



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

IN THIS ISSUE

- MATH JOURNALS
- GETTING THE MOST OUT OF STATIONS
- THE POWER OF INTEGRATING SCIENCE AND MATH
- EMPOWERING STUDENTS TO THINK
- SPIRAL REVIEW IN MIDDLE SCHOOL MATHEMATICS
- A SHIFT IN TEACHING
- PARENTS AND COMMON CORE MATHEMATICS
- "MIDDLE SCHOOL BRAINS = CREATION STATIONS"
- PRIORITIES
- MAKING MULTIPLICATION MATH FACTS FUN
- STUDENTS ARE PEOPLE TOO!

(CONTINUED ON PAGE 2)

Brain Teaser!

Sachin Tendulkar bought a red ferrari with a strange 5 digit numbered plate. When the number is rotated 180° , it appears to be a number that is 78633 more than the car number.

All the digits of Sachin's car number are distinct.
What is the original number on Sachin's number plate?



Solution on page 17.

Adapted from: <http://dailybrainteaser.blogspot.com/2013/03/sachin-red-ferrari-number-riddle.html>

Upcoming UETCTM Meeting

Tuesday April 9

Time: 4:00 PM - 6:00 PM

Blountville Elementary School, Sullivan County

Address: 155 School Ave, Blountville, TN 37617

Phone:(423) 354-1650





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IN THIS ISSUE

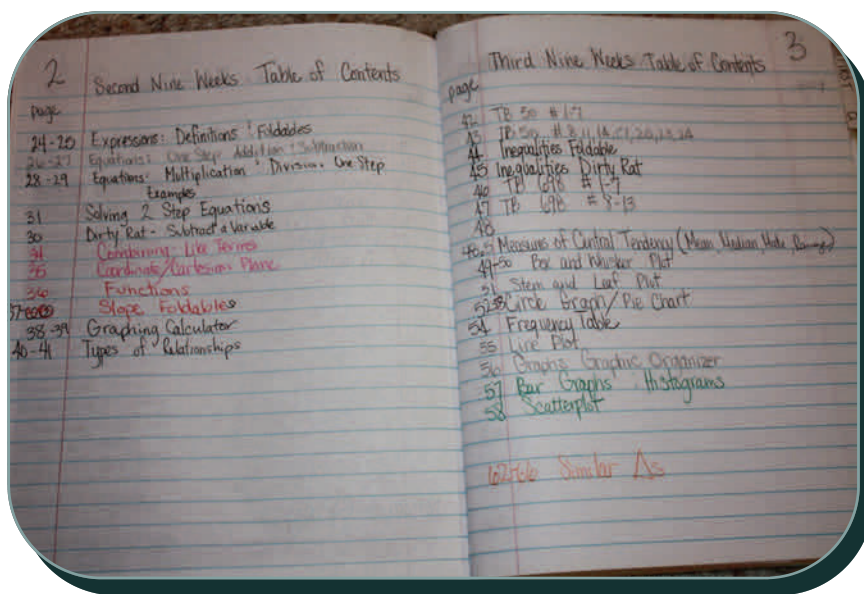
- AS TEACHERS HOW CAN WE MAINTAIN INTERDEPENDENCE WITHIN COOPERATIVE GROUPS
- "IT'S MY WAY OR THE HIGHWAY!"
- "WHAT NOW?" MATH WORK STATIONS THAT REALLY WORK
- MULTIPLICATION MATTERS
- CULTIVATING A TEAM CULTURE: TEAMWORK IS BETTER THAN ME-WORK!
- GET OUT! WHO KNEW MATH COULD BE FUN?
- UPCOMING NCTM MEETINGS AND CONFERENCES
- UETCTM OFFICERS
- MEMBERSHIP APPLICATION

Math Journals

By Deborah Smith

I have used journals in math before, but never like this. This past year, the students essentially created their own textbooks, complete with a table of contents and glossary. I have included many pictures because I think the visual is better than any description.

I request that students use the black and white composition books for their math journals. It seems that these stay together better than the spiral bound and wireless counterparts. The first week of school, I will have the students label the page numbers in the composition book in the upper left and right corners. The first few pages are reserved for the table of contents. I have found that one page per grading period is typically adequate. The students fill in the table of contents as they add information into their journals. Following the table of contents is a page where students record their partner appointments, or partner clock. I strongly encourage my students to use colors as they enter information into their journal. I have also learned that it is necessary to carefully watch students at the beginning of the year as they begin their journal entries. Some students need more supervision to ensure that the information is entered on the next consecutive page. Keeping notes in order will aid the students in knowing

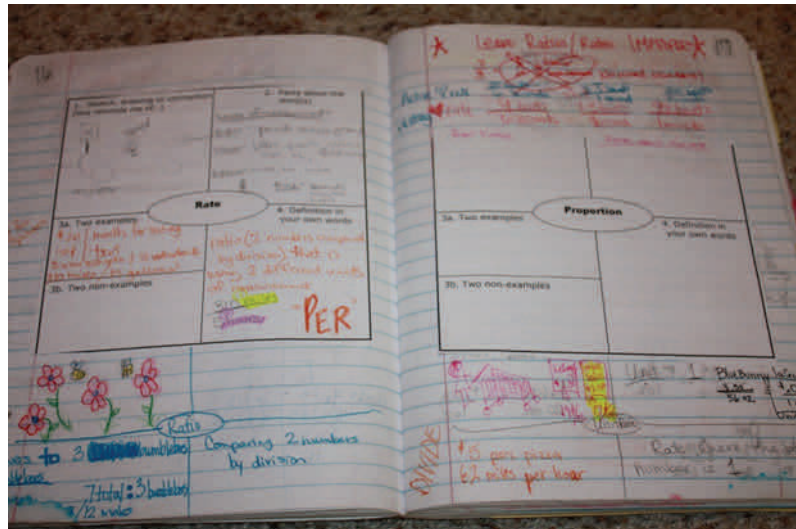




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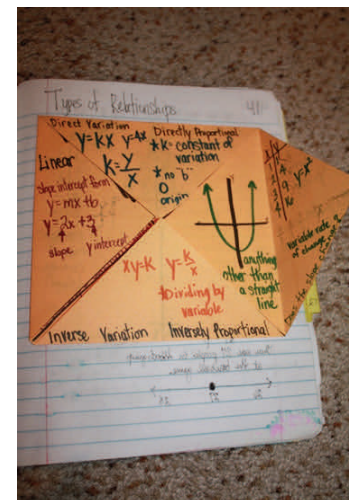
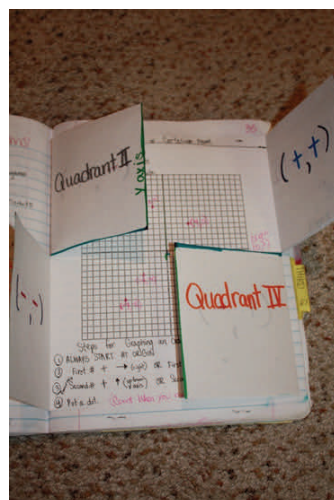
(Below) A Frayer Model for vocabulary may be cut out and glued, or may be drawn in the journal as pictured here.



