

UPPER EAST TENNESSEE COUNCIL OF TEACHERS OF MATHEMATICS



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MEETINGS FOR 2020-2021:

Meetings begin with refreshments and informal networking at 4:00, followed by announcements and a brief business meeting, then sessions for all levels concluding at 6:00.

The next meeting will be held on February 16, 2021 at Daniel Boone High School.

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Reimagining Mathematics Education: Learning from the Past in Order to Move Forward

February 1-6

NCTM is committed to bringing the math community together for engaging content that will help transform the learning and teaching of mathematics. Join your colleagues for the NCTM 2021 Virtual Conference, February 1-6, and share in the excitement and love of math!

Our exciting online platform will provide opportunities for networking, small chat rooms, discussions with exhibitors and much more.

Conference strands:

- Leveraging and Supporting the Language of Mathematics**
- Developing Students' Deep Mathematical Thinking**
- Catalyzing Change through Leading from Within**
- Using Tools and Formative Assessment to Build Inclusive Classrooms**
- Reimagining Mathematics Instruction Through an Equity Lens**
- Engaging and Supporting Families and Communities**
- Cultivating the Brilliance of Black Children #BlackLivesMatter**
- Building Student Identity, Fostering Agency and Promoting Social Change through the Learning of Math**

<https://www.nctm.org/virtual2021/>

Math During a Pandemic by Emmaline Hilton

Teaching is one of the greatest professions that a person can have... but teaching during a pandemic puts stress on teachers, students and parents. There are so many questions that I have thought about since the beginning of this new normal. One of my biggest concerns is how I can help my students and their guardians to feel accomplished during this time. I wanted to encourage the mindset of continuing education through a pandemic, no matter how small the learning may seem.

The first step of teaching during a pandemic was to create communication between students, parents and teachers. At the beginning of “new normal” math quarantine teaching, I spoke with each child about the math strategies that we used to solve equations and how important each step mattered to solve these problems. We also discussed that they would need to help their parents understand how we completed our equations using the steps that we have practiced over the school year. The students were so excited that they were going to become the “teachers”. During parent Zoom meetings and chats in ClassDojo, we discussed strategies that would help with the work that was assigned to the students. Students and parents were able to message through ClassDojo questions that they had concerning assignments. These questions were then answered in Zoom meetings so that everyone could benefit from questions asked.

The second step was to develop parent/student learning. I encouraged the

parents to listen to their students but I also encouraged the students to use the life skill of being patient with their parents. As a teacher, we want your child to use their problem solving and critical thinking skills; we want your child to make mistakes because we know that through these mistakes mathematical reasoning occurs.

This gives parents an opportunity to slow down and watch the way their students think. I wanted the parents to listen to their children and to see the beauty of their investigation of learning.

To continue this step, valued websites that were educational based needed to be used by the students. These websites also needed to be available to me so that I could see the progress that the students were making. Programs, such as Reflex math, Prodigy, and Google Classrooms, were used to track progress as well as to turn in work.

Other online links to help encourage learning at home were Epic books for their use of excellent math texts, Nearpod for student paced lessons and Google slides for detailed lessons.

Next, I wanted to reassure the parents that it was normal if their students needed a break. It was appropriate to give their student time to just relax. Learning is a process and through this process, there will be times of aggravation but this too will pass. I encouraged parents to take time to play, to read, and to talk with their children. Use this time to explore math in a different way. Math can be taught everywhere. Let your child help with cooking, allow them to measure liquids or dry ingredients, cut sandwiches into halves, thirds, or fourths, ask your child what time is it and how much time has elapsed or how much time till you leave, when at a drive thru ask your child to give you the amount of change that you need.

This, too, is learning, although it looks much different from pencil and paper activities or a favorite game on a device.

Lastly, I wanted to discover new interactive online platforms to support my students if another closure were to occur. During MathElites several online resources were introduced to help students and teachers for the possibility of online learning. Virtual classrooms are helpful to allow students to see a “classroom.” Through virtual classrooms, links can be embedded into the slides that are interactive. Another online resource is Symbaloo; this is similar to a virtual classroom except it is a grid form with links and lesson paths for your students.

These online resources will help students as well as parents. Also, these resources will help teachers on a team to co-teach and put all information needed in one link that is easily accessed.

