

*THE UPPER EAST
TENNESSEE COUNCIL
OF TEACHERS OF
MATHEMATICS*

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Micah McCrotty, assistant editor

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UETCTM Meetings for 2018-19 Officers for 2018-2019:

Usual schedule: 4:00-4:45: Refreshments, announcements, business meetings, short presentations; 4:45-6:00: Programs for all levels.

Next Meeting: Thursday, March 14, 2019, Daniel Boone High School, Gray



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*A Seasoned Teacher's Thoughts on MathElites,
Growth Mindset and Common Core Math*
- Lisa Renner

I have a Bachelor's of Science in Psychology. Therefore, my beliefs on personality and intellectual beliefs were formed decades ago as I studied in college. I have always believed that people were born with a range of abilities. Furthermore, I reasoned, that the effects of nurture and nature helped to affect and determine where within this range people's abilities fell. This idea has always made logical sense to me. I remember having this discussion with my mother many times. I never doubted this to be correct. This week I was introduced to the idea of a Growth Mindset. This concept challenges everything that I thought I knew about intelligence and personality. Growth mindset, as I understand it, argues that people do not have a range of intelligence but rather can improve their intelligence and other abilities with hard work and perseverance. So far, a week into the MathElites training program, I have to say that this philosophy seems sensible and logical. I am rethinking my beliefs on intelligence and personality. I am leaning towards the idea that anyone can increase any talents/abilities they have with hard work and dedication. Granted, I think some skills definitely come easier for some than others; however, practice will improve skills for all.

I have been teaching since 1995. I think that is a total of 23 years, most of them teaching middle school math. When I started teaching, all teachers were given a blue book of standards for their grade and subject level. We were evaluated three times a year for three years and then left alone until our next evaluation came up, five years later. Seems like everything has changed since then. I used to never check email. I didn't have one. When a child misbehaved, he/she was paddled. I taught math skills one way,

the way that I thought was easiest and would work every single time. I always had a 1, 2, 3 step approach to teaching even the most difficult math. Students were required to copy vocabulary definitions, complete about 15-30 math problems a night, and keep a notebook full of notes. That always worked, so that's what I did. My how things have changed!

As I sat in my MathElites training this week and we discussed four different strategies for adding 3-digit numbers, I was amazed. Mostly, I was awed because I have taught math for so long and never new any of these methods. Before this class started, I thought that going over three or four ways to work the same math problem would confuse a kid. Maybe it will. I don't know. However, I have to admit that some of these strategies were so much easier than the old fashioned of way of adding from right to left with carrying. In my 47 years on Earth, I had never added 3-digit numbers using the Hop, Skip, and Jump Method, the Table Array, the Lattice Array, or by Sharing. None of these methods were in my wheelhouse. I do not know yet if giving a child this many options will empower or overwhelm him/her. But I do have to admit, some methods were much easier than the old fashioned way I was taught.

So what does this mean for me? Well, since I do not have the money to retire, I am going to apply this Growth Mindset to myself first and see what I can learn this year. I am going to try to do my best to give my students every tool and strategy I can to work math problems. I do not know how successful I will be. All I can do is try to learn, try to be better than I was, and continue to have an open mind and dedication to my students. I am going to "bloom where I'm planted." This year, that is in 5th grade Mathematics. Last year, it was 5th grade English and Language Arts. Who knows what next year will bring? But

one thing is for sure, this old dog is definitely learning new tricks.

Always Spiral
- Hannah Jones

When I think of the word “spiral,” I think of rotini pasta noodles. The type of spiral I am talking about in this article has nothing to do with noodles unless, of course, you use dry noodles as a math manipulative. What I am talking about in this article is cumulative review called spiral review.

Spiral review happens when material that has already been introduced and taught, is reviewed on a regular basis throughout the rest of the school year. It is a crucial part of a child’s educational experience because it connects new learning to old and helps the student see connections between what he or she is learning.

