



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

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MATH FUN



One day a farmer called up an engineer, a physicist, and a mathematician and asked them to fence off the largest possible area with the least amount of fence. The engineer made the fence in a circle and proclaimed that he had the most efficient design.

The physicist made a long, straight line and proclaimed "We can assume the length is infinite..." and pointed out that fencing off half of the earth was certainly a more efficient way to do it.

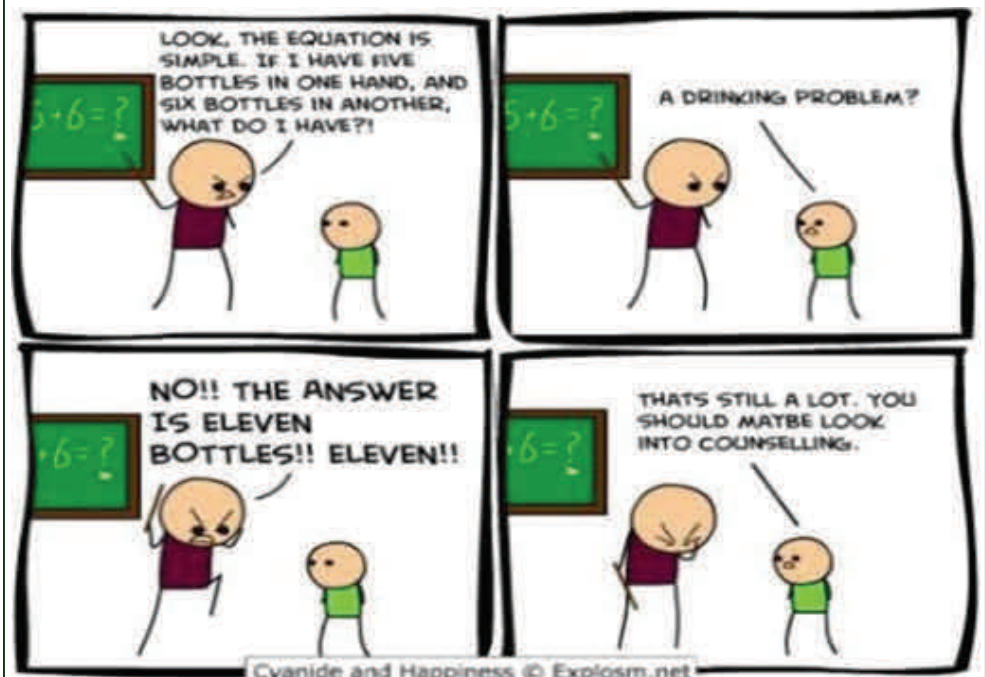
The Mathematician just laughed at them. He built a tiny fence around himself and said "I declare myself to be on the outside."

(<http://www.mibba.com/Forums/topic/95339/Nerd-Jokes/>)



UPCOMING UETCTM MEETING

◆ **Tuesday, March 5, 2013**
John Sevier Middle School
1200 Wateree Street
Kingsport, TN 37660



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When will I ever use math?

By Bobbie Nave : Sullivan County School District



As I sat in my pre-algebra class, many years ago and completely lost, I continuously asked myself this one question, “When will I ever need or use this math?” The more I asked the question the less I really cared if I understood it or not. Even in elementary school I thought, “I’m not gonna build a house, so why do I gotta know how to use this ruler?” Of

course as I got older, I soon realized that kind of thinking was completely wrong. I needed to be able to count money, cook a meal, or simply tell time. Then, when putting a new carpet down and having to pull out that ruler I ranted about so long ago, the connection was finally made! When do we NOT use math?

As a second grade teacher, when I begin a new skill, I try to always explain to the students the importance of addition, subtraction, measurement, etc. I want them to make the connection between when they may use this particular type of math in “the real world.” I honestly feel that elementary teachers have a huge influence on students when it comes to math. We, as elementary math teachers, build on prior knowledge and set a foundation for our students for the next grade level. If we fail in doing this, the repercussions could have a major impact on how they feel about math

As I thought about this question again, I came across a very interesting article from the Wall Street Journal. Most of the highest paying jobs in 2012 were professionals who had to know math! A mathematician was on the top 10 list



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making over ninety thousand a year! (see table below)



Wall Street Journal April 2012

If I showed this information to my own college/high school aged children would it make much of a difference? I seriously doubt it. However, as educators, if we share our findings and spark some mathematical interest in our students, they may feel what is being taught is more relevant to their life. We need to help our students answer this age old question... “When will we ever use this math?”



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*Connie Clanton is a
teacher in the Johnson
City School District*

Using math study journals in the classroom

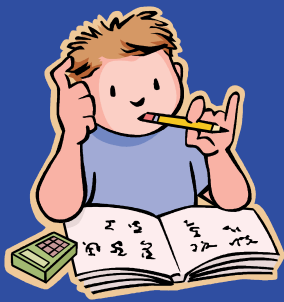
By Connie Clanton

Here they come...a new group of third graders all ready to learn! Third grade is a big year, and they will be faced with new challenges. This is the first year they will be using a planner to keep track of their assignments. They will also be changing classes for the first time, and will have to keep up with the things they need for both classes. Even though I tend to forget that they are still second graders when they come to me, it doesn't take long for them to get into the routine and "become" third graders.

Another big change in third grade is the TCAP. This is the first year they will have to take this test, and there is a lot of anxiety for students and parents. They are used to taking the Benchmark tests where they have to remember what they have learned for a whole nine weeks. The TCAP however, requires them to remember what they have learned for the entire year! One of our jobs, as teachers, is to help them be less anxious or stressed about this test. If we can teach them the skills they are required to know in a way they can remember what they've learned, then they will feel more confident.

One of the tools I started using about 4 years ago is a Math Study Journal. This has helped my students organize their learning. There are many effective ways to set up and use study journals in the classroom. You just have to find what works best for you and your students. I have changed mine a little each year.

(continued on page 5)



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I use the black and white composition books that have the sewn pages. The first page is a “Table of Contents” page that we add to as we begin a new concept. I make tabs that are attached to the side of the first page of each new concept. This makes it easy to find the section they are looking for.

Daily use

At the beginning of each lesson, the students write the essential question at the top of the journal page. As we progress through the lesson, they write down vocabulary, examples of problems, strategies used, and anything else that helps answer the essential question for that lesson. We may also glue in a flip book, chart, or some other foldable. By the end of the lesson, the essential question is answered and they have all the information they need to review for a test. As we move to another concept, we will write it in the table of contents and add a new tab.

Use throughout the year

The students quickly become very attached to their study journals. They can take them home at any time to help with homework. I will usually make a study guide for a test and they can use their study journals to help them answer the questions. Since the journal is organized by concepts, it is easy to find which section to study for the test. They are great to use as review for Benchmarks. We can do a scavenger hunt where they have to figure out which section to look in to find the answer to a review question, or they can ask a partner questions from their journal. To review for TCAP I gave each student a section. They had to write 2 or 3 review questions from their section on an index card. We used a few cards each day as review. They often refer back to a concept in their journals as we are learning new skills. It helps to revisit these concepts. I often hear, “Oh, I remember how to do this now!”

The Math Study Journal is a way of helping students organize the concepts they have learned over the year. They are able to revisit these concepts as we review for TCAP or Benchmarks. I have found that they will use their journals even when we do DOM (Daily Oral Math) each morning if they have forgotten how to work a certain problem. I have seen an increase in test scores since using these journals. Parents have also commented on the benefit of the journal. It is a great source for them to help their child at home. I will probably make changes or add things each year, but I will continue to use them.

**UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News****Mathlete 2012**

By Alicia Moser



**Alicia Moser teaches for
the Sullivan County
School District.**

*“For learning to be easier and
more meaningful to the
student, I believe that it must
be easier and more meaningful
to the teacher”*

Thirty five years plus have passed since I was a young college student. My career as a teacher has spanned almost the same number of years. During these years I have watched many educational trends come and go. Some trends have been more helpful than others. I have always tried to learn and implement any strategies that would make learning easier and more meaningful for my students. For learning to be easier and more meaningful to the student, I believe that it must be easier and more meaningful to the teacher.