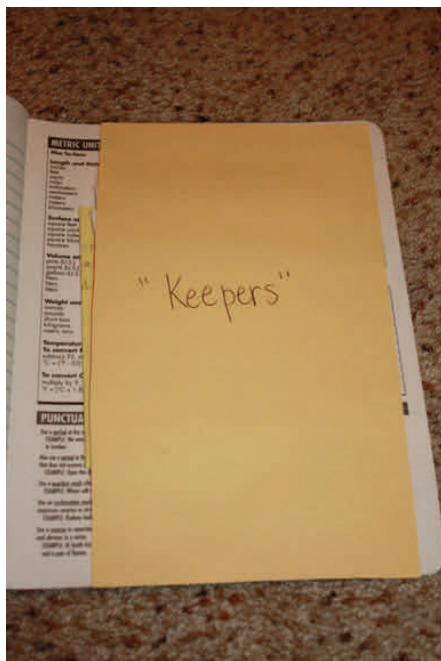
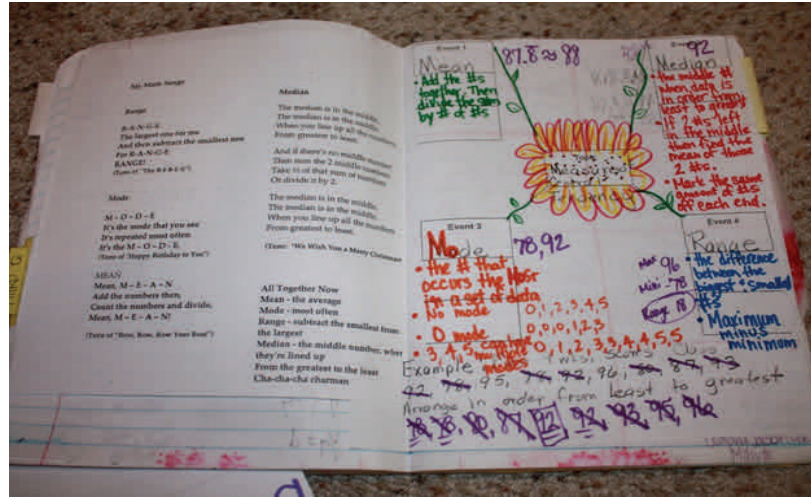
I have included many pictures because I think the visual is better than any description.

This shutter fold is a perfect fit with legal-size paper.

Types of Relationships foldable



I discovered that copies can also be added into the journal. This can be done by trimming the top or bottom of the copy then folding the margin over an inch or so. Add glue to the margin and stick into the journal. The students enjoyed labeling this page as page 91.5 in the table of contents.



(Left) This piece of card stock was glued on the outer three edges and created a pocket for the students to keep important handouts, such as the word problem rubric.

The last thirteen pages of the journal were used as a glossary, allowing two letters per page. This would also be a great place for an appendix, such as test-taking strategies or calculator entry instructions.

The students and I were very excited to see the finished product at the end of the year. I encouraged my students to save their journals as they moved on to eighth grade.



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Getting the Most Out of Stations

By Ginger Davis
Bristol TN City Schools

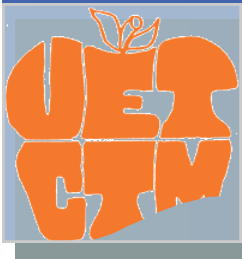
Like most teachers, I found the beginning of the 2011-2012 school year overwhelming. I knew group work was a big focus, but so was problem solving, thinking, differentiation, and many more sections of the TEAM model. After several in-service days of the Tennessee TEAM Educator Rubric as the focus, I began searching and thinking of ways to make it more manageable. I focused on the significantly above expectations column, level five, with a goal of combining areas if possible. I recalled the Thoughtful Classroom Professional Development program by Strong and Silver Associates. I was inspired by their focus on learning styles and by their method of allowing students to practice a concept in multiple ways. I created a group work/station procedure that has been very successful for students and for “checking off” the bullets in the level five column.

Primarily, I use a combination of activities as practice, after the concept/lesson has been established. I begin by placing students in groups of 4 or 5. Then the students select roles: timekeeper, on-task person, facilitator, speaker, and scribe. A few of the roles may be combined or omitted to fit your needs. I sometimes omit the scribe and have all of the students record the results. It depends on how I plan to grade the activity. The timekeeper does just that – keeps time. I set a limit on the amount of time per station; therefore, it is an important role. The on-task person helps keep the group focused. The facilitator moves the folders/activities and reads instructions. The speaker is in charge of raising her hand for the teacher and speaking at the end during reflection. The scribe records results for the group. Please remember: students may struggle with these roles the first time, but, as with everything, practice does make perfect.

Now to the meat and potatoes! Typically I have 4 to 5 different activities, depending on class size and lesson. I design activities to accommodate different learning styles. I compile questions, problems, and ideas that are conducive to a particular learning style for each different activity. One activity will consist of practical application of the lesson. This activity will focus on students using, applying, practicing repetitively, recalling, and following a procedure. The second activity will consist of a more analytical thinking. It will focus on students comparing/contrasting, evaluating/explaining, justifying solutions, finding errors, making predictions, or improving a given solution. The third activity will feed the creative minds. This activity will require students to create, design, use art, song, or poetry

“Necessity is the
mother of invention” –

Plato



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TEACHERS OF MATHEMATICS News

to express an idea. The fourth activity allows students to connect their learning to past experiences, observations, feelings, or situations. This is a great time to answer that inevitable question, “When am I ever going to use this?” The teacher will make that extension to real-life scenarios, or the students will research and make the extension themselves. Lastly, the fifth activity is the hands-on portion. Typically I use this station to encourage inquiry and curiosity about the topic of study. Frequently I use the SmartBoard and a variety of great on-line programs to satisfy whatever need, but you may use any great hands-on activity. This is great because many times materials are limited. And restricting the materials to 5 students at this station is more cost effective.

One of the best aspects of this station is that the students can manipulate a figure to various conditions to better understand how the constraints affect it. Students can ask, “what if I do this?” Then they can measure and verify that all the properties hold true. At the beginning it may seem like a daunting task; however, with a little practice the process gets easier. Basically all I do is identify similar problems then “cut and paste” those problems together for a folder. As you can see the possibilities are endless to the types of activities you can create.

Now the plan for execution within the classroom is crucial. The first several times I did this activity I had the student groups move around the classroom to stations. However, my classroom is small and I found my students did not move from station to station as quickly as I saw fit. Therefore I placed each activity in its own colored folder and the folders moved around the classroom. Students are still required to move to the hands-on station, but all of the other activities moved to the students. I require the facilitator in each group to pass the activity folder in a certain direction. This keeps it more organized and the students can manage their activities more easily.

The observable successes were many! The main goal for students learning the concept was accomplished. I saw amazing teamwork; students really worked well as a team to complete the task at hand. The most gratifying observation was seeing different students “step-up” during various activities and lead. Even my harshest critics enjoyed at least one of the activities that day. I enjoyed seeing many students, who usually sit quietly, teach another student in their group. After a couple times of explaining my expectations, the students had mastered the overall procedure. Then I could place just about any activity in the folders and the students completed it with little direction from me. The successes based on the TEAM evaluation rubric are great. This group work concept achieves in motivating students, lesson structure and pacing, activities and materials, questioning, teacher knowledge of students, academic feedback, grouping students, thinking, problem-solving, student work, assessment, expectations, managing behavior and environment. It provides for a win/win situation where the students are succeeding and the teacher is meeting more of the TEAM model’s requirements.



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Extensive research supports that students learn best when they are engaged in hands-on activities and the information is connected to real world experiences (Jegede, Olugbemi J & Taylor, Peter C, 1995).

The Power of Integrating Science and Math

By: Heather Hobbs
Kingsport City Schools

Have you ever asked yourself,
“How can I maximize my instructional time, and enhance student learning?”
Of course you have! Now, have you found the answer?

One possible solution is integrating your math and science curriculum. Math and science naturally fit together, as math is the language of science. So why not take advantage of this natural connection when instructing the minds of our students? Extensive research supports that students learn best when they are engaged in hands-on activities and the information is connected to real world experiences (Jegede, Olugbemi J & Taylor, Peter C, 1995).

Below are some practical ideas that allow you to do just that!

Measurement

- * Owl Pellets: Allow the student to measure the pellet and the bones inside. Hold a contest to see who can find the longest or shortest bone.
- * Mass various objects around the room. Make it a scavenger hunt to see who can find objects with a mass of one gram, one hundred grams, one thousand grams, and so forth.
- * Position thermometers around the school. Collect and record the temperature throughout the day. After you collect the data, graph the results and look for patterns.
- * Create a model of the solar system built to scale.

Ratios & Proportions

- * Find the ratio of the length and width of various objects (Cawley & Foley, 2002).
- * Use food color in water to achieve certain shades. As students work to create these colors, have them record the amounts of food color needed to achieve these results (Cawley & Foley, 2002).



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Multiplication

- * Experiment with the equation $\text{Force} \times \text{Distance} = \text{Work}$ (Cawley & Foley, 2002). Have students construct scenarios to illustrate and solve this equation.

