



# UETCTM News

## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## MATH FUN

After selling cups of lemonade for a quarter each on opposite ends of the neighborhood, Cheryl said to Meghan, “If you give me one quarter, then we will have an equal number of quarters.” Meghan replied with delight, “If you give me one quarter, then I will have double the number you have!” How many quarters did Cheryl have, and how many did Meghan have?



**UETCTM MEETING**  
**Tuesday, Sept. 7, 2010**

**Daniel Boone High School**  
**1400 Suncrest Drive**  
**Gray, TN 37615**  
**423-477-1600**

### Meeting Agenda

- 4 p.m. Refreshments
- 4:30 p.m. Business Meeting
- 5 p.m. Programs
  - $\frac{1}{4}$  Lynn Whitaker (K-2) Math, Music, and Movement
  - $\frac{2}{4}$  Denise Cox (3-5) Tangram Math, Clothesline Math and Matching Square Puzzle.
  - $\frac{3}{4}$  Cindy Hayes & Lisa Armentrout (6-8) Task Rotation Activities Involving Proportions and Ratios
  - $\frac{4}{4}$  Amy Rigsby & Tina Hill (9-12) Name Game (Students at the high school level learn symbols and mathematics. Use these symbols and graphics to “write” their names and

**BE READY TO NOMINATE AND VOTE FOR A NEW PRESIDENT-ELECT**



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- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## *A message from your new President*

*W*elcome to another wonderful

year of teaching mathematics. For many of you, your first 9 weeks are almost half over! It is hard to believe that fall is here and the sea-

sons are again changing. I would like to thank Val Love for her leadership last year and all the work she has done in updating our constitution. I am the new president and I am looking forward to serving you in the coming year.

This summer I was able to attend the NCTM Affiliate Leadership Meeting in Reston, VA. Part of this 3-day conference included a trip to the NCTM Headquarters. The building is relatively small and unassuming and is actually nestled in the woods, but it is buzzing with activity inside. I took my picture next to one of two beautiful stained-glass windows they have inside the building. At the conference, I was able to share copies of our UETCTM *Newsletter* with affiliates from across the country. People from other states were interested in what we were doing at our meetings, what people were writing in our newsletter, and how we managed to have six meetings per year. With Tennessee's success in the nation's Race to the Top, people are curious about what we are doing. Fortunately for our affiliate, we have a history of progressive work in mathematics education. Looking at our website, you can see an archive of newsletters dating back to 2003. Even the newsletter editor for the Tennessee Mathematics Teacher's Association (TMTA) is inter-



**Ryan Nivens, Ph.D.**  
**Assistant Professor, Mathematics Education**  
**Department of Curriculum and Instruction**  
**Center of Excellence in Mathematics and Science Education**  
**East Tennessee State University**



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- FOSTERING THINKERS
- OUT OF THE BOX
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- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

ested in re-printing some of the essays that we have included in our newsletter over the past year or two.

Finally, an exciting opportunity is coming our way. We are hosting the TMTA annual meeting next fall! We're going to need lots of help and there will be ample opportunities for you and your colleagues to present your favorite lessons, projects, and teaching strategies. I encourage you to start talking with your district's mathematics curriculum supervisor about what role you can play as we host a state meeting. In light of the work and coordination required to host a state meeting, it may be best for Fall 2011 to not have our typical 3-meeting schedule. The TMTA meeting is usually a full day and a half of professional development for those attending. I encourage you to make plans now for next fall. The nation's eyes are on Tennessee, and Tennessee's eyes are on the Upper East portion of the state. Keep up the excellent work and professionalism!

Sincerely,

Ryan Nivens

## MATH TRIVIA

If one angle in a triangle is given as 102 degrees and a second angle is given as 56 degrees, which of these book titles corresponds to the value of the third angle?

⇒ "21 Proms" by Daniel Ehrenhaft and David Levithan

⇒ "The Life of Pi" by Yann Martel

⇒ "Catch 22" by Joseph Heller

⇒ "24 Girls in 7 Days" by Alex Brady

The correct answer is "Catch 22" by Joseph Heller. There are 180 degrees in a triangle. In this case  $180 - (102 + 56) = 22$ .