Since my teaching career began so many years ago, I have taken courses and attended many in-services. Of the courses I have taken, two really stand out. While participating in these courses I learned a tremendous amount and enjoyed doing so in the process. One course was a Science class in which the professor actually took us out to observe stream life and check the ph. of the soil in a forest. He seemed interested in every student. I could tell that he cared about every student's learning, so I made every effort to oblige. I don't think I have ever studied so hard for a test in my life. The other course that really stands out is the one in which I am currently involved. The class that I am referring to is the Mathletes 2012 class taught by Dr. George Poole. Dr. Poole wants us, his students, to learn and take the strategies he is teaching us back to our students. He has given me new strategies for teaching the operations of addition, subtraction, multiplication,

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‘Thank you Eastman, my principal, Cathy Nester for giving me the opportunity to attend Mathletes 2012, fellow Mathletes, and to Dr. Poole for being so passionate about Mathematics.’

and division to use with second graders. I am looking at and thinking about math in a different way. Much learning has taken place and I will use these strategies in August 2012 with my new second graders. These children will not be carrying or borrowing.

Thank you Eastman, my principal, Cathy Nester for giving me the opportunity to attend Mathletes 2012, fellow Mathletes, and to Dr. Poole for being so passionate about Mathematics. It is my hope that many future teachers will benefit from this course.



**UPPER EAST TENNESSEE COUNCIL OF
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By Ashli Chapman



Ashli Chapman teaches for the Washington County School District.

“A big mistake we make as teachers is that we do not take the time to get to know our students as individuals.”

In most Education programs at the college level aspiring teachers take a course that teaches child development. In that course you learn the importance of how a child develops at specific stages. A teacher's role as a deliverer of educational content is to first know how the students in our classrooms learn. Learning how children develop is key to helping us as teachers understand our students' attitudes towards learning which in turn helps the teacher figure out how to teach on their developmental level. This same concept is true when teaching students the content of the state standards. We need to know how our students are progressing at their developmental level and what better way to do that than to use formative assessment. In this article I will address why it is imperative as educators that we study and become familiar with our students' interests, learn and become comfortable with the content that we teach and successfully assess the growth of our students.

A big mistake we make as teachers is that we do not take the time to get to know our students as individuals. Why would it be important to get to know our students as individuals? What if you have a group of students who really enjoy sports, you would create small group lessons that incorporate skills focused around an athlete's performance, or maybe the

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“Accomplished teachers have a rich understanding of the subject(s) they teach and appreciate how knowledge in their subject is created, organized, linked to other disciplines and applied to real-world settings.”

outcome of a game. This same concept applies when we plan each lesson. To create learner focused lessons, we should use our students’ learning styles to guide the structuring of the lesson so that quality learning takes place in the classroom.

A comment I hear often with my colleagues who are still in their apprenticeship like myself is, “I know this information but how do I teach it.” You might be saying to yourself, “You’re the one who took on this profession you better know how to teach it.” Sometimes that is easier said than done. With an ever changing curriculum, sometimes you just feel inadequate. According to National Board of Professional Teaching standards, “Accomplished teachers have a rich understanding of the subject(s) they teach and appreciate how knowledge in their subject is created, organized, linked to other disciplines and applied to real-world settings.” So what do we have as apprentice teachers that can equip us with the knowledge of our subject areas? Well you have your teacher’s manuals, DUH? Isn’t that what we have those things for is to teach straight from the book. I DON’T THINK SO! Although the teacher’s manuals are a resource, it should never be your primary source of teaching. I believe we should first begin by changing the standard into a child friendly wording which is sometimes referred to as the “I CAN STATEMENT.” By changing the broad standard into an “I CAN” statement it allows us to think as our students and

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“Accomplished teachers have a rich understanding of the subject(s) they teach and appreciate how knowledge in their subject is created, organized, linked to other disciplines and applied to real-world settings.”

understand what the big learning point should be. It also helps to weed out some of that fluff in our broad standard that does not make sense unless you are maybe a rocket scientist. The next important step I think is thinking “how can I apply this to real world experiences that are meaningful to my students.” Then I believe you have to familiarize yourself with how your students learn based on the differentiation of your learners. Finally you take the knowledge of how your students learn and you create a quality lesson based on the strategies that we know as best practices, our background knowledge of the concept, real world experiences and incorporate those top components into each lesson.

The final concept I am going to discuss is the importance of using formative assessment in your lessons. The quality of your assessments better helps the teacher determine students’ learning of the content. Carol Ann Tomlinson says, “Informative assessment isn't an end in itself, but the beginning of better instruction.”

Her words are correct. We do not just use formative assessment at the end of a lesson, but it is used throughout the lesson. Formative assessment is used as a way for teachers to understand if the students are understanding the concepts so that through knowing how the students learn best the teacher can plan lessons to take the student to the next level, or take time to re-teach. An important part of using formative assessment is to think about

**UPPER EAST TENNESSEE COUNCIL OF
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"Formative assessment is an integral part of the planning effective instruction for our learners. Use the information to bring your students to the next level of learning or to give a second chance at grasping a concept.."

how you will incorporate it into the lesson. Will it be as a knee-knee partner, thumbs up for I am comfortable, thumb sideways for I need clarification, or a thumbs down for I do not understand and need help, maybe it comes in the form of group work and the teacher uses a check list? No matter the type of formative assessment you may choose for your lessons, it should be carefully thought out during the planning process and documented in your lesson plan. Judith Dodge suggest keeping a folder for each student for which you would insert any quick notes that you write down as you are walking around the room (Dodge). Formative assessment is an integral part of the planning effective instruction for our learners. Use the information to bring your students to the next level of learning or to give a second chance at grasping a concept.

In this article I have addressed the importance of the teacher's role in delivering important content. In order to meet our students' needs we must first get to know their interests. Next we must take into consideration our students learning styles when we plan lessons that are meaningful to our students. In order to properly meet the students individual needs we must include differentiated learning coupled with formative assessment not just at the end of our lesson but throughout the lesson.

**UPPER EAST TENNESSEE COUNCIL OF
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By Jessica Helton



Jessica Helton is a teacher in the Sullivan County School District.

“At first I was a little skeptical. “How in the world was I going to make that 5 on my evaluation and incorporate these toys?”

Many, many moons ago when I was in school we did not use manipulatives to help solve math problems. The only tools we used then were a ruler and occasionally a calculator. I made decent grades in math because I could always use the formula that needed to be memorized or remember the trick that went along with that type of problem. I never really enjoyed math because using the “tools” that the teacher betrothed on us were boring.

Last year I got the gut clenching news that I would be teaching fourth and fifth graders math. My previous teaching years had been filled with fun and exciting science experiments and social studies projects. I was not excited to be going on this journey, but it was a must for various reasons. I stumbled through last year with the help of our math interventionist and several very patient co-workers. It was during these tutoring sessions I learned about the wonderful world of new tools. These were bright and colorful pattern blocks, tangrams, geo-boards, cards, counters, and various other things. At first I was a little skeptical. How in the world was I going to make that 5 on my evaluation and incorporate these toys? I assumed the students would want to just play.

Needless to say, I was wrong. As I began using these toys in my lessons not only was I gaining a deeper understanding of the concept, but the students were learning as well. I soon realized these would have been so beneficial to me if I would have had instruction with these. As I begin thinking about this upcoming school year with math I don’t feel nauseated this time. I feel excited!



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A teacher's paradigm

By Dalynda Winstead



Dalynda Winstead teaches
for the Washington County
School District.

Do you still have an 8-track stereo system? Does your car have a cassette player? Have you ever heard of a floppy disk or VHS tape? Has anyone ever wondered where we would be today, if we had not developed CDs, cell phones, laptop, ipads, or hand held video cameras? Technology is changing quickly and education is not exempt from this paradigm shift. As teachers, we need to make sure we are keeping up with the changes and can accommodate student learning to promote fairness in the growing competitive society of technology, learning, future success and worldwide job compatibility. A teacher's paradigm is in the making for today's student progress and success for our future leaders.