Fractions, Percentages, and Probability

- * Record the weather daily. Periodically discuss what fraction of the week was cloudy, rainy, etc.
- * When explaining moon phases give each student some Oreos to demonstrate what fraction or percent of the moon is visible. You may also use cotton rounds to illustrate this principle.
- * Discuss heredity and explore the work of Gregor Mendel.
- * Experiment with genetic traits of parents to determine the traits of the offspring.

Sources:

Cawley, J. F., & Foley, T. E. (2002). Connecting math and science for all students. *Teaching Exceptional Children*, 34(4), 14-14. Retrieved from <https://login.ezproxy.etsu.edu:3443/login?url=http://search.proquest.com/docview/201140540?accountid=10771>



Jegede, O. J., & Taylor, P. C. (1995). The role of negotiation in a constructivist-oriented hands-on and minds-on science laboratory classroom. Retrieved from: <https://login.ezproxy.etsu.edu:3443/login?url=http://search.proquest.com/docview/62627853?accountid=10771>



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“My goal when teaching math to my students is to empower them to think and investigate freely”

Empowering Students to Think

By Karen Kitzmiller
Kingsport City Schools

A friend and I were talking about some of the experiences that we had when we were in elementary school. One of my most vivid memories is from the third grade. We were working on adding large numbers together. I completed the worksheet that my teacher had given me, and I brought it for her to grade. When she handed it back she had put an X next to the problems that weren't correct. I was told to correct the paper, and bring it back to her. As I was making my corrections, I came across a problem that seemed to be correct. I asked my teacher why she marked the question wrong when the answer was right. Her response has stuck with me all these years: “Karen, it's wrong because you didn't complete the problem the way that I asked you too. The answer is correct, but you didn't work the problem out the way we do in third grade.” According to my third grade teacher, it was her way or the highway. You were either right, or you were wrong. There was no room for free thinking or investigating. As a third grade student, I remember thinking that there must be more than one way of doing math.

As a teacher, I understand that all children learn differently. What works well for one student may confuse another student. My goal when teaching math to my students is to empower them to think and investigate freely. Often times I will give them a problem, and I will ask them to find any way they can to solve the problem. If they have attempted to solve the problem and are still stuck, I will often ask them questions to get them thinking about how to start solving the problem. “What would happen if you started adding here first? What do you notice about this problem that you may have seen before?” It is amazing what they can come up with when they are given the opportunity to think for themselves. After my students have had a chance to work, we will come together, and I will let them share their



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TEACHERS OF MATHEMATICS News

thinking with the class. As the students are sharing, I will ask them questions about what they were thinking or where they got a certain number. I also give their peers a chance to ask them questions. I often hear students whisper, “I get it! I see how he/she got that answer.” Sometimes they can learn more listening to and watching their peers than they will learn from me. My goal is for my students to understand why the math works. I don’t want them to ever think that they are doing something “wrong” because they did it differently than someone else. There are many ways to solve math problems, and I want them to investigate to find the way that works best for them.

My third grade teacher was a wonderful lady, and I have many fond memories of being in her class. Unfortunately, she wasn’t given the opportunity to empower her students to be free thinkers. We all knew how to add two-digit numbers together, but none of us new why we were carrying numbers. We did it because we learned a procedure. We didn’t learn the how and why of math. I encourage you to empower your students to investigate and think freely about math. Their knowledge will surprise you.





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TEACHERS OF MATHEMATICS News

Student success on standardized testing in mathematics is dependent not only on the ability to reason but also the ability to recall standard mathematical concepts and rules.

Spiral Review in Middle School Mathematics

By Lawrence A. Nussio
Hawkins County Schools

Student success on standardized testing in mathematics is dependent not only on the ability to reason but also the ability to recall standard mathematical concepts and rules. Middle School Mathematics textbooks organize material by individual concepts and sets of rules. Once a chapter is completed, previous material is rarely revisited. A simple method such as distributed practice can help improve long term retention of mathematical concepts and rules. Controlled implementation of spiral review in the middle school classroom is one such form of distributed practice. Distributed practice through spiral review can improve student recall of mathematical procedures and contribute to improved testing scores.

The processing of algebraic expressions relies on knowledge of mathematical rules that guide and direct students to a solution. Distributed practice is a technique used for study which relies on many short practice sessions initiated over defined time periods. The distributed practice technique is often compared to massed practice or cramming in which the student relies on one long session of study. Research on learning in general indicates a benefit for practice that is

distributed across time, as contrasted with the same amount of practice massed in a single session, (Pashler, Rohrer, Cepeda, & Carpenter, 2007). Their work reviewed distributed practice vs. massed practice including a discussion to the application of mathematics. The course work results suggest that the distributed review and integration of material across years contributes to the retention of the material throughout adulthood. Traditionally, distributed practice is commonly found at the college level. Additional research by Donovan and Radosevich (1999)



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suggests a 67% memory increase over those just using massed practice from primary age students to those in college. Distributed practice as a technique of study should be considered as a potential benefit for middle school mathematics students.

Distributed practice has been considered an independent studying technique commonly found in college level courses. Spiral review is a distributed practice technique which relies on revisiting and practicing previously taught concepts.

With regard to middle school mathematics and standardized testing, one of the key features of success is the ability to recall and apply math concepts and rules accurately and efficiently. When students have acquired conceptual understanding in an area of mathematics, they see the connections among concepts and procedures and can give arguments to explain why some facts are consequences of others. They gain confidence, which then provides a base from which they can move to another level of understanding, (Kilpatrick, Swafford, and Findell, 2001).

Controlled spiral review is a distributed practice technique which does not leave the responsibility for organization and implementation on younger students but is established by the teacher. In a controlled spiral review, students are provided several opportunities to review and revisit topics previously presented. For example, daily lessons can include spiral review of topics previously taught. The reviews should be short (between five and eight questions), easily completed with time constraints, and provide immediate feedback. Exams would primarily focus on current topics but include several questions from previous topics. In the beginning consider referring students to specific content but gradually move toward preparing the students to expect and be prepared for anything. Finally, periodically provide activities and review of concepts and rules taught over a specific period of time, say four to six weeks worth. Provide a series of activities which can illustrate the connection between the topics previously taught. This approach can identify sources of common errors among student quickly and efficiently allowing the teacher to identify and address student difficulty. Controlled spiral review as applied to middle school mathematics has the potential to benefit students' performance by increasing recognition and speed of application needed to be successful on standardized testing.

As schools are faced with high stake achievement test scores for their



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“...fluency and retention is more clearly achieved with distributed practice including the area of mathematics.”

annual AYP or SIP, the demand for teachers to develop mathematical proficiency in reasoning skills and recall among students is at a paramount. Data based instruction

is a current trend which allows teachers to plan based upon student needs. Spiral review of mathematical concepts and rules is another tool available to assist teachers in the development of proficiency. During the 2011-2012 school year, distributed practice through spiral review was implemented and proved to be a significant factor in the yearly performance of my students. Integrated as part of daily instruction, it was titled, The Daily8. Composed of eight questions based upon the reported data needs from benchmark testing, as well as classroom testing, students wrote their constructions for each problem, (figure 1 & 2), and bubbled answers for scoring. Results from initiation, to middle of year, to just before standardized testing indicate a positive learning trend. Often, think-pair-share and other think aloud strategies were utilized for students to discuss clear understanding of the problems presented.

While in attendance at the ETSU Mathletes summer session, 2012, it became apparent that those students who made connections or pulled from prior knowledge were the first to excel in completing the investigative tasks. Those individuals were then able to share and communicate with group members on attack strategies, vocabulary, and clarifying the concepts. On average they lead the groups into the discovery of the activity. While not the only technique used to enhance student learning of mathematical concepts and rules, spiral review has encouraged the development of proficiency and fluency among my middle school mathematics classes.