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- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE

By Amanda Phebus  
David Crockett High School  
Washington County Schools, 9th Grade



The 2009-2010 school year held many firsts for me, and a few firsts for my school. Mainly, this past year was my first full year teaching. This was Crockett's first year having the federal program of Title I. Title I is a wonderful program that aids students struggling with mathematics and/or reading. Now, the elementary and middle schools in Northeastern Tennessee have had Title programs in place, as it is my understanding, for quite a while; however, Title I at the high school level is very uncommon. The point that I am meaning to get across to you, dear reader, is that this was an unusual and experimental process that I had to go through.

In getting to know my students, who were selected for my class mainly by middle school TCAP testing scores, I found that they would readily work any problem that was number-based and could be easily inserted into a calculator – even when a calculator was not available. However, when they reached a word problem, they would automatically skip it and many would not go back to rework it. The students preferred losing the points over having to read the block of words that was presented to them.

Many of my students, mostly the boys, were also in the Title I reading program, which was taught by the wonderfully talented and lovely Wendy Whitmore. Almost on a daily basis we connected and talked about the students we shared, and she brought it to my attention that my students might just not know how to read a word problem. I was floored. Now I have to teach reading?!? Yes, math was involved, but ... I have to teach reading? With Wendy's positive attitude and the knowledge that I could always get help from my good friend, the Internet, I left her room determined to teach my students how to read word problems. I do want to point out that I am only teaching them how to read word problems, not work them. That is a different skill set altogether.

Now, I had recently been in a math workshop where I learned about foldables for the first time. If you haven't tried them, try them! They're glorious, but remember that they will not work for everything. So, my introduction to this unit on reading word problems was making a layered foldable. (I was going to write out all the



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- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

instructions how to make a 5-tabbed layer foldable, but then my friend, the Internet, found my this instruction page with pictures: <http://www.registereastconn.org/sblceastconn/foldables/LayeredLookBook.pdf>. This is why the Internet and I are so close.) On the first day, after the students decorated the top page of their foldable, my students and I had a discussion about how math is its own language, and that while we use it when we speak English, that it is a universal language with its own kind of alphabet (numbers and symbols) and grammar (ways to use these symbols in a meaningful way). When reading a word problem, it is the reader's job to decipher the English that is in the problem and translate it into Math. So, we labeled the first tab "Operation Words." This section was divided into four boxes where we wrote "addition, subtraction, multiplication, division," one in each of the four boxes. The students then had to come up with English words or phrases that would fit into these boxes. For example, in the "addition" box, we wrote "sum, plus, add, all together, total, in all, etc." And in going from period to period, I would share what some of the students in my other classes came up with. On the next tab down, we had "Parentheses and Other." This tab contained all the words for grouping the operation words (parentheses) as well as words for equality, inequality, and exponential operations. These words are a little bit subtler, so it was interesting watching the students work together to come up with these words.

Other tabs on the foldable were more straightforward and direct. There was one reserved for "How to Read a Word Problem." Another contained many formulae that the students would run across and be expected to know in order to solve the problem ( $\text{distance} = \text{rate} \times \text{time}$ ). The last tab was about shapes, since in "How to Read a Word Problem" we discuss that drawing a picture oftentimes helps the student visualize what kind of answer the problem is looking for, and having the knowledge of how to calculate the perimeter and area of certain shapes was handy to have.

The foldable is a wonderful tool and I was extremely excited to find something where I could apply it. There are quite a few books on the topic...or you could talk to my friend, Internet, and he can hook you up with some information. Stay tuned – I plan on writing another article on the rest of this unit. It was an awesome unit, by the way, and as we got closer to the end, the kids were just begging me to let them solve the word problems!



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- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## FOSTERING THINKERS

By Crystal Tibble  
West View Elementary  
Washington County Schools, 4th Grade



I believe that the majority of teachers really want their students to succeed and do well in math. For a lot of teachers, the problem is that we only teach students the procedures of math and not the reasons for why they are doing them. I know that I am guilty of telling a student that they need to regroup in subtraction when the number on the top is larger. I teach them the procedure of regrouping without really teaching them what they are doing. My students will do it because I told them to, not because they know they need to.