A paradigm is a person's way of thinking about something. It is the process of "thinking outside the box". As teachers, we need to change our way of thinking to spark student interests to effectively enhance and promote meaningful learning experiences. Applying multiple computation strategies are invaluable to effective teaching methods. Properly implementing effective strategies will promote metacognition and work as a mapping process that organizes individual thought patterns. This process will allow students to configure and solve for the product/answer quickly and more accurately. Strategies are necessary for visual representation of student comprehension of numbers and a tool used to assess student's individual thinking ability, reasoning, and learning. The differentiated methods and strategies are different for everyone. Not everyone learns the same way and its okay. As long as a student can express or share his/her thinking process of obtaining the correct answer; using the compensation strategies that work for him/her is okay. A teacher's environment, actions, assistance, and engagement amplify or decreases student learning. Promoting additional strategies or adding manipulatives can make the counting process easier, quicker, and meaningful to the student will promote student success in math. Teachers need to be open to new strategies to increase mathematical concepts to enhance student learning. Old

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“A twenty-first century teacher leader uses a variety of strategies to enhance, organize, engage and promote meaningful learning to ensure lesson/topic comprehension, which is necessary to reach each individual student's optimal growth and development.”

habits or traditional teaching strategies can stifle, stagnate and deprive effective learning and teaching opportunities.

Therefore, teaching students in a 21st century classroom has become a priority. The approach to teaching students of the 21st century, to many, seems increasingly overwhelming and vastly differentiated with the continuous ever-growing melting pot of America. The times are changing and education is feeling the effects of the rising demands of competitive teaching and student's expectations. Today's student population express a huge variety of developmental level challenges and wide range of individual student learning styles, within each classroom range of diversity, varied cultures, emotional challenges and various capable technology driven students.

Currently, many students are not able to think for themselves. The future generations of leaders need to become more critical thinkers and problem solvers. They need to be more prepared for survival of the competitive nations within job expectations and personal future success. Teachers need to believe in their students and embrace the paradigm for teaching students to become metacognitive thinkers and self-sufficient leaders of tomorrow. The ability to facilitate students learning begins by understanding the basics of information processing, implementation of multiple strategies, promoting fundamental basics and principles for learning. As teachers, we need to ensure our students become the best that they can be and believe they are the best.

As an effective teacher leader, one needs to be ready for all challenges that may become a learning barrier and make it a building block in teaching. The ability to help students to count and measure in an increasingly faster and more efficient way is necessary to promote confidence in students' ability to conquer their fear of math. A teacher's ability to use a variety of applicable math strategies to effectively guide students to a quicker and more efficient way of adding, multiplying, subtracting, and dividing through critical thinking or reasoning strategies is the paradigm of teaching. Incorporating principles for learning, which incorporates a student's capabilities for body-based learning and knowledge, will bring

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“A Table Array strategy uses friendly numbers, makes it easier to find your answer and check for mistakes. It gives you a quick and isolated glance of your problem, which can provide an obvious computation error and your mistake would be clearly visible.”

modification for enhancement to ones teaching strategies. This process expresses how the mind senses, processes, stores and recalls information. "In this rapidly changing world, the challenge of teaching is to help students develop skills which will not become obsolete. Metacognitive strategies are essential for the twenty-first century." (Blakely & Spence, March 24, 2010, p. 4) The ability for teacher leaders to be flexible and versatile to enhance all students learning will promote optimal learning. A twenty-first century teacher leader uses a variety of strategies to enhance, organize, engage and promote meaningful learning to ensure lesson/topic comprehension, which is necessary to reach each individual student's optimal growth and development.

A way to begin the adventure to promote optimal student growth and confidence in numbers is to divide and conquer basic math computations by modifying with friendly numbers. Implement student friendly strategies that they can relate to and personally explain their way of thinking. A great mathematician once shared, "A teacher's goal is to help kids to count and measure in an increasingly faster and more efficient way." Teachers need to get their students to the point where they can quickly solve mathematical problems or equations effectively. Students need to use personal strategies to get their answer and then be able to explain the reasoning for their answer. The students should give compliments to a strategy with reasoning responses to explain or backup the strategies they used. The importance of wanting students to get the correct answer in the quickest way is the focus on finding strategies that work for the individual to get the most of their thinking and reasoning capabilities.

Multiple strategies are helpful in many ways. For example, if you needed to add 215, 438, 689. You can add the traditional way or go the route of using the place value concept through expanded notation. This particular strategy for addition is the Table Array. A Table Array strategy uses friendly numbers, makes it easier to find your answer and check for mistakes. It gives you a quick and isolated glance of your problem. Which can provide an obvious computation

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"Teachers need to open

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Remembering what works

or one may not work for

others."

error and your mistake would be clearly visible. If you used the traditional carrying process and made a mistake in the borrowing or carrying process, you generally have to rework the whole problem to find your error. Look at the following problem. See how it was broken down from the original form into place value or expended notation form, then added?

$$\begin{array}{r} 215 \\ 438 \\ + 689 \\ \hline 1200 \\ 120 \\ + 22 \\ \hline 1342 \end{array} \qquad \begin{array}{r} 200 + 10 + 5 \\ 400 + 30 + 8 \\ + 600 + 80 + 9 \\ \hline 1200 + 120 + 22 \end{array}$$

What if I made a mistake: (Can you find the mistake?)

$$\begin{array}{r} 215 \\ 438 \\ + 689 \\ \hline 1200 \\ 120 \\ + 2 \\ \hline 1322 \end{array} \qquad \begin{array}{r} 200 + 10 + \\ 400 + 30 + 8 \\ + 600 + 80 + 9 \\ \hline 1200 + 120 + 2 \end{array}$$

It was easier to see the mistake was in the ones place. Due to familiarity of carrying, I forgot to add the 20. This way, instead of recalculating the whole problem using the carrying method of addition, it was easier to see that the ones place did not add up correctly. Would we get the same answer with both the traditional way and this way? Yes, and that is okay.

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“Building on the background knowledge or basic math fundamentals, students become more productive problem solvers from second grade and beyond. Students will be able to apply these mathematical principles and number concepts to become better critical thinkers and efficient problem solvers of tomorrow.”

Strategies, it is all about manipulating strategies to make sense of numbers and computation methods that work for each individual learner. Teachers need to open doors to new ways of thinking to support teaching moments and promote student learning through multiple strategy implementation. Remembering what works for one may not work for others. Teachers and students have to embrace, comprehend, and understand a variety of addition, subtraction, multiplication, and division principles to solve mathematical concepts or tasks. The development to understand number representations and value concepts develop through background knowledge of basic numbers beginning in kindergarten. The number sense awareness grows in complexity and matures through first and second grade.

Building on the background knowledge or basic math fundamentals, students become more productive problem solvers from second grade and beyond. Students will be able to apply these mathematical principles and number concepts to become better critical thinkers and efficient problem solvers of tomorrow. Students will be able to apply strategies to process complex and everyday mathematical concepts to find the product or target group. In addition, students will develop an awareness of its uses in daily life skills and the real world. The strategy process is not a mandatory expectation.

However, it should be viewed as an implementation or variation on representing the number sense concept correctly and efficiently. It is a work in progress serving a purpose for finding a way that works for all differentiated students and differentiated teachers. This is our new way of teaching, a teacher’s paradigm.

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E. Blakely & S. Spence, Developing Metacognition, (Retrieved July 17, 2012) www.education.com/reference/article/Ref_Dev_Metacognition

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Ask, don't tell

By Denise Cox



Denise Cox teaches for the Washington County School District.

“Instead of telling the students how to solve a problem, the teacher should ask questions which guide the student to finding the solution on his or her own. When a student solves a problem this way, it becomes more personal.”