Soon, school will begin and teachers, students and parents will begin to sense the feeling of uncertainty about in-person learning. As a teacher I hope to help each student by using the resources that have been developed through MathElites. I will continue to ask myself how I can best support my students' learning through a pandemic. ■

NCTM — Now More Than Ever

For the past 100 years, NCTM has supported the math education community, not just during unprecedented times like these but 365 days a year.

There has never been a more important time to renew your membership. You'll not only guarantee your continued access to NCTM's many resources, but you'll also remain a vital part of NCTM's vibrant worldwide community. Even if your membership does not expire this month, you can renew now and encourage others to join NCTM as well.

We are stronger together so we hope that you will renew today. If you know others that would benefit from membership, please urge them to join NCTM as well. Thank you for your continued support!

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

High Expectations by Jessica Ridley

I must say that Math has always been something I enjoyed in school. So, it came as a surprise that my first three years of teaching would be focused on teaching Reading and Writing to seventh graders. Let us skip ahead to my first year teaching in a third grade self-contained classroom. Writing was a time where magic happened, and my students' writing transformed before my eyes. "Did those students really just put a counterclaim in their essays as third graders?" I just remember using an example of what writing could look like in just a few more years down the road. I did not necessarily expect for them to take that away and actually apply it in their writing. They told me they wanted to learn how to write like a middle schooler. Then it dawned on me... "Why not expose my students to higher concepts in math?"

After completing MathElites, I gleaned what an awesome opportunity I could give my students by discussing higher concepts that they are not expected to see until they get into higher grade levels. I had undeniable proof that this worked with writing. How could it not work in math too?! What would it hurt to have a conversation with the class about the number line and how there are numbers less than 0? What would it hurt to even simply put up a number line in the classroom that showed negative numbers? What would happen? I'd like to think of those strategies as conversation starters with students. A sense of wonder and excitement will form- like a feeling of knowing secrets of

the future. Exposure of higher-order concepts will transform students into this mode of inquisitive and creative thought. It is imperative that we teach such a strong foundation of math to our students, especially if students are learning about it for the first time. Foundation work is key. Oftentimes we see overgeneralized common accepted strategies that do not promote conceptual mathematical understanding which can lead to gaps in the future. It is never too early to expose students to higher thinking and higher grade-level math concepts - students will be excited to learn at such heights and rise to the occasion. ■

NCTM Trial Memberships

NCTM understands that these are difficult times and that teachers are looking for support and resources they can trust. Pass along this link to them and they will receive free trial access, including the publications and resources that come with an Essential Membership.

<https://www.nctm.org/trial-membership/>

Using Google Forms in the Classroom

by
Ariel Otto

Towards the end of my first year of teaching, I discovered Google Forms as a tool to use in my classroom. I knew I could use Google Forms to collect basic information, but I did not know the extent of its capabilities. Now, I cannot imagine my classroom without this tool.

Under settings in Google Forms, you have the option to set the form as a quiz. This enables a variety of functions such as point values per question, grading, and different answering abilities. The response options are as follows: short answer, long answer, multiple choice, multiple select, a dropdown menu, a file upload, a linear scale, a multiple-choice grid, or a checkbox grid. With the variety of options for responses on the quizzes, Google Forms provides an extensive resource for assessing different skills and collecting useful data.

You have the option to type your own questions and answers or to use photos or screenshots from other materials you may already have. If you have an online textbook you can take screenshots from the homework problems to create a quiz straight from an assignment to assess understanding. You can also use the same process to screenshot from any computer program and resources you currently use. You can then create the answer key and enter several different options or variations for each question's answer. For example, this is helpful for problems where the answer may be 3×5 , but a student could also respond 5×3 . However, if you forget to enter

multiple options you can always mark the question correct yourself in manual review.

Once all of your students have completed the quiz, you have the ability to go in and adjust their scores by manually reviewing the questions and your students' responses. This is especially helpful for the questions that are open ended, but can be used for all question types. You have the ability to award partial credit for answers that Google Forms marked incorrect, such as checking for typos or answers that were partly correct. For example, if the answer was 4 inches, but your student put 4 you could dock a point for precision while still awarding some credit. Another example is if a student types four inches, you could award them credit even though their response did not match exactly.

Google Forms allows for providing feedback for each answer. Feedback can be attached in a comment, link, or YouTube link. This feature can be very helpful for addressing misconceptions about a topic and providing students with specific resources to review the topics for improved understanding. You could attach a video of you reworking the problem with the mathematically accurate process, provide a link to Khan Academy for a review lesson, or to a worksheet/activity for remediation, or simply give a comment for which page of notes to review. This is also great to encourage students and make positive comments about their thought processes or efforts.