Why is spiral review important? Spiral review gives students the opportunity to remain proficient in previously learned concepts. For students that are not proficient in previously learned concepts, spiral review gives them the opportunity to improve. When students frequently review and practice math skills they are more likely to remember and apply these skills to new concepts. Spiral review helps students and

teachers with assessments. It can be used as a formative assessment to determine areas that an individual student may be struggling in, and it also can be used to guide teachers in future lessons. In my own classroom, I have found that spiral review significantly helps students with reviews for tests. Imagine learning something new for the first time and two weeks go by without practicing the newly acquired skills. Then, all of a sudden you have to take a test on the new skill you haven’t practiced. I don’t know about you, but I would probably panic a little. This is where spiral review becomes helpful. When my students are preparing to take an end of unit test they do not have to reflect back on the beginning of the unit taught two weeks prior to the test because they have continued to practice the skills first learned. My students have lower test anxiety and a higher level of confidence when spiral review is part of our daily math routine.

How do you implement spiral review?

Spiral review can be as easy or as complex as you want it to be. You can incorporate spiral review into calendar time, early finisher worksheets, interactive math games and centers, or even homework. One of my favorite forms of spiral review is

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number talks. The way that I implement number talks is by writing a number or number sentence on the board and having students copy it in their math journals. Then, I set my timer for three minutes and ask students to write down everything they know about what I have written on the board.

Sometimes this looks like base ten blocks or expanded form for my struggling students, and sometimes it looks like four different addition or subtraction strategies along with an array of the sum or difference for my advance students. When the timer rings, we come together as a whole group and each student shares his or her thoughts and learn from each other. Number talks require students to reflect back on their learning and apply their prior knowledge. Over time, my students have learned to love number talks and actually request to do them. This is always a win in the teacher world! I also love using an online program called Mountain Math. Mountain Math is spiral review aligned to CCSS that covers all grade specific content areas. You can easily adapt the response sheet to meet other state standards as well. You choose the grade that you teach, and the daily spiral review is customized to that grade level. Students answer the questions on response sheets and can complete it independently once the routine is established. My students love pretending to be the teacher by taking turns to go over the answers with the class. I typically do Mountain Math three times a week and number talks twice a week to ensure that all standards are being reviewed.

Always spiral!

I would like to encourage you to always spiral. Spiral review doesn't have to occur only in math. In my classroom we use spiral review daily in ELA as well. Your students will greatly benefit from it, and you will see improved test results as well as more "I can do this" attitudes within your

students. Spiral review provides your students with multiple opportunities to be successful. ⚙

Mathematics in Our Everyday Lives

- Holli Criswell

Southwest Virginia is mainly a rural location where farming is not only a source of income, but a way of life. Many people from this area spend their time tending to cattle, growing crops, or working in hay fields. This lifestyle is common amongst the older generation in Southwest Virginia and it also plays a huge role in the lives of the younger generation. As a teacher, farming is a common interest my students and I share. Knowing that we enjoy the same hobby makes forming the student-teacher relationships easier.



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While discussing farm issues, my students stay engaged and ready for discussion. However, when teaching math, I often do not get the same kind of enthusiasm.

To engage my students in math class, I try to incorporate real world scenarios. Making connections between farming and math gives my students a purpose to solve the problem on hand. This technique not only captures my students' attention, but it also shows them how we use math outside of the classroom. If students are able to see that math is incorporated in our daily lives, like when farming, they will become more eager to learn.

