about all the jobs that require some sort of math skills: fashion designer, construction worker, banker,

doctor, scientist, chef, or fast food worker. Even if you were a shepherd, you'd still need to count your sheep, wouldn't you? We use math to buy the things we need, measure, tell time – the list could go on forever. We all need to know the basics, but if you have an understanding of more advanced math concepts like geometry, algebra, or even how to use the metric system – you will have the ability to go so much farther in life. I hope, as a math teacher, I can help my students understand that and see that math isn't boring or a big waste of time. So, the next time you have some ask, "When will I use this?" You can simply say, "Every single day, because math is everywhere!" ■

Differentiation in First Grade by Jennifer Rutherford

It is important to know that not all math students think and learn in the same ways. Differentiation is extremely important to young learners, especially students with a low level of number sense. To differentiate a teacher must know where a student is at in their learning. Ask yourself if students need more support or more of an opportunity for a challenge.

First grade math students are learning a variety of skills and standards. First graders are developing number sense and experimenting with different types of math models. It is important for all levels of learning to be properly supported and scaffolded.

In my first grade classroom I use differentiation strategies for all my learners. I use strategies to guide my struggling learners toward proficiency in their math thinking as well as strategies to guide deeper levels of thinking for my advanced learners. For example, when playing a game called Roll and Record - I provide my struggling learners with 1 dot cube or number cube and or less numbers, my on level learners with two dot cubes, and my advanced learners with larger differentiated numbers to provide support for each student to continue on their learning path. All students work on the same skill and are successful in the activity on their own entry point into the activity.

My goal in my classroom is for all my learners to have success in daily activities. My job is to continue assessments and guide the students on their learning paths toward proficiency. I believe all learners can succeed with the right encouragement level of differentiation in their daily activities. ■

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- **Building and Fostering a Sense of Belonging in the Mathematics Community**
- **Effective Mathematics Teaching Practices**

**Speaker proposal submission is closed.
Speaker notifications will be sent out spring 2021.**

<https://www.nctm.org/annual/>

Using Google Classroom in the Math Classroom

by
Chelsea Seguin

When we were first encouraged to start using Google Classroom a few years ago, I was not very excited to jump in and give it a shot. I was very concerned as to how using Google Classroom in my high school math class would even be the slightest bit beneficial. My kids needed paper and pencil to work out their problems, not a computer screen!

My first year teaching, I remember kids being absent and asking about what we covered in class the day before. I would give them a brief overview, and tell them to copy the notes from another student. More often than not, students had either lost their notes, or did not take them in the first place. So, I thought to myself, there has to be a better way to help absent students obtain the content they missed. Thus, began my first encounter with using Google Classroom.

That next year, I purchased an iPad to use with the AppleTV that was left in my room by the teacher before me. I then started using my iPad for notes and going over problems instead of using my SMARTBoard because my iPad could export whatever I wrote in class that day straight to Google Classroom as a PDF file.

After making my first Google Classroom, I began posting my notes, blank copies of the homework, and the answer key to the homework into Google Classroom. This way, all of my students had access to their notes and homework all of the time. The excuse of losing notes and/or homework was now eliminated. My students would comment on how handy it was to be able to access their notes from their

phone while working on their homework, or being able to check their homework as they worked each problem.

I came to rely on Google Classroom so I could save time in class since the students already had the answer key to check their homework. I inadvertently found that students came to class prepared to ask questions about their homework because they knew the answers already, but could not figure out how to get the correct answer.

However, I still was not sold on all the other features that were offered through Google Classroom. That was until this past school year when we all went on spring break, but did not come back. I was expected to still teach, but everything had to be completed online. I knew I did not want my students to have to print out a bunch of papers or copy down problems to complete, have them take a *clear* picture, and email the picture(s) to me. Then, I would have to grade their papers and send them a picture of their graded work back.

I started looking into the other features that were offered through Google Classroom, and began using Google Forms as a way to give assignments with multiple choice answers. Students were given the link to the Google Form assignment in Google Classroom, and were instructed to complete the assignment. I was able to use the “Make this a quiz” feature so that I could assign point values for each question and let the form grade itself. Students were then able to see immediate feedback to know which questions they got correct or which questions they missed.

After creating a few different assignments in Google Forms, I found that I did not have to give my students assignments

that were strictly multiple choice. I could change question types to multiple select, short answer, file upload, and many more. The file upload option quickly became one of my favorites because this is where students can submit their work (yay, pencil and paper!) that goes along with the given assignment. I also found that I could give students partial credit by manually reviewing each submission, and give specific feedback on questions they missed that went beyond getting the answer wrong or right. I was also able to look at the class as a whole to see which questions were missed the most, average score of the assignment, and other useful details.

When I found that I could use Google Forms for assignments, I decided that I wanted to work on changing many of the practice activities I use in my classroom to digital resources. This way I can use these resources in the classroom, or through virtual learning. One of my favorite activities I use in my classroom is scavenger hunts. They are perfect for practice, and they are self checking. I struggled to find a way to convert these to a digital resource until I found that Google Forms has a way to separate the form into sections. For a 12 question scavenger hunt, I created 14 different sections. The first section is where students put their name and email address. Sections 2 – 13 are for the questions (each question in one section). The last section is where students type in the order in which they completed the questions. The great thing about using sections is that depending on how students answer a question, it takes them to a different section. For example, if the student answers “C” to question A, they are then taken to question C. Then if they answer “E” to question C, they are taken to question E; so on and so forth. This mimics exactly what students do in the classroom to find the next question when working through a scavenger hunt.

Another activity I like to use in my classroom is a maze. Students are given a worksheet and start at a given problem, solve and find their answer to see which direction they go to the next question. Continuing this process until they reach “the end.” I have converted mazes to digital resources by using Google Slides. To do this, change the PDF of your maze to a JPEG (a great website to do this is www.ilovepdf.com). Once you have the JPEG of your maze, open a Google Slide presentation, and change the size of the slide to however big your worksheet is (most common sizes are 8.5×11 for portrait or 11×8.5 for landscape). Then, click the “background” option at the top of the screen to insert your maze as the background of the slide. This prevents students from being able to accidentally delete the image of the worksheet, or change it in any way. I then have students insert shapes to identify their pathway through the maze. When students have completed the maze, they are able to turn it in through Google Classroom to be graded.

To my surprise, using Google Classroom and other features have improved the ways I can do things in my classroom. I am able to save time in class by posting homework answer keys on Google Classroom, and also give students an easy way to access content they may have missed due to being absent. I can use Google Forms for self grading assessments and self checking activities. As well as using Google Slides for more traditional style worksheets. I hope some of these digital tricks can be helpful in your classroom too! ■

2022 NCTM Annual Meeting & Exposition in Los Angeles

#NCTMLA22

September 28 - October 1, 2022

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<https://www.nctm.org/annual/>



**Upper East Tennessee Council of Teachers of Mathematics
Membership Application for 2020-2021**

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

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C/O Julie Tester-UETCTM
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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

Membership dues are for July 1, 2020-June 30, 2021.