This summer, I have had the privilege of participating in two very informative professional development classes offered by the Washington County, Tennessee school system. The first one was Unpacking the Common Core Standards for Mathematics by Dr. Terry Rose of Western Carolina University. The second was The Eastman Scholar Mathletes Program taught by Dr. Ryan Nivens. In both classes, the underlying theme was the same – teachers tell students too much. Too often math teachers model how to solve a math problem, ask for questions, and then give the students similar problems to practice. This way of learning is temporary and superficial. Teaching this way does not allow the students to make connections to prior learning, deeply understand the mathematical concept, or retain the information long enough to apply what they have learned to a new concept. This way of teaching makes almost constant review necessary, wasting valuable class time.

Both Dr. Rose and Dr. Nivens emphasize reducing the role of the teacher. Instead of telling the students how to solve a problem, the teacher should ask questions which guide the student to finding the solution on his or her own. When a student solves a problem this way, it becomes more personal. He/She takes ownership of the learning, and therefore, is more likely to apply what he/she has learned when a new situation arises. It might take longer for a concept to be taught, but since it is retained longer, the need for review is minimal.

One example of teaching this way is to begin with the solution and work back-



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As Dr. Rose said,
“Without temporary
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nothing new.” Of course,
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to keep her students from
getting too discouraged or
giving up.



ward. In both classes I attended, division of fractions was used as an example. As math teachers, we all knew to invert and multiply. We had memorized that rule. But then, when we were asked to create word problems and models to go along with the problem we had just solved, most of us struggled. This is because we had memorized the procedure through repeated practice, but did not have a deep understanding of what it really means to divide by a fraction. It was only when Dr. Rose helped me to relate division of fractions back to division of whole numbers (previous learning) that I was able to come up with a model that properly represented division of fractions. I believe we were all frustrated at some point; however, we now have a deeper understanding of division of fractions and can apply the concept when necessary. As Dr. Rose said, “Without temporary confusion, I have learned nothing new.” Of course, the teacher must find the proper balance between confusion and frustration to keep her students from getting too discouraged or giving up.

One simple way I apply this technique in my classroom is with vocabulary words. Instead of having the students look up the vocabulary words, I draw a T chart on the board. For example, one side of my T chart says “polygons” and the other side says “not polygons”. I draw a few shapes on each side of the chart until the students make a guess at what a polygon is. If they give an incorrect definition, I simply draw a shape on the side that disproves their definition. They will then refine their definition until coming to the conclusion that a polygon must be a closed figure with straight sides. This gives the student ownership of the learning because they came up with the definition themselves based on the information they were given. This method takes the boredom out of vocabulary.

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“As teachers, our role in the classroom should be facilitators of knowledge, not dispensers of knowledge.”

I have used this method for many grade levels and concepts. Another example is to use a T chart for the divisibility rules. One side of the chart lists numbers that are divisible by 3, 4, 5 or whatever fits your grade level. The other side of the chart lists numbers which are not divisible by that same number. The students can often figure out the divisibility rule themselves by looking at the chart. I have found that they may not always remember the divisibility rule for 3, after all, it is just a short cut, but they do remember that it is different from the others and not as easy to figure out from looking at the T chart. Again, this might take more class time than just telling the students the rules but they will certainly retain the information longer, reducing the need for class time review.

I also suggest applying everything you teach in math to real life problem solving. When teaching the divisibility rules, I tell my students they are professional party planners for Taylor Swift (or whoever is popular at the time). A good party planner must be able to take any number of guests and quickly know if those guests can be divided into groups of 3, 4, 5, and so on. This leads to further ownership of the learning in order to apply it to new situations.

As teachers, our role in the classroom should be facilitators of knowledge, not dispensers of knowledge. We need to ask thought provoking questions which guide our students to use their own understanding and thought processes. rather it is to show students their potential as problem solvers, and to allow our students to be active learners.



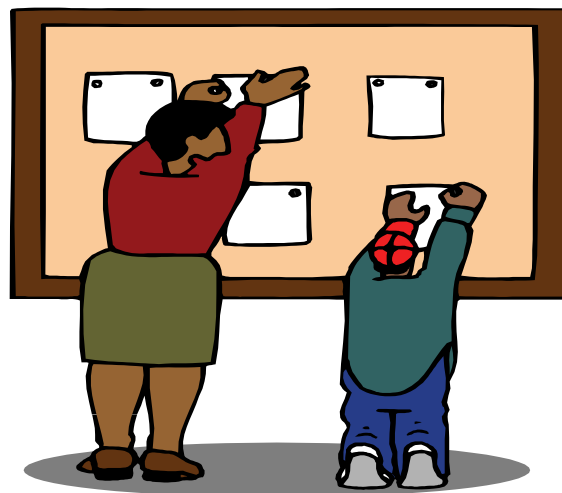
An Interactive Bulletin Board Place Value Pumpkin Patch

By Elaine Hillman

Often when one hears the phrase “student engagement” the first activities a teacher thinks about include interactive white boards, computer games, and tablets. However, activities that get students engaged and actively learning don’t always have to be high tech. I have used interactive bulletin board activities successfully in my classroom. Students enjoy not only working with these activities, but also creating them. The Place Value Pumpkin Patch is an interactive bulletin board that allows students to practice place value and different representations of three-digit numbers. It also provides an instant-feedback, self-checking activity. Creating the bulletin board is simple and also a learning task for the students.



Elaine Hillman teaches for the Hawkins County School District.



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Give each student 3 identical pumpkin cut-outs and the following instructions:

Place Value Pumpkin Patch

Use the three pumpkins to create a part of our next bulletin board display. Remember to write neat and large enough to be seen from the first row of seats.

Pumpkin 1 – Write any 3-digit number (example 123)

Pumpkins 2 and 3 will look alike. Write the same clue to your 3-digit number on both pumpkins. Pumpkin 3 will be the clue and pumpkin 2 will be hidden under the number as the answer. You can represent your 3-digit number any way you choose. For example – if the number on pumpkin 1 is 123 then your clue on pumpkins 2 and 3 might be $100 + 20 + 3$, or 1 hundred, 2 tens, and 3 ones, or you might draw hundreds, tens, and ones blocks to show the number, or you might write “I have a 2 in the tens place, a 3 in the ones place and a 1 in the hundreds place.” Write exactly the same clue on pumpkins 2 and 3 and return your pumpkins to class tomorrow.

- Tape pumpkin 1 on top of pumpkin 2 so that pumpkin 1 will make a flap over pumpkin 2.
- Attach the number / answer pumpkins to the board so that students can raise pumpkin 1 to reveal the answer written on pumpkin 2.
- Make a pocket on the bulletin board to hold all the clue pumpkins (pumpkin 3). A sandwich or quart size plastic baggie works great. Attach this pocket to the bulletin board and put all the clues (pumpkin 3) in the pocket.
- Add green ribbon and leaves to create a pumpkin patch effect.

A student comes to the board and takes a clue from the pocket. The student then finds the pumpkin in the “patch” with the number that matches the clue. To check his or her answer, the student simply raises the top pumpkin and reveals the answer that is hidden below. If the clue from the pocket matches the clue under the pumpkin, the student has chosen correctly. If they don’t match, the student should re-read the clue and pick another pumpkin. After making a correct choice, the student puts the clue pumpkin in the back of the pocket and chooses the next number in the pocket or goes to the back of the line if several students are playing at once.

My students have always enjoyed this activity and when they have mastered the place value objective, I can use the same idea to create a new board with new math skills.

**UPPER EAST TENNESSEE COUNCIL OF
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By Annalee Gross

KEYWORDS Cognitive Guided Instruction; teaching**Annalee Gross teaches for the Sullivan County School District.**

ABSTRACT: Cognitive Guided Instruction insists that the student makes sense of a problem and persevere in problem solving. Students are given various word problems, and are asked to solve them in ways that make sense to them. Some students will use a variety of tools, while others may use counting strategies to solve the problem. The common thread among Cognitive Guided Instruction students are that they make sense of the problem, and they persevere in problem solving.