Mathematics is a subject that is significant in our everyday lives. Whether it involves working on the farm or working at a fast food restaurant, students need to understand math is everywhere. Therefore, it is important to achieve a solid basic foundation. ✿

Making Math Classrooms Great Again!
- Kaelin Toney

As my first year of math teaching has come to an end, I have been thinking over and over again about what went well and what went bad, things I must do again and things I will NEVER do again, and just overall ways that I can make my classroom a more positive and successful learning environment for my students and myself. After all, in general a lot of students hate math. I know my class might not be their favorite, and as a teacher, I cannot say I am content with that. Students should not fear math or dread coming to any class. Math is supposed to make sense, right? Questions and ideas began running through my mind as I thought about the past year and all the ups and downs that I have had as a first-year teacher. Some of these questions included:

“How can I turn my tiny classroom with no windows into a space where students are excited to be, a place where they feel relaxed and comfortable?”, “how can I turn this space into an environment that students enjoy coming to?”, and “how can I use the resources in this classroom to present content in a way that is more relatable to students?” After spending time in Math Elites and talking about the importance of the way we approach math in the classroom, I knew that some adjustments needed to be made for the coming year.

First, I knew I needed to make some physical changes to my classroom in order to maximize my small space. I have decided to do some rearranging of my desks. It is a simple, maybe obvious change, but I feel very confident it helps when needing a fresh start. Especially in a small space, it is crucial that all available space is being used, and desks are arranged to work with the space instead of against the small space. I have my desks lined up in a non-traditional way (some rows, some clusters, some stand-alone desks) to encourage collaboration and give the students and myself more room. This set-up also aids in classroom management and controlling behavior. In order to create a more peaceful, relaxed atmosphere, I have also included more decorations (visuals, canvases, wall-hangings) to spice up the room, making it feel more homey and safe, as well as aesthetically-pleasing to look at and relatable to students' everyday interests. What does all this have to do with math? Nothing. However, how can a teacher expect students to learn if they are not comfortable in their own classroom? Or if they cannot relate to their surroundings? How can a teacher effectively teach the material without positive energy and a plan for those days that classroom behavior is crazy? I can answer these questions with one sentence. As a new teacher, I am willing to

experiment with any ideas to make my space more comfortable and successful for learning!

Secondly, I want to change the way I present math concepts in class. More specifically, I will focus on presenting concepts in more than one way AND making connections between those different ways. For example, in Math Elites we did an activity with juice mixtures. There were five mixtures, each with a different ratio of orange concentrate to cold water. We were asked to answer some questions about our mixture and then make a poster that includes an algebraic formula, table, graph, pictorial representation, and verbal description of the mixture. Then, we presented our posters to the class to show how these were all related. It is so easy to get wrapped up in giving students a formula and an example and asking them to then recreate that process in a different problem. This method becomes more memorization than conceptual understanding. By allowing students the time to explore different methods, look for patterns and relationships, collaborate and discuss their work, and present their ideas with the class, deeper understanding becomes more natural. It would have been easy for us to have been given a single formula for our juice mixture activity, but being required to create more than one representation of the situation forced us to discover relationships in the problem and look at it from multiple points of view. Similarly, I would like to use more geometry to model algebra concepts. Sounds funny, right? However, many algebra concepts were discovered by geometry concepts and vice-versa. The two go hand-in-hand. Geometry gives us physical and/or visual evidence to prove why an algebraic formula is what it is. Investing time into geometric shapes, manipulatives, models, and drawings will help build understanding of algebraic concepts and ultimately support in

simplifying those concepts for students. For example, during Math Elites we did another activity where we were given a trapezoid on grid paper and the formula for area of a trapezoid. We were asked to create a pictorial representation of that trapezoid to prove why the area formula for trapezoids is true. This even helped me understand why the formula is true. Taking time to make those connections with students will tremendously aid in successful learning.

As an 8th grade math and Algebra teacher, it's no surprise that I spend a majority of my time at work thinking, planning, and collaborating with other teachers about how to teach a particular concept, what activities will best reach my goal, and how to have better classroom management, but I realized in order for all of that to run smoothly, my classroom must be a working, positive environment first. Classrooms are a home for teachers during the day and a home for students for part of that day, and they should be a stress-free place. What works for some classes will not work for others, and teachers must be flexible and willing to change. My biggest take away from my first year- do not be afraid to try new things in your classroom. Everything is trial and error. Your classroom is yours to make into whatever will best meet the needs of your students, so have some fun with it! 🌟

Math in the Fast Lane
- Brandi Wilson

“Life in the fast lane, surely make you lose your mind.” Written and sung by the Eagles, I find such truth in those lyrics. We live in a time of fast food, fast cars, and binge-watching full seasons of a series in one sitting, without commercials. We are desperate for instant gratification found on social media and we are starving for instantaneous answers as we scour the web.