At all ages, there are several ways to improve the functional capacity of working memory. Research has shown fluency and retention is more clearly achieved with distributed practice including the area of mathematics. Controlled spiral review is a distributed practice technique which does not leave the responsibility for organization and implementation on younger students but is established by the teacher for the benefit of the student. The most central of these is the achievement of automaticity, that is, the fast, implicit, and automatic



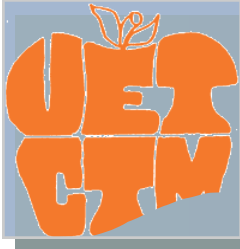
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retrieval of a fact or a procedure from long term memory. ... For other types of information, including much of mathematics that is taught in school, automaticity is achieved only with specific types of experiences, including practice that is distributed across time (Cooper & Sweller, 1987). Clearly, techniques such as spiral review can be yet another tool for teachers to encourage success among their students.

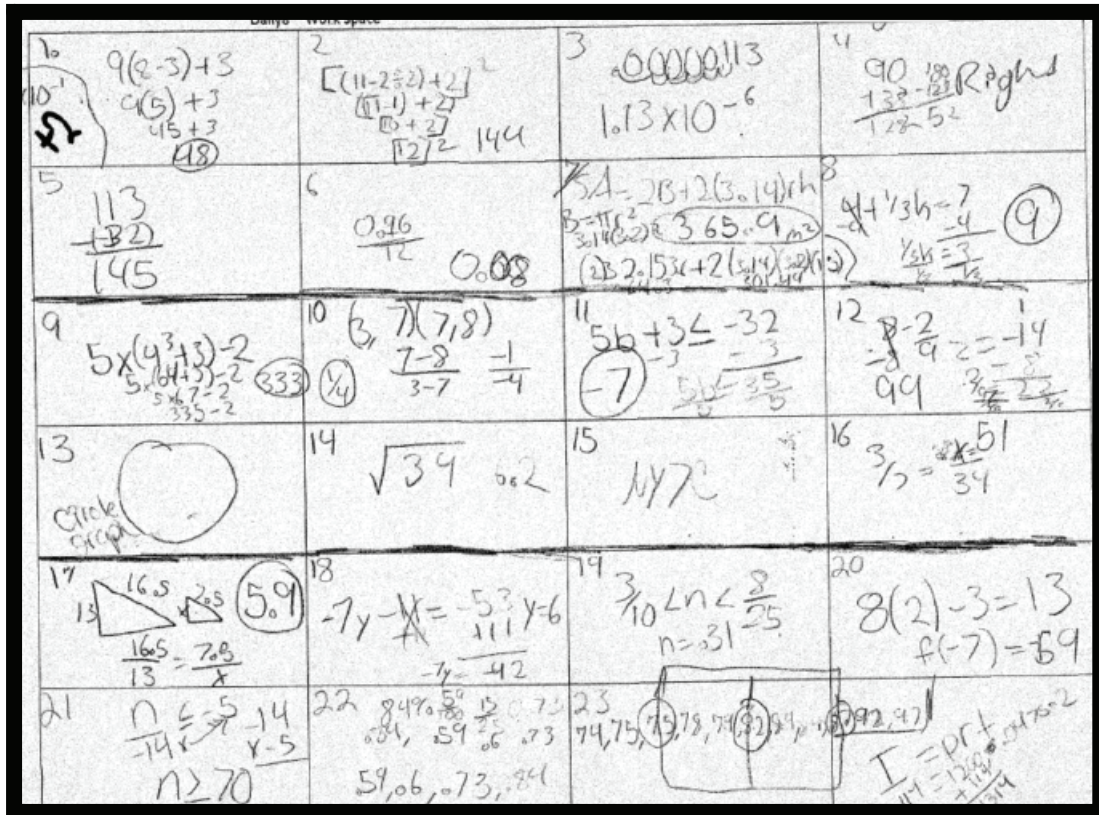
Scientific notation	surface area cylinder	Percent of a #	inverse variation
3.5×10^5 53.) 0.00802×10^{-3} 8.02×10^{-3}	$SA = 2B + PL$ $B = \pi r^2$ $P = 2\pi r$ $55.) SA = 2\pi r^2 + 2\pi r h$ $B = (3.14)(7^2) = 153.9$ $P = (2)(3.14)(7) = 43.96$ $SA = (2)(153.9) + (43.96)(6) = 2770.92$	$57.) x = \frac{619}{100} = 412.17$ $x = 1.5$	$58.) \frac{5}{1.25} = \frac{10}{2.5}$ $12.5 \quad 12.5$ $54.) \frac{0.96}{12} = \frac{x}{1}$ $x = 0.08$
$51.) 10(6-2) - 10$ $10(4) - 10$ $40 - 10$ 30	$[(3+5 \times 4) - 3]^2 (5)$ $[(3+20) - 3]^2$ $[(23) - 3]^2$ $[20]^2 = 400$	$56.) x5 + \frac{1}{2}9 = 25$ $+15 \quad +15$ $(\times) 9 = 40(5)$ $9 = 80$	
$59.) m = \frac{y_2 - y_1}{x_2 - x_1}$ $60.) m = \frac{65 - 85}{15 - 20} = \frac{-20}{-5} = 4$ $m = \frac{5-6}{8-6} = \frac{-1}{-2} = \frac{1}{2}$	$54.) 8x(2^3 + 7) + 7$ $8x(8+7) + 7$ $8x(15) + 7$ $120 + 7 = 127$	$61.) 5b + 2 \leq -23$ $b \leq -5$	$62.) \frac{9 - \frac{3}{10}z}{-9} = \frac{-15}{-9}$ $\frac{9 - \frac{3}{10}z}{-9} = \frac{2}{3}$ $9 - \frac{3}{10}z = -6$ $-\frac{3}{10}z = -15$ $z = 50$
$63.) \sqrt{60} = 7.7$	$64.) \frac{3}{5} \times 2 \frac{7}{10} = \frac{19}{10}$	$65.) 6, 15, 18, 20, 21, 22, 24, 25, 26, 28, 29, 30$ $30 - 6 = 24$	$66.) 23 \text{ median}$ 19 low median 27 High median
$V = \frac{1}{3}Bh$ $B = \pi r^2$ $4.) (\frac{1}{3})(132.7)(4.7) = 207.9$ $B = (3.14)(6.5^2) = 132.7$	$67.) 130$	$68.) -5q - 8 = -38$ $q = 6$	$70.) 42\% = \frac{53}{100} = \frac{15}{25} = 0.57$ $0.42, 0.54, 0.60, 0.57$ $1, 3, 4, 3$
$71.) \frac{1}{4}x + 3 > -\frac{1}{2}$ $\frac{1}{4}x > -\frac{1}{2} - 3$ $\frac{1}{4}x > -\frac{7}{2}$ $x > -14$	$72.) \frac{1}{12} = \frac{x}{96}$ $x = 8$	$73.) \frac{x}{100} = \frac{2}{22}$ $x = 9.09$	$74.) V = 6^3$ 48 in^3

(figure 1) The Daily8 Student Sample



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(figure 2) The Daily8 Student Sample

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UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

A Shift in Teaching

By Lori Allen

Hawkins County Schools

The shift has begun for teachers to move from predominately textbook based teaching to more performance based learning for students. Not only is this type of learning more exciting for students, but it also puts the responsibility of learning back on the students. The saying goes that students should be the ones leaving the classroom in the afternoon tired not teachers. By implementing performance based learning/tasks teachers will go home ready to enjoy the evening and students will be the ones ready for a nap. This is a much needed and welcome change from the classrooms of the past.

There are many sites available with performance tasks so teachers can easily implement these in their classrooms. Tasks that students seem to enjoy doing are ones that have many solutions to one problem, so students have to work and come up with multiple solutions. These tasks can be done individually or as a group. Tasks can be done in as little as 5 minutes or as long as 5 days, depending on the complexity of the task and the time allowed to work on the task.

Below you will find links to sites that have quality tasks available for teachers.

<http://www.rda.aps.edu/mathtaskbank/start.htm>

This site has tasks that are arranged by grade level and by math strand and also has grading rubrics available for each task.

<http://fcit.usf.edu/math/resource/perftasks.html>

This site has tasks created by the State of Florida for Algebraic Thinking.

<http://www.k-5mathteachingresources.com/>

This site can be searched by grade level and/or mathematics strand for great tasks for students grades k-5. I have personally used this website when planning lessons to teach to my students.



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UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

<http://www.fi.edu/school/math2/index.html>

This site has open-ended math tasks for intermediate students, but the tasks can be easily adapted for younger students.