Time constraints that are put on teachers, because of all the things we have to cover, often leave us feeling that we do not have the time to dwell on the why. They just need to do it and get it correct.

I have come to the realization that, in order to prepare my students for life, I need to teach them to be thinkers. Teaching them procedures will not teach them to think. Students can only become good thinkers if they have a firm foundation of the basics.

We need to start working with students on a concrete level. They need to see and manipulate the numbers themselves. Students need to work with different manipulatives and be given the opportunity to discover numbers. They are ready to start moving to more abstract ideas of math when they understand the concrete. When they are ready for the abstract, if they have a good number sense, they will be able to develop their own methods to problem-solve. They will not need me to teach them the procedures. When they are able to develop their own methods, I will know that I have taught them to be thinkers.

Students and teachers need to understand that the teacher's role is to give the student the foundation and then offer guidance along their journey.



# UETCTM News

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- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## OUT OF THE BOX

**By Marcia Jennings**  
**Fall Branch Elementary School**  
**Washington County Schools, 4th Grade**



*A*s a learner have you ever asked the question why? Why do we have to learn this? When is it ever going to help me? Why this way? Isn't there a better way? Do your students often ask you the same type of questions?

Sometimes you have answers for them and sometimes you don't. Having the invaluable opportunity of being a part of the 2010 Eastman Mathletes program has answered many of those questions for me. As teachers we should be looking outside of the traditional "box." We should get out of our comfort zone of what we have always been taught and explore other, even better ways to teach.

Many times, myself included, we stay in the comfort zone because it's easier. However, as we prepare these students for their future, we are short changing them by staying stagnant. The world is ever changing and we should be also. Explore different untraditional ways to teach math. Teach your students that it's okay to try something differently. Isn't that what we are in this profession for? To encourage children's curiosity, and prepare these children for their future. Then we HAVE to get out of OUR comfort zone.

We HAVE to get out of the traditional box and we HAVE to continue learning and exploring new ways.



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## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
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- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## BUILDING A CONFIDENT MATH STUDENT

By Jenee' H. Peters  
Boones Creek Middle School  
Washington County Schools. Grade 4



The beginning of each new school year comes with the standard checklist: learning new names, beginning of year placement tests, assessing ability levels and learning styles and so on. But before all that, what I look at first is how confident each student seems to be with their own ability to reason and compute math successfully.

What I have found is that many, both girls and boys, do not. The why's to this problem can differ with each student. Some have heard their parents say, "Well, I was never good in math. So, you won't be either." Some students have had negative experiences in other math classes. Other students struggle with low self-confidence in many areas of their life, not just in math class. Whatever the reason is, I have found that if I make increasing confidence in their ability to be good math students my first priority, all other goals I have for my students come much easier.

Here is a list of steps that I take at the beginning of the year to build more confident math students:

1. I tell students its ok to make mistakes. Students need to know up front that I will not yell or get mad at them if they make a mistake. I make sure to let them know that mistakes can actually be a good thing in math. Mistakes create opportunities to learn. Students also begin to feel more confident when I tell them that most of the time they will be able to correct their mistakes for a better grade.
2. I encourage them to always ask for help if needed. I reassure students that they always have the green light to come to me and ask for help.





# UETCTM News

## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

3. I have found it helps to start the school year with lessons from the lighter areas of my standard list. The standards that include basic geometry and measurement concepts are ideal. Students have lots of prior knowledge in these areas of math. This makes understanding and success easier to achieve.
4. I hand out lots of “Atta Boy” comments especially in the first few weeks of school. I believe that a teacher’s praise creates a more secure student who is more willing to push themselves in some of the more rigorous areas of math.
5. I have a strict but fair discipline plan that is followed by both teacher and student. Discipline needs to be cut and dry, and consequences need to be consistent. If I do this, I have found that I spend less time disciplining and more time facilitating learning.
6. I have a one-on-one conference with those students that really seem to struggle in math or have other issues that hinder them from being confident learners. In these conferences, the two of us decide on a plan that will lead to success in my class and seem achievable to that student. These plans can include one or all of the following: extended time on tests (this helps with certain students that have extreme test anxiety), behavior contracts, set of rewards and consequences uniquely set for each student, constant communication between school and home, and modified assignments. I promise each student that if they really try, they will be successful in my class. The students with extreme cases of low confidence are often students that feel lonely and misunderstood. I have found that if I can get them to believe that I won’t desert them during their math struggles they will take risks.