We are lost without our mobile devices, dominated by a need to instantly contact and respond to those important calls, emails and texts. We react on impulse, throwing caution to the wind. This is feeding into the world of education, especially math.

For generations, math has been known as the black and white subject. Teachers are expecting one correct answer and one way to compute the answer. In these classrooms, there is no productive struggle, no discussion of solution paths, and no endurance. If the answer is not immediate, then students are dumb. If their neighbor completed the problem using a different method, then they must be wrong. If the teacher cannot offer help immediately, the student gives up. Being dominated by a fast-paced life, there is no time for neuron-building struggle in problem solving, no place for failure when finding the answer, no room for others' ideas and criticisms. We are doing an injustice to our students when we do not provide authentic opportunities to persevere when solving problems, to offer conjecture, respond to and provide criticism and learn from mistakes. Students complete a problem by using math rules in which they have no conceptual understanding. They cannot explain why a certain scenario worked out, only that they arrived at the correct answer. This is not proficiency in math. We are not creating thinkers, but robots.

Let us steer away from “math in the fast lane” and offer a new way of thinking. Implementing the new standards, writing task items that are high quality in that they encourage deep thinking, different solution paths, and collaboration. Encourage students to make conjectures, to learn from mistakes and make sense of problems. Use 3 Act Tasks to offer students opportunities to generate questions, make sense of problems, and persevere. Allow them to be the leader while you facilitate. Encourage thinkers and

a time to slow down. Take the time to help students conceptualize mathematical ideas while carrying out mathematical practices. Teach delayed gratification in a world where it does not exist. Teach, truly educate, your students. ⚙

Introducing Jeremy Zelkowski!

Jeremy Zelkowski is the NCTM Membership and Affiliate Relations Committee (MARC) representative for the Southern 2 Region.

Jeremy is the past-president of the Alabama Council of Teachers of Mathematics and has served on the Executive Board for the past eight years. He served as the ACTM Annual Fall Forum Program Chair for two years, plus serving on other state mathematics panels and committees, as well as serving as a T³ National Instructor.

If you would like him to attend your Affiliate's conference or a meeting, contact him at the email address listed below.

Jeremy Zelkowski

NCTM Membership and Affiliate Relations Committee (MARC)

Southern 2 Representative

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MARC CALENDAR

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2019

Boston · Sept. 25 –27

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*Reaping What We Sow: A Former Kindergarten
Teacher's Newfound Perspective*
- Jordan Dison

Perspective is a funny thing. You just don't know what you don't know ... until you know it. I taught kindergarten for four years and absolutely loved every minute! As my major is Early Childhood Education, my heart is to teach young learners through hands on and meaningful experiences and play, and kindergarten is the most magical place that can happen.

Then came the move to second grade...

I was shocked at how many of the standards are very similar to those in kindergarten. I remember thinking, "This is going to be easy for the students. They have heard it since kindergarten." My veteran and talented teaching partners said, "They don't act like they've heard it since kindergarten." After making it through my first year in second grade, boy, were they right! So, my next, natural question is "why, and what am I going to do about it?"

As I have thought about this a lot over the summer, MathElites has shed new light of the subject for me. I am sure many of those of us in the math education world are familiar with the Strands of Proficiency concept: that students need to build five different areas in order to be truly proficient in math. For those you who are not, they are conceptual understanding, procedural fluency, strategic competence, adaptive reasoning, and productive disposition. This was not new information to me, and I really thought I was helping my "kinders" build these five areas, and I was, but not in a systematic way. I think that is key- teaching mathematics in a systematic way that supports the natural progression of number sense in young learners.