Remember when students are doing performance tasks always have them explain their thinking. Writing and explaining how they arrived at an answer will help them with the precision of their thoughts. When students explain how they arrived at an answer then the teacher will know if they

truly understand what they are doing.

Performance tasks are a fun and different approach to teaching and learning mathematics, students will be so busy and they will be having so much fun they will not even realize they are learning!

Brain Teaser Solution

Sachin's car number plate is 10968

Rotated 180° is 89601



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

Parents and Common Core Mathematics

By Nikki Manning
Hawkins County Schools

As schools have implemented the new Common Core State Standards (CCSS), teachers and administrators have been overwhelmed with questions and complaints. Parents don't understand why we are shifting the teaching of Math. Some of the questions and comments include: "Why are you writing the problems across instead of up and down?", "Why does my child have to do the problem this way? Why can't they carry and/or borrow like I did?", "I don't understand the homework so I taught my kid this way." and many others. These questions and misunderstandings are going to lead to many confused students.

The new Common Core encourages students to think about Math in a new way. These standards will lead to a greater understanding of the concepts of Math, but in the beginning may look like impractical explanations to parents who feel they can show their child a quicker or easier way to solve the problems.

As teachers we must help our parents understand the importance of implementing strategies that encourage thinking and understanding instead of memorizing procedures. Many websites offer useful tools for teachers to share information with parents. Education Northwest, PTA, and TeachHub are three of the websites that offer help.

TeachHub provides an overview of the Common Core State Standards. This is a resource for teachers to access in order to gain support about explaining the standards to parents. The website offers suggestions and examples from varying grade levels. Also very helpful is an explanation of ways teachers can communicate with parents to aid understanding of the testing and evaluation that goes with the CCSS. (Sindelar)

Education Northwest offers a printable series that will inform parents about the Common Core. This printable entitled "Spotlight on the Common Core State



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TEACHERS OF MATHEMATICS News

Standards – What Do Parents Need to Know?” shares information about the background of Common Core as well as how these standards will help our students. The printable is a nice overview that covers all grade levels. (Education Northwest, 2011)

The National Parent Teacher’s Association (PTA) website offers several resources to help teachers assist parents with this implementation. A downloadable presentation is available on the PTA website which offers an overview of the Common Core State Standards. Also available are printable, grade specific guides that teachers can send home with students that explain the Common Core Standards. These guides give parents examples of problems, activities to do at home, and conversation starters for parents and teachers. (National PTA)

Teachers have a busy year ahead of them implementing these rigorous standards. In order for our students to have success, we must encourage parents to help us implement these high standards and encourage our children to think and explore. Parents will need to help their children reach a level of understanding that has never been asked of students before, but as we move toward full implementation of the CCSS, the benefit of a generation who truly understands numbers will be worth the effort.

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UETCTM News

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“Middle School Brains = Creation Stations”

by Peggy Bishop,
Hawkins County Schools

“Ready, set, action!” At the prompting of these words from my class, a nervous 8th grader begins to sing to the tune of “Don’t Worry, Be Happy” by Bobby McFerrin:

Here’s a little song I wrote
It’s the equation for finding slope
 y_2 minus y_1 over x_2 minus x_1
Doo, do, do, dodo, dododododododo y_2
Dododododododo minus y_1
Dododododo over x_2 minus x_1

It only took two times through before the whole class was singing. After a few minutes of singing the song, the students knew the formula for finding the slope of a line when given two points (x_1, y_1) and (x_2, y_2) . Why? Because one of their peers took on the challenge to create a way to help students remember the formula. The best part was months later, as TCAP review began, the students recalled the familiar jingle when a question was asked about finding slope when given two points on a line.

We teachers are always looking for creative elements to add to our lessons. What I have found is that I have 20-30 creative geniuses sitting in each of my classes. If I ask them, “how could we make this concept/standard easier to understand,” they will give me ideas. Even the students who are disengaged want to be involved. Students love to show that they can be creative and are excited that you will tell the other classes about the ideas they have come up with. Some creative elements that have been added to my lessons include: jingles/songs, games, illustrations, comics,



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Priorities

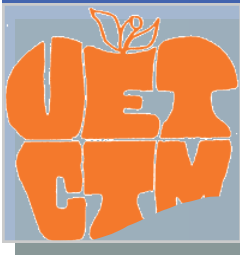
By Julie Smith
Bristol TN City Schools

If someone would have told me 17 years ago I would be teaching math to special needs kids, I would have laughed at them and told them I could barely balance my own checkbook. There was no way I would be teaching (much less math!) to any kids. Today, I couldn't see myself doing anything else.

You see, because all students learn in different ways, special needs students are the exception. Some days they just plain ol' do not get it. No matter how many different ways you show them. Even with numerous manipulatives, real-life examples, or the ever-boring written examples on the board, I will get blank stares. But that is how some special education students are. Some days they will get it, and it is not just a "light-bulb" or "ah-ha!" moment. It is a celebration. Because for my kids, finding out what

($-535.021 + -5 \times -43$) is equal to is not as important as finding out if given \$8.00, do they have enough money to buy milk, bread and sandwich meat in order to eat that week.

Priorities change for what I teach them and for me as well. I cannot evaluate ($-535.021 + -5 \times -43$). But I can tell you if I have enough money to buy groceries to feed my family this week .



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and riddles. Our students are truly creative geniuses! I love to see the sparkle in kids' eyes, hear the excitement in their voice, and witness the joy they have as they share their creation with you and the class.

Be ready if you do this! Be ready for the students to go above and beyond what you could have ever expected them to dream up. They might just blow your mind! This past year, a group of students created a board game for TCAP review. The game board was a replica of my classroom right down to the laptop on my desk, and the game pieces were the 8th grade teachers and LuLu. LuLu is Mrs. Watts', the 8th grade Social Studies teacher, dog who is practically the mascot of 8th grade. The desks were a path that represented the journey through 8th grade with a diploma at the end signifying a successful finish. Here is a photo:



By incorporating students' ideas, it has helped them take ownership in the class. They love that their ideas may be used in years to come. May I suggest that you take a chance! Ask your students to offer their creativity. Then, sit back, relax, and be ready to be blown away by their response.



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

Making Multiplication Math Facts Fun

By Rachel Horton
Hawkins County Schools

In 3rd grade, multiplication math facts are a yearlong effort for our students, and as we know, we will soon lose their interest if we do not keep them engaged. How do we do that? I have found two websites that are fun and engaging while being useful to drill these facts that I would like to share with you.

Xtramath.org is a free website available to all teachers. This website is funded by a grant, and will be a great resource for you in your classroom. Teachers can sign up for a classroom account and their students will each be given an account with a pin number. Teachers can also choose which facts they would like to drill: addition, subtraction, multiplication, division, or a combination of any of these. Teachers can also print a take home sheet with directions for how the students can access their accounts at home. The first time students login, they will be given a pretest that will determine where they should start with the drills. From then on, students will work at their own pace through the multiplication facts. Once a week, after signing up for their account, teachers will receive an email that will give a progress report for their class. I use this site in my class as a center or I allow students to rotate to the computers during seat work. I try to make sure the students visit the site at least three times a week.

www.multiplication.com is a website full of games that drill all the math facts up through the 12s. The games in this website are great to use as hooks, center activities, or wrap up activities on the Promethean board or on computers. Also, this website provides timed math drills that automatically grade the quiz after it is complete. The quizzes can be printed out or completed on the computer. My students beg to go to this site whenever they have computer time. The games are engaging and fun. Your students will love this site!



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

**As teachers, we can fall
prey to forgetting that
students are people.
Just because they are
young people does not
translate into they have
no lives or thoughts.**

Students are people too!

By Richard Greene
Bristol TN City Schools

I once observed a teacher lecturing to a class consisting of a mixture of 25 sophomores and juniors in high school. I sat in this teacher's classroom for on block period, 90 minutes, and listened to this teacher expound on the virtues of slope and its many graphs and names. It was in the last 2 minutes of class that this particular teacher turned to the students in the class and asked if anyone had anything to add or perhaps a question. The students said nothing. The teacher gave the homework assignment and class was over.