Today, math teachers feel the pressure to cover all grade level standards. This pressure can be so great that it can cause a teacher to lose sight of their real purpose within their classroom. The real purpose, I believe, is to encourage and motivate students into believing and seeing that they can be successful math students. If students are successful, they become more confident. If students become confident, they can learn any math standard.



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## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## POSITIVE AND ENTHUSIASTIC TEACHERS

**Jennie Estep**  
**Sulphur Springs Elementary School**  
**Washington County, Grade 5**



As a teacher, you dread hearing those certain words. These are the words from the teachers who teach the grades before you and these words are to be considered your forewarning. What are these dreaded words? “Wait until you get this group of children.” As teachers, haven’t we all heard these words before and wondered how we were going to get through it, but there are better questions. “What am I going to do to meet the need of this challenging group of students and what strategy will I use to positively affect the students from the beginning?” In my opinion, the first strategy we need to implement is the attitude of a positive and enthusiastic teacher!

William James said, “The greatest discovery of my generation is that a human being can alter his life by altering his attitude of mind” (Wong, H., 2004). This quote should inspire the teacher to begin by altering his or her own mind and attitude and then by altering the attitudes of the students and the parents. This attitude needs to be positive! As society changes, so do the students. We must be willing as educators to meet these changing needs in the classroom, and just as importantly, we need to discover strategies to positively impact classrooms from the beginning.

One strategy is that teachers need to become first-class actors and actresses. By the time many children reach the upper grades, they are unfortunately already burned out with their math education. Teachers should strive to rekindle and then keep the spark of desire to learn burning. Anatole France, who was the winner of the Nobel Peace Prize for Literature in 1921, once said, “The whole art of teaching is only the art of awakening the natural curiosity of young minds for the purpose of satisfying it afterwards.” (John Bartlett, 1968, p.802a)



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## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

I once read an enlightening research based article on the effects of teacher enthusiasm on student intrinsic motivation. This research revealed that the teachers' enthusiasm was the most powerful unique predictor of students' intrinsic motivation (Patrick, B.C., Hisley, J., & Kempler, T., 2000). What a powerful statement! Developing an enthusiasm for learning and being able to influence a child to become a life-long learner is also a major goal and a huge part of being a teacher. I know that as teachers we already know this, but with the pressure of new standards, pacing guides, and etc, it is sometimes easy to push aside. We need to celebrate math, make learning exciting, and have engaging lessons! Our enthusiasm should be contagious!

Patrick, B.S., Hisley, J., & Kempler, T. (2000). "What's everybody so excited about?": The effects of teacher enthusiasm on student intrinsic motivation and vitality. *The Journal of Experimental Education*, 68, 217. Retrieved June 19, 2008 from General One File database.

Wong, H.K., & Wong, R.T. (2004). *The first days of school*. Mountain View, CA: Harry K. Wong Publications, Inc.



# UETCTM News

## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## MATH JINGLES

By **Kristi Sanders**  
**Ridgeview Elementary School**  
**Washington County Schools, Grade 8**



Let's face it. Every student does not enter our classroom with a fondness for math. One of the many challenges then, as teachers of mathematics, is to dig into our bag of tricks to find ways that make the learning more enjoyable and less intimidating. One of the methods I have found useful is singing jingles that are related to math concepts.

I am not a gifted singer by any stretch of the imagination. I confess this to the students up front, and let them know that singing talent is not a requirement for singing math jingles in my classroom. I even encourage them to be a little silly and have fun with the jingles. This often puts the students at ease, helping create a relaxed, enjoyable atmosphere. I believe that when students are relaxed they are more likely to learn.

Another benefit of using jingles is that often they are to the tune of an already familiar song. For example, when working with addition of integers, I use a jingle that I borrowed from a fellow math teacher. It is to the tune of "Row, Row, Row Your Boat." The words are as follows:

Same signs, add and keep.  
Different signs, subtract.  
Keep the sign of the highest number,  
And you'll always be exact.

