

UETCTM

**Upper East Tennessee Council of
Teachers of Mathematics**



In This Issue



Finding Center Made Easy
An Educator's Guide

When It Clicks For
Educators
by Elizabeth Chappell, 1st Grade

Bee-Bots In Math
by Meredith Simerly, 2nd Grade

Learning Expectations,
Student Accountability,
and Data Notebooks
by Tonya Hobbs

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Finding Center Made Easy

An Educator's Guide



Who likes fractions? Perhaps a better question is, “Who likes to divide fractions?”. If you asked this question to a group of students, you probably would not be able to count many hands up. There are carpenters that need to find the center of an object and they use a tape measure to find the total distance across a board or a wall etc., and they will divide that number by 2 in order to find the center. The trouble is, having an oddball number like $23 \frac{5}{8}$ inches and then dividing it in half can be difficult while you’re in the middle of a worksite. So here is an easy way to find the center of any board you are measuring.

I need to find the center of this board. Normally, you would simply divide your rational number by 2 and you will get the measurement you need. All widths are not as easy to work with as $5 \frac{1}{2}$ though. So, let’s just tilt the tape measure up to a whole number that is divisible by two. In this case, it would be 6. Once you have that number at the edge of the board as shown, you can quickly find half of that number and mark it below the tape measure. (see figure below) Note: if you tilt the tape measure up, you need to use the marks on the bottom edge of the tape measure.



In my picture, I have a board that measures $5 \frac{1}{2}$ inches across



Now, check for accuracy. In this case, we know that half of $5 \frac{1}{2}$ inches is $2 \frac{3}{4}$ inches. Simply slide the tape measure back down so that it is perpendicular to the board and check to see where the center mark is located. Right at $2 \frac{3}{4}$ inches!



As you can see, the “trick” works. I would suggest practicing it before making any real cuts or drilling any holes. Do you think this same technique would work if you needed to divide a board into thirds, fourths or fifths? What numbers would you tilt the tape measure to in order to do so? 🎲

When Am I Ever Going to Use This?



“When am I ever going to use this?” All of us have likely heard those dreaded words in the mathematics classroom. When I hear this question, it causes me to pause and reflect on the purpose of learning for the concept we are currently working on. It reminds me that I have to continually work hard to help students see the relevance of what they are learning. I find my students ask this question more frequently when I haven’t provided any context—either real-life or mathematical—or if I have taught it as a rote procedure to memorize. However, when I embed the concept into a real-life situation or mathematical context and have the students begin to make sense of and reason through the problem, they do not question the relevance as often.

Students must see a purpose for learning mathematics; one of which is understanding and critiquing our world. They need to see that mathematics was developed by real people to address and solve real issues. Quite honestly, this goes past needing this—they deserve this! Students deserve to see how mathematics is used to address actual issues and solve real problems. Mathematics is not a stagnant set of rules and procedures to memorize but rather a tool to explore, understand, and respond to challenges.

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When It Clicks For Educators

by Elizabeth Chappell



I applied to attend the Math Elites class with the expectation that I would not be selected. To say I was shocked when I found out I was, is an understatement. Math has never been a strong point of mine. It never “clicked.” I would get stuck on one step of the problem and not be able to get to the end. Many tears of mine have stained math textbooks. I had to do a lot of positive self-talk to motivate myself attend the first day of class. I feared that even though I was in the K-2 grade band, I would struggle greatly with the class. Which then lead to another fear of mine. Am I equipped to teach first grade math this upcoming school year? Would I be able to explain the answer to the “why” questions? I have been a teacher for 12 years, but this would be my first year that I would have a general education classroom. A classroom full of 16 students looking at me, expecting me to teach them math. Which is different than all the years working in the special education field where I focused on behaviors and life skills.

I expected a lecture style math class where I was the student in a mass of many. I expected to feel stupid for asking questions when I did not understand something. I anticipated laughter, sighs and eye rolls from peers. I was also trying to figure out how a lecture style class would help me teach my future students since that is not my style of learning. I anticipated the confidence in my ability to teach math to decrease and to leave class each day feeling more like a failure and regretting changing my path in education. What I got was something very different. Starting off with an assessment was a great way to see what we knew and where to go from there. I did not know what some of the strategies were called, but once they were shown to the class, I realized that I did know that

strategy. My confidence grew after the first session. Every question was received with positive feedback from the professor. I decided that I should really give this experience a chance. With a change in my mindset, I was ready for day 2!