Teachers are being asked across the curriculum to have students show their thinking. In mathematics we observe how children solve problems. Often, this is accomplished by using various manipulatives or by drawing pictures. Students then develop combination drawings, number sentences, number lines, and writing. By examining the students' thinking, instructors can assess the situation and move to appropriate steps, which may entail intervention strategies. By the student showing his or her thinking, instructors can determine misconceptions and undeveloped skills. If a child simply records a number, we know nothing about the child's number development. Educators need to know the students' thinking process in order to guide the student properly, in the right cognitive direction.

The way teachers formulate questions can support students to provide more explicit and detailed explanations for their work. (Sfard & Kieran, 2001). It is clear that supporting students' explanations requires teachers not only offer sufficient time and appropriate tasks, but also press for justification and explanation. Failure to ensure that students justify answers can result in truncated answers that are underdeveloped. (Kazemi & Stipek, 2001; Silver 1996; Silver & Smith, 1996). Teachers frequently take notice of student responses in a variety of ways. One way a teacher can follow up is an individually focused manner over a series of interactions. Another method of feedback could ask a specific question related to

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an inquiry the student has asked previously. Some instructors asked a general question to prompt the student to give additional explanations; at other times they asked leading questions.

Asking follow-up questions does not always guarantee further student explanation. The questioning practice of asking a probing sequence of specific questions frequently helps students provide a correct and complete explanation, after they initially provide an answer that is incorrect and incomplete. Most importantly uncovering details of the students' strategies often require multiple specific questions, each one focused on an element of a student's explanation. The teacher needs to focus on what the student said in relation to the critical mathematical ideas and press students to make his or her thinking explicit. When students' initial explanations are incomplete the teacher's more focused questions helps the students to make sense of his or her ideas in relation to the mathematics and thus provide a more complete and correct explanation.

Classroom interaction for Cognitive Guided Instruction follows a standard structure: The teacher poses a problem, students discuss the solution within a smaller group of two to four students, and then the teacher leads a discussion of the problem with the entire class before moving onto the next problem.

Four types of questioning practices that a teacher can use to help make a student think explicitly about a problem are as follows: general questions, specific questions, probing sequences of specific questions, and leading questions. General questions are not related to anything that a student said; specific questions address something specific in a student's explanation. Probing sequences of specific questions consist of a series of more than two related questions about something specific that a student said and include multiple teacher questions and multiple student responses. In leading questions, the teacher guides students toward a particular answer or explanation and provides opportunities for the students to respond.

Teachers should ask consistently that students explain their thinking. When a teacher poses a problem he or she needs to show that he or she expects the students to share their thinking. As teachers, we should expect American students to rise up out of their seats and take an active role in their education!

**UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News****“So You Want to Be a Master Teacher?”**

By Jeffrey Millard



Jeffrey Millard is a teacher in the Hawkins County School District.

“Every teacher should have the same self expectations as those expected from students.”

As Tennessee is making known its desire to move up in the ranks of education, so should every teacher make known their desire to move up in the ranks of teacher effectiveness and become a “master” teacher. The term “master teacher” is not an official term recognized by the state agency with a certificate or license, but is becoming more widely used to describe teachers who are having an enduring impact on a student’s education. A master teacher goes beyond what good teachers have accomplished and always strives to improve their teaching skills. Every teacher should have the same self-expectations as those expected from students. If we desire students to become life-long learners, shouldn’t we, as teachers, be life-long learners? If a teacher desires every student to gain mastery in the subject being taught, does it make sense that every teacher should be working toward gaining mastery themselves?

According to the Tennessee Educator Accelerator Model (TEAM), a top rated teacher is one who consistently receives the highest rating in three areas: observations and conferences, achievement measure, and growth data. Teachers will be observed and scored based on an extensive rubric given by a trained evaluator, and then they will be given immediate feedback on the score given along with ways to improve. This will count for 50% of the TEAM score. Teachers will then be scored on a school wide achievement measure which will count for 15% of the score. The last component of the TEAM evaluation is the growth data. Growth data is a statistical method that compares each student's actual growth to

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“Good relationships with students plus high expectations minus a negative classroom environment plus superior content knowledge multiplied by a drive to seek personal development to the power of number of years of experience then divided by the attitude of the student equals better student performance which in turn makes a master teacher.”

his/her projected growth and this will count for 35% of teachers score (Tennessee Department of Education).

I feel this evaluation model is the most comprehensive and should be considered by every teacher as their own measure of effectiveness which, in turn, will constitute a master teacher. In the observation component of the model is a rubric that is available to every teacher that will describe all expectations from teaching to planning to the environment of the classroom. The achievement measure brings the overall school into to a community by holding everyone accountable for different achievements made by the school as a whole. This component connects every teacher with every aspect of the success of the school and not just the success of their classroom. I feel the last section of this model is the most important, but is incomplete. This component incorporates the growth potential of students into evaluating teachers. Every student should grow in knowledge each year. This model has come up with a way to calculate a growth potential for each student based on past performance. The formula for this growth potential is not easily understood and could be argued as to the validity of the results. Even though I think the formula is lacking, I believe the theory behind this measure is on target.

Taking into account my research, my experience as a teacher, and advice from other teachers, I am developing my own formula for a master teacher that will continue to evolve throughout my teaching career. Since math is my subject area, I couldn't resist making a formula of what I believe makes up a master teacher. The formula is: Good relationships with students plus high expectations minus a negative classroom environment plus superior content knowledge multiplied by a

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“Negativity only takes away from the productivity of any environment. A positive classroom environment will give students a place they will feel safe and comfortable which will promote student learning.”



drive to seek personal development to the power of number of years of experience then divided by the attitude of the student equals better student performance which in turn makes a master teacher.

My formula includes good relationships with students. I feel this is important because when students make a connection with a teacher they are more likely to work harder for that teacher. In establishing a good relationship, a master teacher will convey the high expectations they have for the students and see results. The next term in the formula is the absence of a negative classroom environment. Negativity only takes away from the productivity of any environment. A positive classroom environment will give students a place they will feel safe and comfortable which will promote student learning. In continuing the learning process, a teacher must add superior knowledge of the material being taught so students will feel confident in their learning process.

The next factor of the formula is multiplied because of the impact personal development has on the students. When students see a teacher bring new teaching methods into the classroom, they are more apt to emulate this behavior. This drive should be raised to the power of the number of years experience because the teacher that has seen more in the classroom should offer exponentially more to their students. The last part of this formula takes into account the attitude of the students. A negative attitude divides the results and makes it harder, not impossible, to get better student performance, and a positive student attitude will only make it easier to get better performance.

These factors were put into a formula because they all work together to make a master teacher. If any factors are omitted, the result will not be achieved. This formula is not a checklist of do's and don'ts, but an ongoing process that must be



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adjusted to meet the needs of the students. A master teacher must be able to automatically analyze every action they make and how it affects the student, and then analyze the actions of the students to determine the next step in the learning process. This cross-analysis must happen quickly and often while with a group of students, then adjust teaching techniques, pace of the class, and classroom environment. Just the mere efforts of trying to achieve master teacher will make a better teacher .

Illustration of made up formulas:

Good	High	Negative	Superior	
relationship	+ expectations	-classroom	+ content	= REEK Score
with students	of students	environment	knowledge	

Better student Performance = Master Teacher

(REEK Score)	(Drive to seek personal development)	(Years of experience)	=	Better student Performance
<hr/> Divided by the attitude of the students				

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Tennessee Department of Education. (n.d.). Tennessee Educator Accelerator Model (TEAM). Retrieved December 6, 2011, from TEAM - Teacher Model: <http://team-tn.org/teacher-model>



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Communicating Learning through Writing

By Kendra Cline



**Kendra Cline teaches
for the Bristol City
School District.**

Personally connecting to the skills that students are learning is key in completely understanding them. For thousands of years people in every part of the world have been writing their thoughts, discoveries and feelings to help them better understand what they are encountering. Just like the people of the past and present who value writing and personal reflection, administrators and educators throughout the country are finally finding the value in this task. Incorporating writing in class through various methods is becoming increasingly important in today's education system.