We are fortunate to be teaching in an exciting time, with new faces who are really revolutionizing the way we think

about math education. Graham Fletcher, Robert Kaplinsky, Dr. Nikki Newton, Christina Tondevold and many others are pioneering a way to teach students to be patient problem solvers. I can't remember ever being given the opportunity to become a patient problem solver in elementary school. I remember learning one strategy and mastering that strategy. Then, as I entered the classroom as an educator many years later, and Common Core had come onto the scene, I saw the value in teaching many strategies. So, I taught various strategies to my students and provided them with choice when solving problems. However, what I hadn't considered before this summer, is that there is a natural progression of number sense, and perhaps a direct correlation with the strategies with which students do exhibit proficiency.

The perspective that I gained from starting in kindergarten and moving to second grade is very different than if I had simply started in second grade. I now see that students' math understanding is so much like their literacy! I use the Daily 5 in my literacy block meshed with several other systematic programs, like Seeing Stars and Words Their Way. I highly value reading running records as a starting point for grouping students and planning small group instruction. Why had I never applied this same strategy to my math block?!

During MathElites, I was introduced to math running records. I saw a video of Dr. Nikki Newton completing a math running record on a student. This student was very solid in addition strategies like "plus 0", "plus 1", and "facts within 5", but struggled significantly more with "facts within 10", however was near proficient in "doubles facts". Suddenly many of my second graders' faces popped into my mind. This little girl was just like my students. Just like her, my students had gaps that kept

them from progressing more seamlessly toward mastery of higher mathematics.

That's where the Strands of Proficiency come in. Strategic Competence- I failed my kindergarten students by not being systematic in teaching them strategies for addition in an individualized way that allowed each student to progress through strategic competence at their own developmentally appropriate pace. I believe this is one reason we all have students come to us with gaps in mathematical proficiency. Rarely do we see students find strategies on their own for solving problems; more likely, students come to us only with the strategies they have been explicitly taught.

So now, what am I going to do differently? I am going to try to close the gaps for my second grade students. I am going to employ math running records this year to support my guided math groups and lessons. I am going to teach strategies systematically, rather than gravitating toward those with which I'm more comfortable. In addition, I am going to provide students with more opportunities to exercise every Strand of Proficiency in unison in meaningful ways, like with 3-Act Tasks.

This year I have witnessed that we reap what we sow in math education. I would do so many things differently if I ever went back to a kindergarten classroom, but what I want to change; I can also do where I am now. I want to do a better job sowing so that my students, their future teachers, and their community can reap the benefits of mathematical proficient citizens – real world changers! 🌱

Share Your Struggles: Empower Your Students Through Teacher Transparency
- April Southerland

“The struggle is real.” How often do we hear someone say that phrase? Normally,

it is used as a way of laughing off a seemingly easy task that turns into a difficult situation. But those four words are exactly what I want my math students to understand. Struggle is a real thing and it happens to us all.

During the summer of 2018, I enrolled in the Math Elites program. My initial thought was that Math Elites would be a methods class; basically just showing teachers how to handle classroom management issues and find the best resources. But I found myself being pushed into topics and content areas that I was not comfortable with. Though difficult, this summer helped me see things from a student's perspective and my desire is to pass along these five lessons to them:

Be patient: Whether you are the slow learner that requires extra time or the accelerated learner who is waiting for others to finish, be patient. Whether you need to ask for help or help others, there is always something that can be done. This summer I had the chance to be both – I was fortunate when someone stopped what they were doing to help me understand and I was also able to postpone my own activity while I helped a classmate catch up.

Speak up! Use your voice and don't be afraid to admit that you don't get it. When it's time to take the test, it's too late to share your struggle with the material. Be willing to stand up for yourself and get the help you need. It's OK to feel awkward when asking for help but don't let that stop you! Learn ways to overcome it. As a student, try asking a friend for help first or asking the teacher privately but eventually get comfortable enough to share your confusion in front of everyone. As a teacher, make students feel comfortable with mistakes. Share mistakes you have made in the past. Praise a student when they are brave enough to speak up. When I did that in class this summer, and I spoke up, it was

horribly embarrassing, but I was provided with a great deal of resources and not repercussions.