Each day that I attended, I received strategies to use with my students. Not just from the professors, but fellow educators. The atmosphere was one of respect, honesty and understanding. I gained knowledge of why some concepts “click” with students and why some don’t. I was shown visuals and how to use manipulatives to teach concepts that I did not think you could use visuals for. When these concepts were broken down for me, it opened a whole new world of understanding. There were daily discussions with my peers that remained on point and were beneficial for everyone to hear. Every task we completed were hands on, visual, and dare I say sometimes.... FUN! The most beneficial assignment we completed helped everyone see how the standards are across the grade bands. It stressed the

importance of building those foundational skills while allowing us to see how they are addressed in the standards later in the student’s educational career. I feel it helped the older band teachers as well when the lower-level grade band questioned the math concepts and how the problems were visually represented.

I can confidently say that taking this course helped many math concepts “click” for me. Most importantly, this course showed me how to teach math. I never had hands on activities and manipulatives when I was a student learning math. If I had all the visuals and manipulatives while I was learning, I may be more confident in my math ability today. Math concepts could have “clicked” earlier. If we had discussions about math as a class, maybe I would have understood things differently. If my teachers enjoyed teaching math and having fun with us, maybe math would’ve been my favorite subject instead of the class I always dreaded each day. Why did my teachers just give us a problem to complete and tell us “Just do it this way?”

I would highly recommend Math Elites to fellow educators. I am excited to show colleagues different ways to teach a topic. I have made connections with other educators in the area to bounce ideas off. I came into Math Elites with little confidence in my ability and understanding of math and leave with a new confidence in my ability and understanding of math. 🎲



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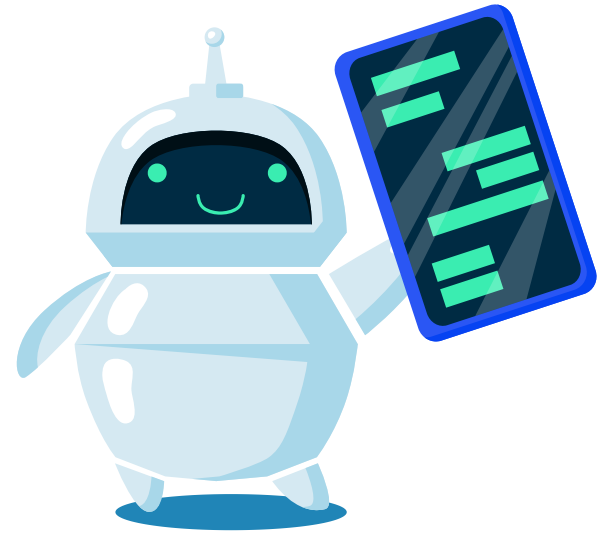
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Bee-Bots In Math

by Meredith Simerly

We all know the importance of using technology in our classroom. Sometimes it is hard to think beyond students using their chromebooks or even using a website to reinforce learning concepts. A different type of technology that many teachers overlook is the use of coding robots. By integrating the Bee-Bot coding robot into a lesson students are gaining more than we could hope for. A Bee-Bot is a kid friendly robot and a great way to introduce coding for younger students. The Bee-Bot takes simple codes by pushing its left, right, forward, and backward keys to follow the designated code on the grid. The grid can be hand made as long as each grid is about 6 inches by 6 inches. This provides the teacher with flexibility to create a grid that works best for the assignment and can be easily changed. Once the Bee-Bot is introduced and students are successful with coding the Bee-Bot students are able to take their learning to the next level.



There are many ways to use Bee-Bot coding robots in a classroom. It could be used for mapping skills, sight words, or even math! One way that I plan to implement this coding robot in my classroom is during student station time. In the Bee-Bot station students will have a stack of 0-20 equations. The Bee-Bot will be placed at the starting grid point. The answers to the equations will be placed on the grid. Students will pick a card and solve the problem. For example if they pulled a card that had the equation $12+5$, they would code the Bee-Bot to find the answer 17. The students will work collaboratively with each other to solve the problem, and code the Bee-Bot to find the answer. If they code the Bee-Bot wrong, they will have to troubleshoot the problem,

and find the solution as a group. This provides students with opportunities to work together to solve problems, and takes the station to multiple levels of thinking

The Bee-Bot coding robot is a great resource that can be implemented into a classroom and used daily. It will provide students with the opportunity to grow and become more well rounded in their technology knowledge. It allows for all students to participate in their own learning and motivates them to keep learning about new and exciting technology available to them. 🎲