Reasons to Incorporate Writing into Your Math Classroom

With the adoption of the Common Core standards comes a higher responsibility for students to fully grasp the math tasks they complete. The Standards for Mathematical Practices state that communication is one of the key elements for mathematical understanding. Students need to be able to express the meaning of the mathematical terminology (symbols, numbers, graphs, etc.) they use. Through writing students can use words, which they are typically very familiar with, to express abstract math ideas. By composing their ideas and practices to written pieces of work, the students have communicated the math skill in more than one way giving the students a more concise comprehension. Not only will the student benefit from their writing as a form of self-assessment, but the teacher will also have more information to analyze the student's work. Students will also gain insight from other students' composition because the mathematical process that is at hand will be described in terms that might be more attainable than abstract symbols and numbers.

With the implementation of the PARCC assessment students will be required to not only solve varied math problems but also include pictorial representation representations and writing to describe the process they used. Many students are

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“When mathematical terminology is continuously referenced to in class students must have a firm grasp of the terms before truly comprehending any math task. When students use the essential vocabulary in various forms of communication they will begin to have a better understanding of the terms true meaning”

not accustomed to writing down their mathematical ideas. Students should receive plenty of practice in describing their thoughts in multiple ways. The more familiar we make our students with explaining their mathematical thinking, the more comfortable they will become in expressing themselves in this method. Furthermore, frequently exposing students to the ideal of communicating math concepts will better prepare them for constructive response assessments.

Understanding vocabulary is a necessity to success in math. When mathematical terminology is continuously referenced to in class students must have a firm grasp of the terms before truly comprehending any math task. When students use the essential vocabulary in various forms of communication they will begin to have a better understanding of the terms true meaning. Expecting students to use mathematical language will force them to become more accustomed to defining terms and using them in appropriate ways. Writing is a tool that assists students to become creative and more acquainted in using arithmetic texts.

Therefore, you can give your students the traditional 30 problems to practice over and over again, or you can use a new approach. Try giving them only a few practice problems and then have them assess the process they used to solve the exercises. They should then creatively reiterate that process in some form or fashion through writing. There is an endless amount of ways to incorporate writing into your math classroom. The sky is the limit and creativity is key.

A Few Ways to Start Incorporating Writing into Your Math Classroom**Math Journals-**

Math journals are an excellent way for students to practice and compile mathematical writings. Students can use them as a daily exercise in creating a deeper understanding of the skills that are being covered. Whether it is an assigned topic and writing method or a choice of their own, students will receive the practice needed for them to excel. To further connect the students' comprehension, require the students to include drawings to represent the skill and/or topic covered. You could also have them fold up and paste the sheet where they

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“Writing plays gives students the opportunity to really get their creativity flowing”

completed their practice into the journal. Making these connections ensures deeper understanding of the information being presented. Looking through these journals would also provide an excellent review.

RAFT Writing Assignments-

RAFT writing requires the students to become extra creative and is nicely structured. The students must take on an assigned Role for a specific Audience in the required Format while focusing on a particular Topic. Last school year I assigned my students the role of a percent. They were instructed to write a letter to a relative telling about himself/herself, a percent. For example, most of them wrote to their friend, Fraction or dad, Decimal. My students enjoyed the task so much that they requested that all of the publications be posted and voted for best all around.

Plays-

Writing plays gives students the opportunity to really get their creativity flowing. Since a script has to be created, the students are presented with another opportunity to better understand the skill that the play is based around. It not only enables students to reiterate their knowledge on paper but also allows them to use more forms of communication which allows them to reach a higher comprehension.

LIVING MATH LIMERICK

I ONCE THOUGHT THAT MATH WAS A BORE;
ARITHMETIC GROSS TO THE CORE. 1 3
MY TEXTBOOK I TOSSED;
TO TESTS SAID, “GET LOST!” 2
AND NOW I LIKE MATH MORE AND MORE.



By JME

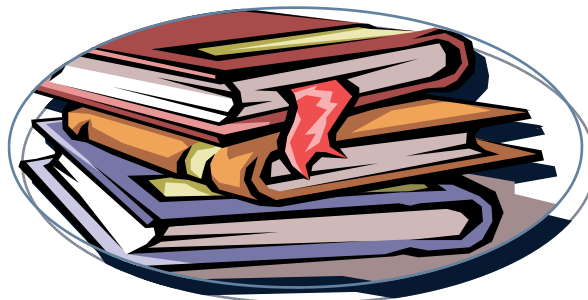
An article by Lauren E. McIntire



Lauren McIntire is a teacher for the Johnson City School District.

I love teaching math and I have no desire to teach reading/language arts, but I never turn down the opportunity to incorporate reading into my math lesson. Children of all ages love to be read to and I find the math concepts are more meaningful to my students when a story brings them to life. Below is a list of books I incorporate into my math lessons:

- ◆ Spaghetti and Meatballs for All: A Mathematical Story by Marilyn Burns – Area and Perimeter
- ◆ The Greedy Triangle by Marilyn Burns – Transformations, but can be used for other Geometry topics
- ◆ The Sneetches by Dr. Seuss – Function Tables (Input/Output)
- ◆ Funny and Fabulous Fraction Stories by Dan Greenberg – Fractions
- ◆ A Place for Zero by Angeline Lopresti – Number Sense, Place Value
- ◆ Chimp Math: Learning About Time from a Baby Chimpanzee by Ann Whitehead Nagda – Time
- ◆ Tiger Math: Learning to from a Baby Tiger by Ann Whitehead Nagda – Graphing
- ◆ A Remainder of One by Elinor J. Pinczes – Division
- ◆ Amanda Bean’s Amazing Dream by Cindy Neuschwander – Multiplication
- ◆ The Best of Times by Greg Tang – Multiplication



UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News**Making Multiple Choice Tests Meaningful***By Leanne Sanders*

Leanne Sanders teaches for the Washington County School District.

This also creates awareness that the answer choices on the multiple choice tests are well planned by test makers. Typically each choice could be found as a solution by making a simple mistake in solving.

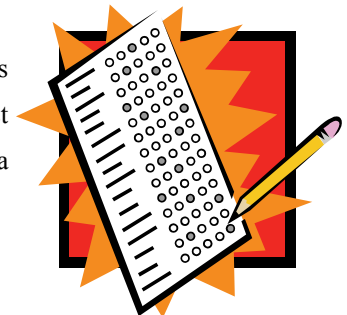
As all teachers know, education has turned toward a “teach to the test” mentality. I can see both pros and cons to this thinking. If a test assesses the state standards then a teacher should be “teaching to the test” in regards to teaching the material that will appear on the assessment. However, the downfall to this idea is seen when teachers only teach the tested curriculum and they don’t teach the students how to think for themselves. Often times the material tested is only a small piece of the big picture.

In my classroom, I use both open-ended, constructed response tests and multiple choice tests. Giving a multiple choice test does not have to be an opportunity for a student to feel like they have a 25% chance of getting a question correct. These assessments can still be used in a way that the student is held accountable for his/her thinking skills.

Error Analysis is a huge part of my teaching style. By the time students reach 8th grade math, they are usually set in their ways and it is hard to break those incorrect habits. When taking a multiple choice test, my students are not allowed to give the correct answer. They must explain to me why the other three answer choices are not correct. This strategy forces the students to use thinking skills, not just play a guessing game.

As an added twist to error analysis, I have my students find the solution to a problem and also give me 2-3 other answer choices that they think their classmates may choose. I practice this with students because I think it makes them mentally break down problems into steps by using processes. They give the incorrect solutions by evaluating the problem and anticipating common mistakes that their classmates could make. This also creates awareness that the answer choices on the multiple choice tests are well planned by test makers. Typically each choice could be found as a solution by making a simple mistake in solving

This also creates awareness that the answer choices on the multiple choice tests are well planned by test makers. Typically each choice could be found as a solution by making a simple mistake in solving .



**UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News****Lucky You!**

By Lori A. Smith



Lori Smith teaches for the Kingsport City School District.