Another jingle I use that is to the tune of a familiar song helps remember a shortcut for subtracting integers. We sing this to the tune of Aretha Franklin's "Chain of Fools." The students really enjoy dragging out the words to make it sound like Aretha would. The words are as follows:

Keep change, change  
To subtract...



# UETCTM News

## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

Even more beneficial is when the students make up the songs themselves. After using the two songs above, a group of students asked me for a song about multiplying and dividing integers. When I told them I did not have one, they asked me if they could create their own song and came up with the one below to the tune of Black Sabbath's "Iron Man."

If the signs are the same,  
Then the answer is positive.  
If the signs are different,  
Then the answer is negative.

I highly recommend allowing the students to create songs. This generates even more excitement and gives them a sense of ownership. It also allows them to show understanding of concepts in a fun, non-threatening way.

Math jingles are excellent memory devices. There are several times I have noticed students mouthing the words to one of their math jingles while working on an assignment or taking a test. Consider how often adults will hum or sing "The ABC Song" to themselves when alphabetizing something.

If you are not comfortable writing jingles or songs, or allowing your students to create them, there are many sites on the Internet that have done the work for you. Two examples are listed here:

[www.mathwire.com/music/music.html](http://www.mathwire.com/music/music.html)

[www.songsforteaching.com/mathsongs.htm](http://www.songsforteaching.com/mathsongs.htm)

Using jingles in the math classroom has many benefits. First of all, the students love it. They enhance student learning by addressing different learning styles. Jingles are also useful for helping students commit things to memory. Consider having your students sing and write jingles and reap the benefits of this simple strategy.



# UETCTM News

## IN THIS ISSUE:

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## ROLL UP THOSE SLEEVES

By Cindy Hayes  
Mathematics Coordinator  
Washington County Schools



We are in an age of constant change. Keeping up with change is a daily struggle. When I think of hard workers, the first thing that comes to my mind is seeing people rolling up their sleeves and getting dirty. It's time to roll up our sleeves and get dirty! Keeping up with the change is not going to happen by observing. It is going to require us to get involved and move with the changes. We can't just watch it go by any longer. In the education world, our students need us to help them prepare for even a faster pace world than we have ever experienced.

Teaching mathematics is not necessarily an easy thing to do. We must motivate our students to want to learn the things we want to teach them. We need to bring quality instruction into the classroom that will promote active engaged learners of all abilities in the problem-solving realm. It is no longer effective to teach at the recall level. To keep up with the rigorous state standards and the ever growing economy, students must be able to think as problem solving machines! We need to prepare them for a world that is beyond our expectation. Creating an environment that engages meaningful, hands-on and authentic, high-order learning experiences is a must. Students must not only learn, but understand it and apply it to their world. Yes, it takes a lot of thought, planning and resources and this is where rolling up those sleeves comes into play. The three R's are just not enough in the real world. People are required to obtain more complex skills than ever before, as well as being able to think for themselves in problem solving situations.

Lastly, another thing I remember about watching people rolling up their sleeves and working is that they had a satisfied look upon their face. They enjoyed observing the harvest of what they reaped. We have two choices, ignore the changes and hope they pass us by while our students suffer or roll up our sleeves and make it work! Enjoy the harvest that you reap! Prepare your students for the ever changing world!

# UETCTM News

**IN THIS ISSUE:**

- MATH FUN
- UETCTM MEETING AGENDA
- A MESSAGE FROM THE PRESIDENT
- TEACHING STUDENTS HOW TO READ WORD PROBLEMS: CREATING A FOLDABLE
- FOSTERING THINKERS
- OUT OF THE BOX
- BUILDING A CONFIDENT MATH STUDENT
- POSITIVE AND ENTHUSIASTIC TEACHERS
- MATH JINGLES
- ROLL UP THOSE SLEEVES
- USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS
- UPCOMING CALENDAR DATES
- ARTICLE SUBMISSIONS
- OFFICERS
- MEMBERSHIP

## USING DICE TO FOSTER BASIC MULTIPLICATION SKILLS



**By Niki Combs  
West View Elementary School  
Washington County Schools, Grade 5**

As I began my first year of teaching, I had the perfect dream that a majority of my 5th grade students had already mastered their multiplication facts. I was in disbelief when I graded the students' first multiplication test. Out of about 60 students, maybe 20 of them knew all of their facts 1 through 12. At this moment, I realized that I had to find an activity that would help my students memorize their multiplication facts. Without this basic understanding, I knew that my students would fall between the cracks.