During this class time I had the ample opportunity to observe not only the teacher, but the students as well. I noticed that most of the students were busily trying to write down as many notes as they could catch from the teacher's speaking as well as the teachers writings on the board. Some students had their head down on their desktops. Most students had a glazed look in their eyes, with a few sleeping. They were not connected to the class or material in any way. In other words, they were bored.

As luck would have it, I was attending a workshop/seminar in which this same teacher was also in attendance. The presenter happened to be giving a lengthy talk about a program they felt would benefit teachers in the classroom. This particular teacher remarked that the presenter "talked too much" and "there was not enough engagement" of her audience. I found these remarks hilarious and sad at the same time. This teacher was complaining about exactly what went on in their own classroom.

As teachers, we can fall prey to forgetting that students are people. Just because they are young people does not translate into they have no lives or thoughts. Too many times teachers forget there are individuals in the classroom other than ourselves and that we need to engage those individuals. So, how do we do that? Is it as simple as coming up with different activities, games, or projects that allow those individuals to discover a new concept or topic? Unfortunately, it is not that easy.



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TEACHERS OF MATHEMATICS News

If it was, everyone would be doing it.

How do we get to know someone? How do we discover what makes some individual tick? What gets them excited? We have to talk to them. We have to have a conversation, usually more than one. But in the fast-paced, assessment driven classroom, this human interaction has all but disappeared. “We don’t have time! I do not even have enough time to cover all the material; much less lose class time having a heart-to-heart with my students.” This kind of thinking is what is driving the classroom to boredom and lack of comprehension. These teachers may produce wonderful test takers, but they will not produce wonderful seekers and lovers of knowledge.

I have learned from experience in my own classroom that when I have taken the time to get to know my students through interactions with them, I have gained so much more student performance in and out of my classroom. This tells me that if teachers take that extra time to build their knowledge of the students, the students will build their knowledge of the material. Students try harder and do more when they feel you are personally invested in them. Teachers can design more applicable activities and projects that students will want to do as well as benefit from. Students will be vested because the teacher is vested in them.

I wish I would have written to that teacher: “Remember the golden rule.” Teachers should never forget it: Especially in the classroom.





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TEACHERS OF MATHEMATICS News

As Teachers How Can We Maintain Interdependence Within Cooperative Groups

By Shannon Adams
Washington County Schools

When students work in cooperative learning groups, they sometimes get caught up in- group achievement instead of individual responsibility. As a teacher, it is important to make sure that students realize their individual importance to the group.

To develop interdependence within the group, there are several activities that you can administer within groups. As a teacher, you can assign specific jobs to each group member. Some of the jobs that students can perform are reader, checker, recorder, and materials gather. When students are assigned specific jobs, they are in charge of something and can actually understand what they are doing within their group.

Sometimes when I give group assignments I assign students within the group different topics to research. Once students have researched their particular topic they meet with their groups and present their findings to their entire group. Then as a group they decide how they are going to incorporate it within their project. By allowing students to work in this way students become confident and proud of what they are able to give to the group. They are confident that they have accomplished what they have set out to do.

I can enhance individual student behavior, within a group, by having students write in a Journal after each group meeting. Within the journal students can describe how their group is doing. If there are any problems students can write down what is happening. At the same time if all members of their group are working well together they can share all the positive things that are occurring. Then I can take their journals and read them and know exactly how their group is performing as a whole. At this time, I can see if I need to step in as a facilitator to help the group with any problems that they may be having.

Another way to ensure individual student responsibility is to have each child participate when the group is presenting an assignment to the class. I can ask each group



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TEACHERS OF MATHEMATICS News

member questions about their assignment so that I can make sure that each student was involved in the assignment.

As a teacher, when I see problems beginning to arise, I try to take care of any problems right away. Through observation, student journals, and questioning I am usually able to tell when a problem is beginning to arise within a group. At this time I try to meet with the entire group or individually with each group member. When I meet with the entire group I try to act as a Facilitator. I let the students know that I am there to listen, but at the same time I want them to think about what the problem is and brainstorm, as a group, alternative ways that they can solve the problem. Hopefully, by the end of the meeting each group member will agree to an alternative approach to solving the problem that is at hand. If I see that the students need assistance in developing ways to solve the problem, I will make suggestions to help the students decide what method they need to use.

When I am having problems with individual students within the group, I sometimes meet individually with each group member. At this time I discuss with each student what the problem is and why the problem is occurring. If I see that the problem is occurring because a student is not doing his/her part, I discuss with each group member why he or she thinks that this is happening. I encourage each group member to make sure that they are including each student within their groups. I also meet individually with the student who is having a problem within the group. I have him/her discuss openly why they are having problems within their group. I try to help the student think of ways that they can prevent their problem from occurring. After I feel that the student realizes what they need to do differently I have him/her continue to work within the group. I continue to monitor the group and meet with the group to supervise any problems that may continue to arise.

I like to do a lot of cooperative learning groups within my class. I try to stress to my students to work together in a cooperative way and try as a group to solve problems that may arise. I try to act as a facilitator to my students so that they can try to figure out what needs to be done differently or how they can go about to solve group problems. This is an excellent way to teach students peer collaboration so that when they get older they realize the importance of getting along and working together.



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TEACHERS OF MATHEMATICS News

“It’s my way or the highway!”

By Sophie Phipps
Bristol Tennessee City Schools

Imagine heading to a destination you’ve never been before. You only have one tool to use to help get you there. If that one tool fails you, you have no back-up plan. What are you going to do? How are you going to feel?

That is how many students feel when facing math problems. I know because I was one of them. I looked at math as being a one way street. I understand the feeling of getting stuck and having only one way to solve a problem. Until I attended Mathletes did I realize it doesn’t have to be that way. Mathletes opened my mind and freed me from all the one way streets I had traveled down for so long.

As a young student I could tell you that 3×7 is 21, but I couldn’t have explained in pictures or words the concept that was behind 3×7 . I also didn’t have a back-up plan if I had forgotten the product. I didn’t know I could use $7+7+7$ to find the same answer because I lacked the multiplication principle, along with others at the time. Some of my former teachers taught me their ways to find solutions; yet, they never offered the information that there are other avenues that lead to the same answer. They also didn’t provide time for me to explore so I could discover the idea behind the skill being taught.

I am determined NOT to let that happen in my classroom. I am looking forward to beginning this school year with a math class that provides a rich learning environment for my students. It will include the following aspects:

- Time to explore math concepts with manipulatives so they will get a solid foundation of a skill.
- The freedom and flexibility to use whichever strategy works for them to solve a problem.

Math shouldn’t feel like a one way street for you or your students. Give them time, freedom, and flexibility within their math. It’s not “my way or the highway” anymore. Loosen up, step- back, and watch your students explore because that’s where learning begins.



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

“What now?” Math Work Stations that Really Work

by Stephanie Perry
Kingsport City Schools

“I’m finished! What can I do now?” an eager second grader named Joshua interrupts as his teacher is just getting started with Joshua’s classmate, Beth, who is on the brink of tears with the same math problem. “See if you can find another way to work this one, Joshua,” she tells him. A few minutes later, Joshua is back. His teacher looks at his paper. Yes, he’s shown his thinking and solved the problem in more than one way. “Joshua, see if Adam is finished, and the two of you can play Get to 100,” she tells him. She’s thinking about Beth and three other students she needs to work with more closely but also knows that Joshua and other students like him should be involved with meaningful learning tasks that enrich and expand mathematical thinking. Joshua is happy to play the math game, for a while. But soon he and several others are back with more “What now?”

It’s a dilemma faced by nearly all elementary math teachers, especially those taking a constructivist approach to teaching math. With programs like Investigations and Everyday Math, keeping all students engaged in meaningful learning can be challenging for even experienced and skilled educators. No doubt, balancing the needs of all learners becomes quite a feat, a real juggling act. Yet, we can imagine and even strive for that “well-oiled” elementary math classroom where students know what to do and do it; where learners work independently to expand their thinking and understanding of math concepts; and where teachers work with small groups and individual students to provide differentiated instruction. One approach to getting closer to this ideal classroom involves the concept of math work stations. According to Debbie Diller in *Math Work Stations, Independent Learning You Can Count On*, K-2, “Math work stations are areas within the classroom where students work with a partner and use instructional materials to explore and expand their mathematical thinking.” She explains that through a variety of work station



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TEACHERS OF MATHEMATICS News

activities, students are able to reinforce and enrich their mathematical thinking about prior instruction. Math work stations have two central benefits. First, a math work station format provides children a time for practicing problem solving, through reasoning, representing, communicating, and making connections among mathematical topics. In addition, the teacher is able to observe and interact with individuals or small groups of children to provide differentiated instruction.