After the quizzes are graded students receive an email with their score and feedback. Students can see their quiz. You can enable the students to see feedback, their answers, the correct answers and other customizable details. There is also a feature to add a note to the email about the scores. This

would be a great place to talk about the class average, additional review material, and information about remediation or retakes.

Google Forms enables copying the entire form. With this feature you can reuse the quiz year after year, create separate forms for different class blocks, alter the quiz to create different versions to differentiate, or allow for retakes. All of these options save time for the teacher and provide more opportunities for a classroom environment where students can succeed.

Before using Google Forms, I hated the amount of papers I had for homework quizzes, exit tickets, quick checks, etc. I also maybe,

sometimes lost the extra copies I made for students who needed to make the quiz up or retake it. It also cut down my grading time to allow more time to focus on providing timely feedback for my struggling students. The use of this has also forced my students to be more comfortable typing math, using Google Classroom, Google Forms and their email. Google Forms can't solve all of my problems; however, it was a simple and effective solution to many of my classroom ails and I hope it can be for you, too.

If you want to see how all of this looks click below and watch a tutorial that goes along with this essay. https://youtu.be/p_-dp5LD-ik ■



AN EXCLUSIVE MEMBER-ONLY BENEFIT

The NCTM website contains a collection of webinars that address various topics in mathematics education. Register for new sessions and view previously recorded sessions. Live webinars are presented at 7:00 p.m. ET and recordings are posted the day after the live event.

<https://www.nctm.org/online-learning/>

The Power of Student Choice

by
Ashley Carlson

Since I began learning about education, I've always heard that you should give students choices in the classroom. We know that giving students choices encourages them to be more engaged and excited about any activity in the classroom. I've always tried to make this a central part of my classroom environment. Student choice always seemed to happen more naturally in my ELA block as students were given choices about books to read or the topics for research projects. However, incorporating choices in math always seemed to happen less naturally for me. Providing choices in math is especially important because this usually seems to be a part of the day that does not particularly excite most of my students.

While student choice has always been important to me, I now see it in a new light. This summer I read *Beyond Answers: Exploring Mathematical Practices with Young Children* by Mike Flynn. This book completely opened my eyes to the power of student choice and why it is absolutely essential in the math classroom.

An important time to provide student choice is during problem solving. This can be incorporated by allowing students to use the mathematical tool (strategy) or manipulative that makes the most sense to them. According to Flynn, "When we allow our students to approach problems in ways that make sense to them, they will develop conceptual understandings of numbers, operations, and the base ten structure of our number system" (p. 56). For example, when given an addition

equation, one child in an early childhood classroom may feel the need to represent each addend with Unifix cubes. This child might then count all of the Unifix cubes to determine the sum. Another student might prefer to place one addend in his or her head and use fingers to count on for the other addend. A third student may choose to solve the problem with the use of a derived fact. These choices will become more intentional and sophisticated as a child's level of mathematical understanding develops. One of these strategies is more efficient than the others. However, all of these students can determine the correct sum and take ownership of the math by choosing a strategy that they understand.

Encouraging students to choose how to solve the problem allows us to be developmentally appropriate with meeting a wide range of learners exactly where they are in their current level of understanding. We can see what concepts the students understand well and any misconceptions that may be present. This gives us as teachers insight on how to best support the students in furthering their understanding in the future. Students should also be encouraged to explain these choices to their peers. This can help students make connections between strategies and strengthen the overall mathematical understanding of the entire class.

Ultimately, student choice in the classroom makes math more student centered. The ownership of the ideas is given to students. Students are able to learn from the choices that they and their classmates make when solving problems. Teachers are able to facilitate this learning by analyzing the choices that students make and supporting them as needed. Allowing students to

approach problems through methods that are meaningful to them helps students to develop quantitative reasoning. This will allow students to deepen their number sense and be able to make sense of math in the future. Providing choices in the classroom gives students the power over the math and shows them that we value their strategic thinking. Math becomes much less daunting when students feel that

they are in charge because they are able to make math work for them in a way that they understand as they mathematize the world around them.