Teaching is a professional career that is constantly changing and requires those involved to consistently learn, alter instruction to align with new curriculum and miscellaneous needs, and efficiently manage and prepare diverse student populations for the future.

Teachers are the luckiest professionals! As teachers, our work day ends at 3:30, we have the summers off, and we can't do anything else, so we must teach! However, teachers know the real truth, a truth a vast majority of the population does not understand. Teaching is hard work! I don't know about you, but if I leave the school house by 5:30 P.M., it is an early day! Those summers off...well, many summer days are spent participating in professional development, reading text on the newest trends in education, organizing or changing classrooms, thinking/worrying about the next school year, etc.! It would most likely be a shocking revelation for an individual who is not in the education field to shadow our day. Teaching is a professional career that is constantly changing and requires those involved to consistently learn, alter instruction to align with new curriculum and miscellaneous needs, and efficiently manage and prepare diverse student populations for the future. Teaching can be an extremely stressful and demanding job that requires dedication and often comes with numerous sacrifices.

Education appears to be increasingly more stressful each year, and although it may not seem like it, the strife and conflict found in education is not limited to the current times. *The Thread that Runs So True* is an autobiography written by Jessie Stuart that describes his twenty-year teaching career that began around 1930. Stuart was a great teacher like many of us who fostered strong communities within his classrooms, worked diligently to provide high quality education to the students, involved the community, and was a true advocate for the educational process. However, the book clearly demonstrates the significant sacrifices Stuart endured in order to provide the best education possible for his students. Stuart devoted massive amounts of personal time for his classes. In one situation, he talks of how he "had to go home and work long

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**“almost every
important learning
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stressful...Stress and
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indication that we are
living our lives and
making choices” (p. 46).
I am definitely living life
then! How about you?**

hours in the evenings" to ensure that he knew his lessons for the next day (p. 86). Stuart postponed marrying the woman of his dreams due to not making enough money in education even when he was in administrative positions. During his years in education, Stuart experienced times when individuals even wanted to kill him over his professional decisions! Toward the end of the book, Stuart states "I'm leaving [education] because it has left me." (p. 297).

While my life has not been physically threatened in my nine years of teaching (although I think there have been several threats to my mental health), I can identify with his other struggles. The quote Stuart wrote at the end of his book haunts me. There have been times due to the excessive demands and stress of teaching, I have felt overwhelmed and discouraged enough to just want to walk away. I could be wrong, but I do not think I am the only one who has ever considered finding the red EXIT sign!

In Michael Fullan's *What's Worth Fighting for in the Principals*, he highlights that it is not just the teachers that are at the end of their rope. On the second page of the book, Fullan quotes a study by Evans (1996) in which he surveys and questions principals. Most of the administrators encountered noted that his/her work has become increasingly complicated and less satisfying leading many to question if the job can be done and if it is worth it (p. 156). Fullan goes on to describe the unreasonable demands and poor circumstances surrounding education. This book also identified that many educators share the same struggles; feeling the pressures of education and the unrealistic demands expected of those who dedicate immeasurable amounts of time to the cause.

Despite the ominous tone to this article thus far, there is a light at the end of the tunnel. Fortunately, Michael Fullan does not only present a book that reveals the depressing realities of education; he goes on to provide practical advice for those willing to learn to lead and teach with better results. Fullan states "managing time

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- * **Fullan, Michael. (1997). What's Worth Fighting For in the Principalsip. New York, NY: Teachers College Press.**
- * **Maxwell, John C. (2002). Leadership 101. Nashville, TN: Thomas Nelson, Inc.**
- * **Stuart, Jesse. (1949). The Thread That Runs So True, A Mountain School Teacher Tells His Story. New York, NY: Touchstone.**

is related to attitude and technique” (p. 38). He is encouraging about the mounting pressure when he says “almost every important learning experience we have ever had has been stressful...Stress and anxiety are an indication that we are living our lives and making choices” (p. 46). I am definitely living life then! How about you?

More guidance and strategies for the overworked and crazy stressed educator (and basically anyone who wants to live a fulfilled life) can be found in John C. Maxwell’s Leadership 101. Maxwell’s book had more encouraging information than I have time or room to write. Therefore, I am going to list some of the up-lifting comments and counsel of Maxwell’s book.

- You cannot overestimate the unimportance of practically everything. P. 36
- Efficiency is the foundation for survival. Effectiveness is the foundation for success. P. 41.
- Too often we learn too late what is really important. P. 43
- You need to have the right attitude. P. 89
- There is no success without sacrifice. 103
- Life is too short not to be fun. “Take this job and love it!” p. 36

****My favorite!!!****

Last but not least, Stephan Covey, the author of numerous books on achieving personal greatness has some powerful recommendations in his book titled Principle-Centered Leadership. Covey gives realistic, no-nonsense advice on becoming a leader in your job and home. He relates how individuals must focus on their personal and interpersonal relationships in order to be the best at anything done in life. Covey states that "no single hour of your day will return as much as the hour you spend sharpening the saw" (p. 38). Sharpening the saw means taking care of ourselves and making sure to carve out time for the activities, hobbies, and people we love. Trying to balance the increasing demands of education as well as a life outside of school can seem nearly impossible. Never-

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- * Fullan, Michael. (1997). *What’s Worth Fighting For in the Principalsip.* New York, NY: Teachers College Press.
- * Maxwell, John C. (2002). *Leadership 101.* Nashville, TN: Thomas Nelson, Inc.
- * Stuart, Jesse. (1949). *The Thread That Runs So True, A Mountain School Teacher Tells His Story.* New York, NY: Touchstone.

theless, in order for us to continue to be the amazing teachers we are, it is imperative to live a life that is filled with more than work. I have been guilty of not "sharpening the saw." Maybe you are guilty of that as well. I truly believe by devoting time to the things we enjoy outside of teaching, we will be happier personally and professionally.

Jessie Stuart did leave education...but not really. He remained an activist for education by working as a professor, writer, and a traveling lecturer. Stuart believed "good teaching is forever and the teacher is immortal." I feel confident in assuming that while many of us get disheartened in our career, we remain unwavering in our position. Why? No matter how tiring our day is, we continue to teach and put our best selves and effort into our careers. We are simultaneously realists and idealists. The true realities of a teaching career can be gloomy, taxing, and downright hard. Yes, we work long hours, there is truly not a lot of time off, and sacrifices are often made for the goal of quality education. However, I think most teachers are hopeful. Teachers are believers and strive for the best. We want to see success and love to witness the results of our labor. As Stuart says, "Each of us-teachers and pupils-become a little, unknown part of the vast educational assembly line" (p. 294). Our career is important, and its implications and effects are endless. That’s why we are all still teaching. That’s why I haven’t left teaching. That’s why you haven’t left teaching. That’s why we are the luckiest professionals!





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Lynzie Haywood
teaches for the
Johnson City Schools
District.

“.....we should help all
our students to develop
a back up plan for when
they can’t remember a
fact. As teachers it is
our job to help build
self-esteem.”

**An article by Lynzie
Haywood**

Third grade! I don’t remember a whole lot about when I was in the 3rd grade but what I do remember is something that hurt my self-confidence for many years.

I was one of those kids that got everything. I loved school and learning new things, until I hit the 3rd grade and was told that I had to memorize multiplication facts. Our teacher had a ‘system’-you were to study flash cards until you got it, and then you took a timed test. We had those awful timed test at least once a week. I was scared to death of the moment that our teacher said, “Clear your desk of everything but a pencil. Leave your paper face down until I say go. You will have one minute to finish the test.” She also had a reward system and if you met the goal of knowing all facts 0-12 by a certain date then you got a prize. Guess what... I never got that prize!

Now, I did memorize several facts by the end of 3rd grade, but it didn’t end there. I quickly learned that I would need those facts in the 4th grade as well. I knew that I had to find a way to solve for the facts that I just couldn’t remember despite how hard I tried. I began to investigate the multiplication facts, and found patterns and ways to solve using facts that I could remember then doing some adding and subtracting to get to the correct product. I couldn’t get them quite as fast as some kids, but I could find the answer. Even though I was able to solve for these facts and rarely ever had any other troubles in math after the 3rd grade, I always felt very ashamed and embarrassed that I could not always recall facts from memory.