Diller points out that today's math work stations are vastly different from the traditional math centers of previous eras. In the past, teachers were responsible for creating and maintaining the centers which usually were changed out weekly. Today, the focus of work stations is on teacher modeling and on students taking responsibility for their own learning. For example, Diller notes that students should share in making decisions about when to change materials, and they should be allowed to suggest ideas for what they'd like to try at each station. Also, in contrast to the traditional center concept, math work stations allow teachers to differentiate for the various levels within their classrooms. "Instead of assigning the same tasks to all children, you can suggest different activities or materials for particular children so as to better meet their needs at a particular station," she explains.

To successfully launch the work station concept involves a great deal of thought and planning and preparation. It takes time to effectively model and teach students how to use materials and what the expectations are at each work station. Yet, teachers who truly incorporate math work stations into daily instruction find that the benefits of establishing a well-managed and organized math block far worth their efforts. For teachers who are ready to take the plunge, Diller provides excellent, step-by-step, detailed instructions and photographs in her book. In addition, teachers should keep the following points in mind as they look forward to enjoying success with math work stations.

- Organize materials.
- Clean out cabinets.
- Remove items that you no longer need.
- Organize everything.

It sounds obvious, but it is a crucial part of making it work. Diller offers advice for



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TEACHERS OF MATHEMATICS News

storing and organizing math materials. The goal is to get everything set up in a way that will make daily life in the classroom easier.

Model, model, model. Young students need lots of modeling and practice before they can be expected to work independently in work stations. Diller reminds readers to model even the most basic steps in a process. For example, students need to be taught not to dump out all the counters in a container, but to take a just a handful.

Go slowly. It can be tempting to introduce the stations quickly. There's just so much to do! However, too much information will overwhelm students. It's better to introduce each station only after having modeled the task with materials several times. When students are able to handle one station, others can be gradually introduced.

Share experiences. Teachers are always trying to refine and improve their practice. One of the best ways to do this is by sharing the successes and "ah ha" moments as well as the struggles with others. Whether it's in the classroom next door, down the hall, or on the web, sharing experiences with fellow teachers make all aspects of teaching more rewarding. For work station discussions based on Diller's book, visit The Stenhouse Blog at <http://blog.stenhouse.com/archives/2011/05/26/join-the-discussion-about-math-work-stations/>

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UETCTM News

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Multiplication Matters Observing Correlations between Middle School Students ability to be proficient in Mathematics vs. Success at Multiplication Facts

By Steve Humphrey
Sullivan County Schools

“So, Samantha, do you know your multiplication facts, yet?” This is a question I readily asked my 8 year old niece whenever I visited her being quite aware that she was currently knee deep in her 3rd grade math curriculum. In fact, this is the question I asked my twin nephews upon reaching the same grade the following year. Truth be known, this is the question I find myself asking any third grader I get the chance to talk with. Quite typically, this is the one and only question I will ask them, effectively ignoring interest in any other math they might be learning about in school. I suppose the question stems from a firm philosophy that has been confirmed through both teaching and observation, that rigorous study of the multiplication facts from 0 to 12, and having the ability to recall them with no more than a 4% error by the end of the 3rd grade year sets the foundation for confidence and success in mathematics for all the grades to follow.





UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

Susan Jarema in her article, “The Importance of Memorizing The Times Tables” (online article, Jarema, 2007) states that “students who have mastered multiplication gain a solid foundation in mathematics that will help them throughout middle school, high school and beyond.” She goes on to explain that by learning and memorizing the times tables, students establish the building blocks for higher order learning such as long division, fractions and algebra, the latter two of which are a central focus of the 6th grade mathematics curriculum. She also emphasizes how knowing the times tables will be used frequently in daily life such as determining a discount at a store or figuring out expected arrival time when traveling (things that happen when we obviously don’t pull some calculator out to figure these “real world” problems out). Jarema furthermore points out that all students should be able to and need to master this skill in third grade. Those who don’t or struggle to may actually be an early indicator of learning difficulties, not only in math but other subjects as well. This could lead to early intervention in the students’ education rather than waiting until much later when the student has fallen behind in their skills (a trend I observe quite often at the middle school level).



In the two years I have taught math on the middle school level, I have observed a strong correlation between students who could recall their facts with a level of accuracy and their ability to grasp more difficult concepts and complex calculations requiring calculators than those who could not. This past year, I gave a 100 question multiplication test at the beginning of the school year to all 48 of my 6th grade math students. About 35 of these students could score a 98 or higher in a time span of about 5 minutes. At the end of the year, all of these students ended up scoring proficient or advanced on the Terra Nova math test. Of the 10 students who scored Basic, 8 scored below a 96 on the test and were ones I used intervention with throughout the year to improve their score (my goal was for every student I taught be able to score at least a 96 on a 100 fact test within a 10 minute time frame by the time they left 6th grade). Of the 2 remaining, 1 student had an IEP with slight autistic tendencies. He was able to master a skill such as recalling multiplication facts but struggled with more abstract concepts such as algebra and geometry. The other student was able to successfully do his facts, but throughout the year, he demonstrated an inability to achieve



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

success in any class on the 6th grade level (failed to turn in homework, lack any sustained focus, performed poorly on all tests, etc.) He demonstrated an immaturity for 6th grade and thus, this student not only failed mathematics but 3 other classes as well.) Furthermore, 1 or 2 of these students could eventually get the correct answers but took well over 10 minutes to do so. Both of these students scored Basic because they could not answer all of the questions in the allotted time for the test.

Three of my 48 students struggled with their multiplication facts, but with successful intervention not only pulled their score up to a passing level (by my standards) by the end of the year but also scored Proficient on the Terra Nova. (Two of these were in my “more advanced” class and the other was repeating 6th grade). This showed me that with a little more emphasis by their 3rd grade teacher of their parents, they would already have been a multiplication facts mastery level. Finally, the one student who scored Below Basic on the Terra Nova also had the most difficulty mastering his multiplication facts. At the beginning of the year, he was scoring on average about a 65 and could not even make a guess at the facts that challenge most students – namely 7’s, 8’s, 9’s and 12’s. His math level was evident throughout the year. Knowing it would be a challenge for me to get him to master the 6th grade curriculum at a proficient level, I made it a point to focus on improving this “gap” in his mathematics learning. By the end of the school year, he was able to pull his score up from a 65 to a 96.

So, what does all this mean to me as a middle school math teacher? And, why do I find myself asking that question to every 3rd grader I see? It demonstrates the challenges higher grade math teachers face in developing mathematically proficient students who have moved on through their curriculum without mastering this basic and essential skill (important for all of the reasons expressed by Jarema in her article). At the 5th and 6th grade level, teachers need to do their best to try and make up the gap deficiencies observed. Multiple programs exist on the computer as well as the APP Store for all i-pad saavy users to help students drill the facts where they struggle (some in fun and creative ways). Reintroducing tricks (or perhaps teaching them for the first time) helps as well such as “The 9 Times Quickie” (which utilizes the fingers) to master the 9’s. Along with reminders of some of the tricks to learning facts such as 9’s and 11’s, Deb Russell suggests in her article “Tricks to Learn



UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

**“Parents are partners in the process and will have greater opportunities for their children to succeed in math if they support the learning of the basics at home.”
(Russell, 2012).**

the Multiplication Facts” how crucial it is for parents to be involved in the process. This may be even more crucial at the 6th and 7th grade levels when these students who failed to master their facts in 3rd grade are now also trying to keep up with a curriculum that grows ever more difficult each year. “Parents are partners in the process and will have greater opportunities for their children to succeed in math if they support the learning of the basics at home. Work with your children to ensure that they do not fall between the cracks.” (Russell, 2012).