Flynn, Mike. *Beyond Answers: Exploring Mathematical Practices with Young Children*. Stenhouse, 2017. ■

2021 NCTM Annual Meeting & Exposition in St. Louis

Cancelled

The NCTM Board of Directors has decided not to hold the in-person 2021 NCTM Annual Meeting & Exposition in St. Louis, April 21-24, 2021. This decision was made with consideration for the health and well-being of attendees and taking into account the uncertainty in the current environment, the demands currently being placed on teachers, and the policy restrictions and health risks associated with large gatherings.

The NCTM Board, volunteers, and staff are working on next steps and we will keep you informed as we determine the direction for an alternative setting that will provide the full range of program content, learning opportunities, and collaboration typical of major NCTM events.

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

Self-Paced Learning in the Digital Classroom

by
Kris Lumpkins

Digital learning can be challenging in any content area and grade level, but in this problematic time we are experiencing, we teachers are extremely fortunate to have an abundance of digital resources available to us and our students. With the very real possibility of going completely virtual for the upcoming 2020-2021 school year, the math team at my school has chosen an approach of self-paced learning that we believe can be achieved in or out of the classroom setting.

The primary digital programs we will be using are Prodigy and Study Island. Prodigy is a free program for teachers that allows students to practice math skills in a role-playing adventure game. Students start out by creating their own avatar. It isn't as involved as creating one using Bitmoji so it doesn't take a lot of time, but is exciting for students, nevertheless. The program is designed for students in grades 1-8. Prodigy is interactive and keeps students engaged which is one of the reasons I enjoy using it. Teachers can use Prodigy as a Response to Intervention tool, to differentiate math content, and to reinforce and supplement lesson plans. Just a few of the reports Prodigy offers show individual student growth and progress, comprehension, and student usage of the program. Teachers can see exactly how long a student worked on the lesson assigned and how many questions were answered. The dashboard also provides data on which skills students are struggling with.

Study Island also features many of the same

components that Prodigy offers, but, in my opinion, provides more rigorous questions which is why we chose our test questions from its library. It is a paid program that offers K-12 content that is based on each state's academic standards, so it is aligned with Common Core. There are many different types of questioning offered that are robust and technology enhanced for digital learning and assessments. Study Island's lessons and activities are interactive and easily customizable for the whole class or for individual students. It also offers teachers real-time progress monitoring.

One of our teachers, Brian Shaver (fondly known as Teachaman - check out his YouTube videos!), was able to implement this design into his classroom for nearly six weeks before we went into mandatory shut down in March. Mr. Shaver saw success almost immediately. The classroom atmosphere changed to one of excitement. Not just for the students who were excelling that were able to move on to a new unit on their own, but also for the students who saw what those kids were doing and wanted to be part of it.

This approach begins with creating a pre- and post-test for each math unit. As I mentioned previously, we used Study Island to create these tests based on the rigor of the questions in their library. All students take the pre-test. In order to move on ahead of the class, students must achieve an 85% mastery, or above, on the pre-test. Those students who did not achieve mastery will be assigned different activities for additional practice using Prodigy or other teacher-made or digital support. This will also allow the teacher to provide small group instruction to those students that are still in that unit and may be struggling. Once those students have completed these assignments, they take the

post-test for that unit to establish their readiness to move on. If we are teaching entirely to a virtual audience all these activities and assignments can be easily converted to a digital copy to use in Google Classroom and can be explained and modeled in the form of videos or used in live meetings (Google Meet, Zoom).

While we do want to encourage our students to work at self-paced learning, there are those rare exceptions that could be working on unit 4 while the rest of the class is still in unit 1 or 2. For those students, they will be given an alternative assignment. This assignment could involve the beginning of a community project, creating a presentation on their individual approach to problem solving, or anything else that the teacher chooses.

There are many digital formats that can work with this approach. It doesn't have to be an expensive program. I, personally, love Prodigy because of how excited my students are to use it. And it doesn't cost a thing! It has wonderful features that are easy to use and very informative in guiding instruction. The gaming element is a definite hook for students. Our hope is that this approach will allow the students to work and learn at their own pace with digital programs so that teaching and learning virtually will not be such a dramatic change should we have another mandatory shut down. I believe that once we introduce these digital teaching practices to a new group of students from the beginning of the school year, that they will adapt quickly and positively. ■

2021 NCTM Annual Meeting & Exposition in Atlanta From Critical Conversations to Intentional Actions September 22 - 25, 2021

Strands:

- **Broadening the Purposes of Learning and Teaching Mathematics**
- **Advocacy To Make an Impact in Mathematics Education**
- **Equitable Mathematics Through Agency, Identity, and Access**
- **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 winter 2021.**