Take initiative: If something is an ongoing issue, then take time yourself to learn more about it. Don't assume that one day it's just going to "click" without any effort. Work practice problems and watch videos or ask a friend to show you the material. Don't just rely on your time in the classroom. Make your education a priority and take the time to be a better learner.

Persevere: It's often when we are just about to give up on something, that the solution finally comes through, isn't it? Don't let yourself give up. Don't give in to the temptation to copy off someone else's work. After all, would you rather feel done or would you rather feel proud? During a group project, I allowed my group members to move on without me and I sat there until I got the assignment finished. It would have been nice to just see what they had gotten and continue on as part of the group, but I wanted to make sure I understood and felt better about my work as a result.

Listen: What happens when you think you are doing the work correctly and a mistake is revealed? How will you react? Some of us respond poorly to criticism (hand raised). As teachers, we must make sure that criticism is constructive and given with the intention of bettering our students. As the one being criticized, we should try to look for the lesson that should be applied and know that it will not be the last time we will ever face someone saying something against our work or efforts. You don't fail until you stop trying to learn from the experience and be better next time!

We all struggle. Some of us just hide it better than others. But I believe that the more we as teachers are willing to share our own struggles and shortcomings, the more our students will gain confidence to struggle, knowing that they are not alone.

Not only not alone in their confusion but not alone in the journey to overcome it. ✿

To Sink or Swim; A Math Teacher's Book Review of "Teach like a Pirate," by Dave Burgess
- Susan Addington

After the first few pages of the book I said, "Oh great, how is a history teacher going to help me be a better math teacher?" I am responsible for showing my students' learning growth through standardized testing. Does he have this responsibility too? My thoughts ran wild with questions from wondering if this author's school system even has standardized testing to wondering if his accountability for his test scores is connected to his evaluation. My brain was firing off in so many different directions that I had to refocus on the real purpose of this book.

First, I had to change my way of thinking from a fixed mindset to a growth mindset. After changing my mindset, I was able to read this book and see how it could help me be a better teacher. I went from focusing on the subject the author taught to focusing on his actions as a successful teacher. His teaching style and lesson implementation made learning fun in his classroom. He elevated boring facts that students needed to learn in order to pass his class to fascinating facts that they wanted to learn more about. By doing this, he had his students wondering and asking questions about the lesson he would next be teaching. How awesome is that! He now has them engaged and ready to learn.

After I changed my thought process, I was also able to see that I was already using many of his teaching techniques in my classroom. I use hooks and design my lessons so my students are part of the learning process. What I did not do is a total customization of my lesson like the author of this book. This author is a history teacher

who makes history come alive with costumes, themed decorations, and music from whatever time period is being presented. The more I read, the more I wanted to teach like a pirate too. I wanted to go from a “teacher” to a really good teacher.

Now, here comes the hard part: do I want to sink or swim? I want to swim! So, after taking time to reflect on my teaching style, I had to ask myself some basic questions. Could I do more to reach my students and could I step it up? Would it really be that hard to add more detail to my hooks or lessons? Will I see improvement in students’ learning growth? I needed to answer these questions honestly. After I took a moment to really think about the questions, here are my answers. Yes, I can step it up and create a student-based learning approach which will allow all my students to have a more hands on learning experience. No, it will not take that much more time to enhance my lesson plans and hooks. Yes, I will most likely see learning growth from my students as they take ownership of their learning.

My concluding insight from this book is that every teacher needs to have an open mindset about teaching and lifelong learning. Just take an extra moment during the school year and really think about how you are presenting the material to your students and ask yourself this question, “Am I doing my best to swim to new horizons?”