I say all of this because I was reminded during the Eastman Scholar Mathletes program this summer, by Dr. George Poole that students should have a back up plan and that students shouldn’t have to feel dumb or not as smart as their classmates just because they cannot memorize their multiplication facts. Instead we should help all our students to develop a back up plan for when they can’t remember a fact. As teachers it is our job to help build self-esteem. If we can do this by teaching our students other ways to help them find the product of multiplication facts then we should do so. As a student that had to develop this all on her own and felt like a failure for many years, please help your students to never feel the way that I felt for so many years.



UPPER EAST TENNESSEE COUNCIL OF TEACHERS OF MATHEMATICS News

Fair or Unfair – Who’s the Winner?

By Mary Beth Vaughn



Mary Beth Vaughn is a teacher in the Scott County School District.

I may receive a lot of flack from my opinion on this topic, so please keep an open mind to the subject of Inclusion. Is Inclusion fair or unfair to the students? Do we need Inclusion? Is there a right or wrong way to use Inclusion?

To me, as a Seventh Grade middle school Math teacher, I feel our Inclusion classes at my school are unfair. I want all my students to be successful and being in an Inclusion class does hamper with the various ability levels of students. To give you an insight, at my particular school we have one math resource teacher for our entire Middle School, grades 7 – 9. This past year, two seventh grade teachers had Inclusion classes during the same block and shared the same resource teacher. We each had 26 students with eleven Inclusion students in each class. We all worked as a team and in the end our students were not as successful as we wanted. They all could have performed better in the classroom setting and on our State Standardized Test. We tried numerous groupings, team - taught, pulled out for tests, you name it-we tried it. We were simply out numbered.

It seems as if we have regressed back to the one room school. As an educator it is really tough to meet the needs of each student in a classroom. At my school it is impossible. It is not the students with IEP’s that get left out. We are required by law to adhere to their IEP’s. It is the “regular” students who suffer the most. In my situation it is difficult to find the “perfect” balance with my Inclusion and regular students. Many factors exist in our situation; one, funding to hire more resource teachers; two, time being split between two math classes; and three, large classes with varying ability levels.

One of my own children happened to have a class that was an Inclusion class. I did not take her out of this class because she liked the teacher. Through out the semester she would compare what her class was working on to what the other classes were working on. She commented that although she liked helping

**UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News****Is there a right way
Or a wrong way to
teach an Inclusion
class?**

others and liked challenges, she would prefer to work at a faster pace. She felt as though she was cheated since she could not work at that faster pace. She was and is a straight “A” student.

Now, do we need Inclusion? Yes. We all learn at different paces and styles. Some students do well in Math but not so well in English and vice versa. Generally in Inclusion classes, the material is covered at a slower pace. An IEP may be written that if he/she fails a test they can retake the test. When this happens you lose class time where as you could have moved on to another lesson. On the flip side when a resource student needs to retake something, that student should have a better understanding of the material.

Is there a right way or a wrong way to teach an Inclusion class? This is a difficult question to answer. To do it right and build students’ confidence with the material, I would group students in classes according to ability. At the end of the year, students could take a series of tests, aside from state testing that would be used to determine which type of class the student would be the most successful in. Would this influence career choice? I think not. Determination and work ethic are more of an influence than what type of class you are in.

A wrong way is perhaps the way our school has to approach Inclusion. No fault of our school or school system, it all comes down to funding and the inability to have more resource teachers to accommodate our students’ needs.

I am sure some parents would have a “hey day” with grouping. Some would say we are “labeling” the classes. We are already doing that. They are called an “Inclusion classes”. The important thing we, as parents and educators need to do is stay focused on what is “best” for our children. We should all desire our children to be successful no matter what learning group they are grouped with. The end result is what counts. We are winners!



UPPER EAST TENNESSEE COUNCIL OF TEACHERS OF MATHEMATICS News



**Lauren Downs teaches
in the Washington
County School System.**

Musical Math

By Lauren Downs

When students are asked to recall most mathematical procedures, common responses include blank stares and a few “ums”. However, when students are asked to sing a popular song, imaginary microphones and backup dancers appear in their minds as they belt out the melody they have heard so many times on the radio. Who said that learning could not induce this same emotion in students? Music can and should be used as a tool to encourage students to think about as well as enjoy their learning.

How can music be incorporated in a classroom? When should it be utilized? Will the students respond in a positive way? Using music with students can promote relaxation, creativity, and could aid in memory formation.

It is important to choose the situation and type of music to use for different settings. Using classical music promotes relaxation and encourages creative thinking. Music that is more upbeat proves to be more appropriate for movement and activities where students are working together to problem solve. Playing soft melodies when reviewing information promotes memorization and helps students focus. Your music choice should depend on the type of students in the classroom and your own preference. You will learn that when using music, students will begin to enjoy listening and will even miss the music on days that you choose to not use music. Music does not have to stay in the background; it should be incorporated into lessons. As previously stated, students remember melodies and choruses from their favorite songs on the radio. When you turn your lesson into a melody, you will be surprised as to how many students will begin to remember and recall the information.

In my classroom, we use chants, melodies, and raps to remember simple mathematical procedures. This has proved to be extremely beneficial, especially for my students who have trouble with memorization and recall. For example, to remember the steps in division we chant the following: Divide, Multiply, Subtract, Bring down. Divide, Multiply, Subtract, Bring down. To give more rhythm and interest to this chant, we include hand motions that represent each part. Students enjoy getting out of their seats to participate in this activity. By the end of the lesson, many students will be found whispering the chant as they complete their independent work.

More ideas can be found by searching the web to see other students incorporate math in music. An exciting math music video titled 4th Grader Raps about Place Value found on youtube.com can be used to encourage students to create their own math songs. Many other similar videos can be found to fit almost all subjects.

In conclusion, music is a wonderful tool that can enhance the learning experience for your students. The types of music and the timing in which music is used will differ from classroom to classroom, but when a good combination is found, the effects are great.

Below is a list of a few songs that I have used in different stages throughout my own lessons.

Beginning of a lesson lively, cheerful music:

- ◆ Fantasia, Disney
- Toy Symphonies, Haydn
- ◆ The final movement of Mozart's Piano Concerto No. 9 in E-flat

During the lesson soft melodies:

- ◆ Barefoot Ballet, John Klemmer
- ◆ Classical guitar
- ◆ Classical piano music
- ◆ Wonderful world

During Activities upbeat, fun music:

- ◆ Disney music
- ◆ Kidz Bop
- ◆ Shout

After Lesson celebration music:

- ◆ Sitcom theme music
- ◆ Celebrate
- ◆ Students' choice





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UPCOMING NCTM CONFERENCES AND MEETINGS

NCTM Future Annual Meetings

- 2013
Denver, CO. April 17-20
<<http://iem.nctm.org/link.php?M=3004392&N=1763&L=4993&F=H>>
- 2014
New Orleans, LA. April 9 - 12
- 2015
Boston, MA. April 15 – 18

NCTM Future Regional Conferences

- 2013
Baltimore, MD • Oct 16-18
Las Vegas, NV • Oct 23-25
Louisville, KY • Nov 6-8
- 2014
Indianapolis, IN • Oct 29-31
Richmond, VA • Nov 12-14
Houston, TX • Nov 19-21
- 2015
Atlantic City, NJ • Oct 21-23
Minneapolis, MN • Nov 11-13
Nashville, TN • Nov 18-20
<<http://iem.nctm.org/link.php?M=3004392&N=1763&L=893&F=H>>

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The Upper East Tennessee Council of Teachers of Mathematics is an organization for anyone involved in mathematics education from preschool through college in the greater -Cities region. We meet six afternoons per year in various locations across the region. The purpose of UETCTM is to promote excellence in teaching mathematics and to share best practices among mathematics educators.