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

An Essay by Felicia Carter

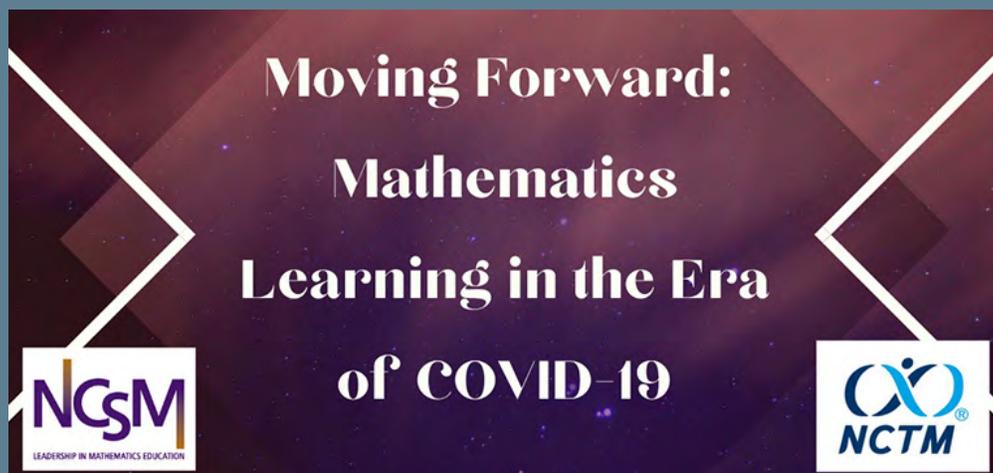
Never in my wildest dreams did I imagine that I would be teaching math to 60 students from my kitchen. As everyone knows, in March, we all were given the task of completing our school year from the safety of our homes. This was a difficult task to say the least, but, having a close relationship with our students and parents led to the success that I feel we achieved.

At my school, we begin each day with a “Morning Meeting”. This is 30 minutes that is dedicated to building a relationship with our students. We work on getting to know each other as a person, team building exercises, uplifting each other, voicing concerns, and preparing for the day. The unique bond that we developed gave students the confidence, in class and as we learned from home, to speak out and feel good about asking for help and guidance.

We, as educators, know that not all students learn the same way and many of the concepts and skills our students use are unfamiliar to parents. When we began teaching virtually, my team took that into great consideration. We taught lessons with pre-recorded videos, utilized online teaching tools (I-ready, YouTube, Reflex math, Edpuzzle, Remind...), and conducted Zoom meetings. We created manipulatives from building blocks, folded paper, soup cans, cardboard, and drawings. We received students’ work in emails, Google classroom, Remind, and even through text messages. Then I was given the opportunity to

participate in MathElites. Due to social distancing and strict guidelines, our lessons were presented in a Zoom meeting, our assignments were sent via email, our homework was delivered by Google Docs, text messages, and personal conversations. This was a wonderful learning experience for me. It allowed me to experience virtual learning from a student’s perspective. Lessons were prepared with lots of thought and modeled in a way that each type of learner would be successful. We were given the opportunity to work in small groups and collaborate with others from the same grade levels. Being able to work together in small groups, even though it was virtual, allowed us to get to know each other, develop friendships, and voice concerns. That is another great learning experience for a teacher. Not knowing how this upcoming school year will proceed, I now know that I can still form relationships with my students and allow them the opportunity to form those relationships with classmates through a virtual learning environment.

I think that the manner in which relationships were formed and learning different teaching techniques has allowed me a better understanding of how my own students learn and has allowed me to grow as a teacher. ■



**"We live in uncertain times. Public health is at the forefront of our minds, and our schools have been disrupted in ways we have never seen. Although no one can predict how education might look in the coming months, it is in the best interests of our students to strategize how we might best meet their needs in the upcoming months."
-NCSM and NCTM 2020**

NCSM and NCTM have published a joint document to provide guidance for mathematics teachers and leaders at all levels to make informed decisions for next steps due to COVID-19. Moving Forward presents considerations, questions, and potential solution processes to educators and school leaders to address the challenges induced by the COVID-19 pandemic of spring 2020.

<https://www.nctm.org/Research-and-Advocacy/Moving-Forward---NCSM-and-NCTM-Joint-Statement/>



**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.

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

Name: _____
Home Address: _____

Home Phone: (_____) _____ - _____
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 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.