Visualizing and Verbalizing in Math

- By Claudette Decker

For years, educators and researchers have excelled in helping children create mental images when they listen and read and also in helping them use these images to recall and comprehend language.

Lindamood Bell and other experts in metacognition have developed teaching

strategies and programs to help learners see their thinking about words. Now, with subitizing and other new approaches, math teachers are effectively using these mental strategies to scaffold and direct students develop in Math as they have in Language Arts.

I have been interested in images and self-talk since my coaching years in gymnastics. Having girls notice the “point of view” or perspective that they mentally practice in- having them make sure that it was the image they would truly see themselves while performing the trick and not a “bird’s eye view” image seeing themselves flipping from outside the body. I have been so intrigued by research in meta-cognition and imagery. As a result, I began trying to offer my public school students different mental strategies and tools to help them store and recall information more efficiently. Experts developed activities and tools and strategies like offering young kids an arced ABC train, instead of a linear one, can help them to tap into how they store the letters. V/V strategies (LMBell) can aid students in comprehension and retelling. Talking to kids about what you are thinking and what you visualize when you solve problems and asking them to explain their thinking are vital to both retrieval/ use of facts and the development and cementing of skills and strategies.

So, having practiced imagery in Language Arts with my kids for years, it was a couple of school years ago when I challenged myself to strive to use the same scaffolding in Mathematics. I decided to start with my first graders - asking them to focus on images when working on number line activities. Practicing using open ended number lines and number lines made with our outstretched arms. Changing end points and variables until I had a grasp on who had a “number line in their head.” I also began moving around physically as we jumped to

points on a hundreds chart. Having the kids stand up on 23 and jump up or down (adding by tens) and left / right (adding or taking away ones). Asking them, “Where are you now?” I continued to work with strategies from Braingym and VisionGym and was intentional about including equal time with these integrating them within Mathematics.

Next, I tried extending my kids’ work in graphing to include negative numbers-- turning any typical graph plotting “favorites” then to a second graph asking them to tell me their LEAST favorite - graphing them downwards to tell how much we HATE spinach, (and not just how much we love apples). Trust me - 6-year-olds know and understand the fact that a negative 12 is more powerful than a negative 2. I also intentionally returned to images over and over throughout the year and encourage and call for subitizing. I will now cycle back to mental images of each number at different times of the year, (not just with the original introduction) and challenge my kids to go back and add to their “definition” of 17 as we tackle different skills. Asking, “now that we have learned about fact families, what images can we store for 17?” Ok, “now that we have learned about near doubles, what can I store for 17 mentally?”

I feel more confident and excited as a math teacher having used these strategies. My kids talk more about math. They talk more about their brain and their learning. I look for research and lessons that ask children to think about their thinking, I have found and practiced these types of activities in MathElites. I have been introduced to the work of Mathematicians and inspired by Math Teachers locally and around the country. I am thankful for the opportunity that I had this summer to complete MathElites with Eastman. It has given me new authors and mathematics specialists to learn from and new ideas to try in my classroom. Individuals who are applying the

Best Practices in Teaching and Pedagogy with the Best Practices in Math. 🌱

In Closing

Don't forget to check out back issues of the Upper East Tennessee Council of Teachers of Mathematics by heading over

to: <https://www.etsu.edu/cas/math/activities/uetctm.php>.

They are free to access!





**Upper East Tennessee Council of Teachers of Mathematics
Membership Application for 2017-2018**

Complete and return to Sunshine Light with a check for \$10.00 made payable to UETCTM. Completed application and check may be mailed to:

Sunshine Light
c/o Robinson Middle School
1517 Jessee Street
Kingsport TN 37664

Name: _____

Home Address: _____

Home Phone: (_____) _____ - _____

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School: _____

School Address: _____

School Phone: (_____) _____ - _____

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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:

- I am a current member of NCTM.
- Please check if you do NOT want your information to be shared.
- I would be interested in leading a session at UETCTM
- I would be interested in holding an officer position with UETCTM