Even faced with the challenges of teaching the 6th grade math curriculum and getting my struggling students to understand and master it, I did what I could to fill in the “multiplication gaps” if nothing more than to develop a more mathematically confident student. My student who scored “Below Basic” was a good example of this characteristic, a very low confidence in being able to grasp grade level math concepts. It is my belief that I at least strengthened his ability to master the 3rd grade concept that alluded him so that he might find more success in 7th grade. I believe the evidence is overwhelming both in my classroom and in the research that in this day and age of students leaning on calculators as they try to work out test questions, that a mastery of the facts in 3rd grade leads to a base proficiency and confidence from which Middle School math teachers can build on.

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UETCTM News

UPPER EAST TENNESSEE COUNCIL OF
TEACHERS OF MATHEMATICS News

“The teacher is the driving force behind the team environment.

Just as a coach does for a sports team, the teacher initiates, models, and guides appropriate behavior.”

Cultivating a TEAM culture: Team-work is better than me-work!

**By Tanika Hardin
Bristol TN City Schools**

Being a part of a team has always been an important part of my life. Playing organized team sports helped prepare me for the work environment in which I am immersed today. Because of my ability to draw from my past team experiences, in addition to, the relationships in which I developed through team sports I have a firm belief that people are positively affected and gain the most from those interdependent situations. A large part of my teaching philosophy relies on the belief that “teamwork is better than me-work.” Not all of our students are a part of this type of team environment; however, the classroom is a perfect place to train students to work with and for each other to benefit all.

Learning to cooperate with others, be reflective, and take criticism is an important part of a successful classroom. As I began to use the teamwork style in my classroom, I realized that students did not automatically know how to work together cooperatively. By observing student behavior and through trial and error, I have generated ideas and strategies for both the teacher and students to use to cultivate the teamwork instead of me-work environment.

The teacher is the driving force behind the team environment. Just as a coach does for a sports team, the teacher initiates, models, and guides appropriate behavior. She builds and maintains a trustful relationship first between she and her students followed by trusting relationships among the students. The first couple of weeks are crucial to setting the stage for a team to successfully build. The following are things I do to ensure my team develops, grows, and wins their current school year. I begin the first day stating my appreciation, care, and expectation for each



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“The school year is just a journey to the state championship game. I want to win but I cannot do it alone.”

student. In my room I have a letter posted to my class stating:

Dear Student,

I appreciate your being a part of my class.

I expect great things from you.

You will succeed.

Love, Mrs. Hardin

Throughout the year, I try to acknowledge my appreciation for students by thanking them for their hard work, acknowledging a job well done, etc.

Secondly, I constantly refer to the class as a team. On the first day, I discuss my love for sports, especially basketball and “warn” the children of my sports analogies. “The school year is just a journey to the state championship game. I want to win but I cannot do it alone.” This statement helps students to begin realizing that I want and need their help to reach my goal. Some students will jump on this band wagon quickly, especially if they are sports oriented already; however, some will have to be won over to the cause through consistent coaching from me, as well as, encouragement from teammates. Eventually, my goal of winning the state championship game (successful year and successful TCAP scores) will become the entire class’ goal, our goal instead of just my goal. I refer to unit tests and benchmark exams as scheduled conference games, our daily work as practices, and error analysis of assessments as film watching.

In the first week, I introduce the term “winning mentality” and have a group discussion about what this means (giving 100%, practicing to get better, helping teammates, reflecting on failures, etc.) This term becomes the encouragement or redirection I use when I see students giving up or becoming frustrated. Even when students do not show mastery of a skill by scoring well enough on an exam, we go back to the winning mentality of not feeling defeated, but determined to reflect on and learn from the behaviors that may have resulted in not mastering the skill



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(game loss). Having a winning mentality means picking your head up and doing better the next time. I cover my room with posters reminding students of my expectation of a winning mentality. Students start using the term to boost others when needed.

Also in the first week, my class participates in a team builder activity each day ending with a discussion relating back to our term “winning mentality.” Through these activities, students discover appropriate ways to communicate with one another. They learn the difference in critique and criticism and first use it with the game like activity and then will later relate those discussions and experiences to math related activities. During these first weeks, I usually have to give much guidance, redirection, and suggestion for positive interactions instead of negative ones. Students begin reiterating my statements and encouragements to others (even repeating them back to me when I seem to be having a down/frustrated day).

Although the teacher is the initial driving force for the teamwork not me-work way of approaching classroom activities, the students become the constant force that keeps the momentum going. As students get used to communicating appropriately, they blossom into great encouragers. Students start riding on the teamwork train and start lifting up one another. They start realizing others’ strengths and weaknesses; therefore, learning how to effectively work as a team. Often times if someone gets too harsh while critiquing, other students will step in to alleviate the tension in the moment. The students become the guide while I can step back.

Creating the team environment is a year long process. It takes consistent language and expectations. Each member of the team/class must feel important and relevant. Because I have consistently guided students through role play, modeling, verbal guidance, etc. students become team players that desire to help one another reach the end goal. In my experience, students gain ownership of all they do through working as a team to get there. When they know other people believe in them (peers and me), as well as, know that other people depend on them, students set their aims higher and usually exceed even that. Teamwork instead of me-work ensures a year-end victory.



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“...math can be approached from so many different ways, ways that make sense, and helps students, see concretely why we do the things we do and understand them much more deeply. It doesn’t have to be about memorizing formulas and calculations taught with “well this is just how we do it” without really know why.”

Get Out! Who Knew Math Could Be Fun?

By Teri Doshier
Johnson City School System

I have been struggling to come up with an idea for this article. I knew it had to be math related but that was the problem, because I wanted to write about something I do in math that others might be inspired by, but the more I thought about it, I realized there nothing.

I am a second grade teacher, I taught first grade for seven years, and second grade for one. I love teaching, I have liked math OK, but my passion has been teaching reading and writing, I could come up with all kinds of things I do with reading and writing to share, but math was pretty much from the book. Math was the subject I got through, so that I could teach reading and writing. I have never considered myself a “math person”, I understand it, or I thought I did, but I didn’t have the confidence to get out of the math book. I taught by the book, used a few manipulatives and just drilled it in.

Maybe that’s why my principal asked if I would go to Mathletes this summer. I said yes, despite the fact that I hated to give up two weeks of my precious summer, because I wanted to be a more confident math teacher and a better math teacher (also, I never say no to a principal, because I don’t want to end up teaching kindergarten the next year).

So for the past two weeks, I have been in Mathletes and it has done everything for me I had hoped and so much more. These past two weeks I have learned so many different strategies to help students do math in “faster more efficient ways”. It completely opened my mind by showing me that math can be approached from so many different ways, ways that make sense, and helps students, see concretely why we do the things we do and understand them much more deeply. It doesn’t have to be about memorizing formulas and calculations taught with “well this is just how we do it” without really know why. For the first time math was really making sense to me and it was fun. As I said to the people at my table, “who knew you could be a free thinker when it came to solving math problems.”



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“I am going to incorporate my love of literature and integrate that into my math lessons, along with lots of hands on exploration activities and hopefully I can change students minds, make them excited about math, help them break through the confusion and the “I’m not good in math” mentality, and give them a whole new appreciation and understanding of math ...”

In the past two weeks I have become so excited about using my new math skills, my new attitude, and my new perspective, that I actually heard myself say out loud,” I want to teach third grade math next year” (we compartmentalize at our school after second) . I couldn’t believe I said it, but I did. So this morning, imagine my surprise when I opened an e-mail sent out by my principal, letting our faculty and staff know we were losing our third grade math teacher. Before I knew it, I sent her a message back saying I would really like to be considered for that position. We met at the end of the day and I am now our new third grade math teacher. Three weeks ago, I would have never believed that I would have the desire to teach math all day. I am now so excited about teaching math, using the new skills I have learned, and the knowledge that “kids all learn different and at different rates and that is OK”, even in math, I am going to incorporate my love of literature and integrate that into my math lessons, along with lots of hands on exploration activities and hopefully I can change students minds, make them excited about math, help them break through the confusion and the “I’m not good in math” mentality, and give them a whole new appreciation and understanding of math, just as Mathletes has done for me the past two weeks.



UPCOMING NTCM 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.