I began searching through old Scholastic Instructor magazines and to my surprise, I was not the only teacher in this world that was struggling with this problem in the classroom. I found a multiplication activity that I knew my students would love. This activity involves using dice, either 6-sided or 12-sided (Dodecahedron) dice, to learn basic multiplication skills. The activity is called the "Multiplication 500 Race."

Students pair up, and take turns rolling two dice at a time. The multiplication problem will come from the two numbers on the dice that they have rolled. For example, if a student rolls a 2 and a 6 then their score will be 12 points. The goal of this game is to roll the dice, get a product, and keep adding the new product to the products from each go around. The first student to reach 500 points wins the game.

So, I tried this activity with my students and realized that the students enjoyed the game. My main concern was, "Would this activity really help foster multiplication skills for my students?" When I gave the next multiplication facts test, I did not immediately see major results; however, my students would constantly ask to play the "Multiplication 500 Race" every day. I began playing this game with my students almost every week. By the next time that I gave another facts test, I started to see a small progression in their overall scores. I played this game almost every week throughout the year and the gains my students made were remarkable. Students with low scores, mastered, or came close to mastering their multiplication facts by the end of their 5th grade year. I was amazed that an activity, so simple, could leave such a lasting impression on my students.



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## UPCOMING CALENDAR DATES



### UPPER EAST TENNESSEE COUNCIL OF TEACHERS OF MATHEMATICS

Tuesday, October 12, 2010

Ross N. Robinson Middle School, Kingsport, TN

Monday, November, 8, 2010

Sullivan North High School, Kingsport, TN

Monday, February 7, 2011

Church Hill Intermediate School, Hawkins County, TN

Tuesday, March 8, 2011

Indian Trail Middle School, Johnson City, TN

Monday, May 2, 2011

Bristol City Schools, TBA



### NATIONAL COUNCIL OF TEACHERS OF MATHEMATICS 2010 REGIONAL CONFERENCES AND EXPOSITIONS

October 7—8, 2010

Denver, CO

October 14—15, 2010

Baltimore, MD

October 28—29, 2010

New Orleans, LA

2011 RESEARCH PRESESSION

April 11–13, 2011

Indianapolis, IN

2011 Annual Meeting and Exposition

April 13—16, 2011

Indianapolis, IN



### TENNESSEE MATHEMATICS TEACHERS ASSOCIATION

TMTA Fall Conference

September 24—25, 2010

University of Tennessee, Martin



### SOUTHWEST VIRGINIA COUNCIL OF TEACHERS OF MATHEMATICS

Annual Meeting

September 11, 2010

Virginia Highlands Community College

Any K-16 teacher of mathematics is welcome to attend. New this year will be various vendors showcasing textbooks and educational products. For registration information please go to [www.mcs.uvawise.edu/svctm](http://www.mcs.uvawise.edu/svctm).



## Request for Article Submissions

**W**e are always looking for people to contribute articles to our ongoing "Math Perspectives" series. Every month, we would like four submissions for the series: a preservice undergraduate student, a preservice graduate student, a current classroom teacher, and one of our local math coordinators. Each person will voice their opinions, concerns, or observations upon a particular aspect of teaching mathematics. There are no set topics for this series.

Another section will be included in the next issue dedicated to mathematics problems. We are looking for submissions on favorite problems focused on various grade bands.

*If you or someone you know would like to contribute to this column, please contact **Ryan Nivens, Newsletter Editor.***

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# UETCTM

## Membership Application



***Mail completed form to:***

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3089 Highway 11W  
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***Membership Fee: \$10***  
***Payable to: UETCTM***

Name: \_\_\_\_\_

Home Address: \_\_\_\_\_

\_\_\_\_\_

Home Phone: (\_\_\_\_) \_\_\_\_ - \_\_\_\_\_

School: \_\_\_\_\_

School Address: \_\_\_\_\_

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