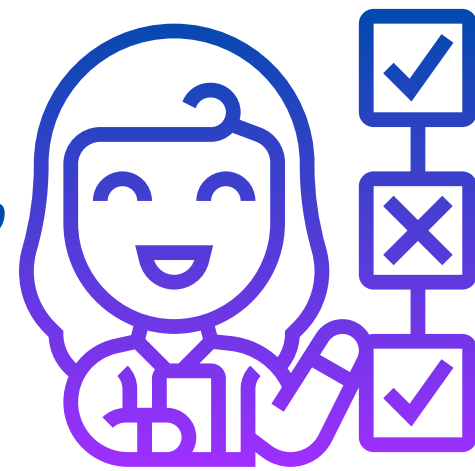


A promotional graphic for the NCTM 2023 Virtual Conference. The background is dark green with a grid pattern and faint icons of a bar chart, a triangle, and a compass. At the top, four circular icons represent the keynote speakers. The text reads "NCTM 2023 Virtual Conference" in white, with "MARCH 29-APRIL 1" in a red oval below it. Below that, "KEYNOTE SPEAKERS ANNOUNCED" is written in yellow. At the bottom, five individual portrait photos of the keynote speakers are displayed in a row.

Click image for more details!

Learning Expectations, Student Accountability, and Data Notebooks

by Tonya Hobbs



Each year, teachers are held accountable for their student's learning based on TCAP and EOC data. How often, as educators, do we want to scream, "Why are students not held accountable for their learning?" How often do we return quizzes and exams only to find them left behind on the floor or in the trash can with most students giving their performance only a singular, fleeting, thought? Through the use of data notebooks and encouraging and modeling a growth mindset, students are made aware of the classroom learning expectations and begin developing accountability within the first few weeks of school.

In my fifth-grade classroom, students are given their data notebooks (folders) on the first full day of school. Students are instructed to decorate their notebooks with pictures or


words that represent them. We then use the folders for introductory activities. This also makes the notebooks personal for each individual student. I then show them how to log their attendance in their notebook, which they will do each school day. This leads us into discussions on the importance of attendance and how students can access Google Classroom when they are absent and request teacher help for learning that was missed. This sets the expectation that students are responsible for learning and work that they missed while absent, while also teaching them to advocate for themselves when help is needed. Their data notebooks also include a page for the students to set a year-long learning goal for math and action steps to achieve their goal. Similarly, students will set a

learning goal for every nine weeks, with action steps, and evaluate whether or not they achieved their goal and why or why not at the end of each nine weeks period. This requires students to think about the future, what they want to achieve, and how they can make it happen, a basic skill needed for success not only in school but also in life. To keep the goals and action steps fresh in their memory, I regularly have them share their goals and action steps with a shoulder partner and describe their progress or what they need to work on some more. At the end of each nine weeks, I briefly conference with students individually about their goals and action steps, emphasizing a growth mindset. Inevitably, the beginning of the school year means a great deal of testing. This includes Aimsweb, which is given three times per school year; an eight-minute multiplication facts test, which is given weekly; and a pre-test of basic skills and concepts that are prerequisites for fifth-grade math. The students' data folders include graphs where they can record their scores in bar graph

format and track their progress throughout the year for Aimsweb, multiplication, and nine-weeks district assessments. The students learn to use their data when setting their goals and formulating their action steps. Finally, the data notebooks include our fifth-grade math standards broken down into substeps and prerequisites worded in a child-friendly manner with examples included. Each has ample boxes where students will record scores they receive on quizzes and exams for each standard or skill. On the second full day of school, students sit with a partner to read through the standards. They then interview one another, asking teacher-provided questions, such as, "What is a standard that you are excited that you will get to learn about? What is a standard that looks familiar to you that you may already know from last year? What is a standard that scares you?" This opens up a class discussion on all of the things they must learn and we group the standards in a way that doesn't seem so

overwhelming (e.g., place value, whole numbers, fractions, decimals, and volume). Weekly quizzes are given on individual standards or skills and I provide students with a breakdown of subscores for the different standards assessed on exams. By doing so, students can quickly and easily see which standard(s) or skill(s) with which they are struggling. They come to learn that additional help, reteaching, and the opportunity to retest will be provided within small groups or morning tutoring sessions, each of which will occur from a growth mindset perspective. Students are also encouraged to self-advocate when they are recording their data and reflecting on their performance and progress. They are reminded that they can email me at any time to request additional support, whether it is on a skill that we are currently working on, a previous skill that they have not yet mastered, or a prerequisite skill that they have forgotten.

Through the use of data notebooks, learning expectations for the year are presented within

the first days of school. Students learn to accept accountability for their own learning and track their progress in a very visual, age-appropriate manner. They set goals for their learning and lay out action steps to help them reach their goals. They regularly reflect on their progress and either make a new goal if their previous goal was met or evaluate and modify their action steps if they need to continue an already set goal. Additionally, students learn to recognize and self-advocate when additional support is needed. 



**Upper East Tennessee Council of
Teachers of Mathematics**

**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
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organizations (NCTM, TMTA, etc.) that promote mathematics
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Please check the following statements if applicable:

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I am interested in holding a leadership position with UETCTM