



VOLUME XV ISSUE 2

UETCTM Newsletter

November 2014

NATIONAL COUNCIL OF
TEACHERS OF MATHEMATICS

NCTM members are invited to apply for NCTM's Mathematics Education Trust (MET) winter cycle of grants, scholarships, and awards.
www.nctm.org/met.

REGIONAL CONFERENCE 2014

Richmond Nov. 12-14

Key Note: Dan Meyer, Stanford
www.nctm.org/regionals

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Classroom Management and Common Core

by Tammy Kota, Mountain View Elementary



Educators throughout the state of Tennessee have embarked on a new adventure in their classrooms, better known as "Common Core". This new curriculum is designed to help our math students become better thinkers and problem solvers. Along with new standards, the curriculum presents 8 Mathematical Practices our students are to engage in during their learning.

Mathematical Practices

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Our goal is to create and facilitate learning environments in which students develop the ability to not only think on their own, but to cooperatively work with their peers in solving tasks. We want our students to participate in productive "math talk" when working with others, and to begin looking at problems in a variety of ways.

Whenever our students are given opportunities to work with their peers, the one thing that must always be present is an effective classroom management plan. It is a guide that outlines expectations clearly enough so our students know what is and is not expected of them. It doesn't matter how well written a lesson is or how much time and energy have gone into it; if behavioral expectations are not clear, then the lesson will go nowhere.

An effective classroom management plan consists of three components: clear expectations, procedures to correct unwanted behaviors, and procedures to celebrate acceptable behaviors. In my third grade classroom, these components are addressed daily. The expectations in my classroom are made clear with six basic rules:

1. Be prepared for class every day.
2. Be considerate and use good manners.
3. Talk only when appropriate.
4. Keep hands, feet, and objects to yourself.
5. Follow directions the first time.
6. Follow all school safety rules.

They are brief, to the point, and displayed on the front board throughout the school year. Students understand that these rules apply not only in the classroom but throughout the building as well, whether it be in the cafeteria, gym, library, art room, etc.

Unwanted behaviors are addressed and dealt with quickly and efficiently in my classroom. Each student is assigned a number (1 through 18, or the number of

students in the class) and is given 4 magnets that are kept at the front of the room by the posted rules. When a student breaks one of the six rules, they are instructed to "pull a magnet". The student immediately gets one of their magnets and puts it on the front board by the rule they broke. This is done with minimal disruption in the lesson or activity. Each magnet on the board results in loss of free time. If the fourth magnet is used, a phone call home and/or a visit to the principal is in order. At the end of each day, a brief note is written in the student's assignment notebook explaining what exactly happened to warrant the magnet and requires a parent signature.

If a student does not break a rule during the school day, their efforts are celebrated. The student receives a star, sticker, etc. in their assignment book for that day and is also required to have a parent signature. In addition, they receive a sticker by their name on a behavior chart next to the classroom rules. All students are given a sticker goal for each calendar month. To determine the goal, I count the number of school days during that month and subtract five. For example, if there are 20 school days in the month of September, the sticker goal for the students is 15. Why do I take off 5 days? Everyone can have a bad day

here or there! At the end of the month, those students who have achieved their sticker goal are invited to each lunch with me in the classroom. If your classroom is like mine, that is THE reward of rewards. They love it!

Of course this is only one classroom management plan. There are countless other plans that work just as well. Despite these differences, all effective teachers have classroom management plans that are used consistently each and every day.

What does this have to do with Common Core? Everything! If our students cannot handle themselves appropriately throughout the school day, they certainly will not be able to work effectively in small groups while tackling tasks that use the 8 Mathematical Practices. Our Common Core standards require our students to take a step back and think. They must be good listeners and communicators. If we are unable to provide a learning environment where this is possible then we are missing the point of Common Core.

I have a Question

**A poem by Katy Hardison,
Elizabeth High School**

All math teachers will inevitably hear
a version of this question in every year.
Is it, "How do I write the equation of a line?"
or "How do I find the factors of x^2-9 ?"
"Uhhh, No....the inquisition without fail that
will come up

is some form of
"When am I ever gonna use this stuff?"
The responses teachers give are vast and
wide.

Some answer, "Well, you'd better use it on
your homework tonight!"

Others proclaim, "This 'stuff' will be needed
next time you're assessed
and later on the ACT, SAT, and EOC Test."
These answers most certainly are not lies,
but they do very little to keep students'
interest alive.

So how do we reply in a way that really
makes sense
to a room full of teens who are not
convinced
that anything they do in school will ever
apply
to anything they'll ever do in their everyday
lives?

We can discuss how math is used in a ton of
careers
and how more jobs than they realize require
math skills.

Now, answers like these are better than the
ones mentioned before,
but I really think we should enlighten them
even more.

One brilliant teacher I know once explained
to me
that his explanation to students is this
analogy:
"It's like a football player running drills
around cones day after day.
Will he ever perform drills with cones

during a game?"
No, but the drills increase his agility and
help him get fit.
Without practice like that, he would not
likely to win.
"So now for the connection, we help them
understand that
it's pretty much the same when it comes to
math class."
"As you study algebra, geometry, or stats in
school,
your drills are using formulas and applying
all those mathematical rules.
You may hate solving equations and believe
factoring stinks,
but what you are really doing...is you're
learning to think,
to look for new ways to make use of all this
math stuff,
to make sense of a problem and to never
give up,
to think logically, and to strategically use all
these tools.
Those are the things you should take with
you when you leave school.
So the 'stuff' I hope you really learn, you
can use it all the time
If you choose to learn, grow, and think for
The rest of your life."



The Benefits of Learning Strategies in Math Classrooms

by Danielle Triplett,
Church Hill Intermediate
School

Background Math Skills

When I was in middle and high school, math was taught using the standard algorithm. If you didn't understand how to do it, you were in serious trouble. Luckily for me, math was easy. Or so I thought. When I first tried to teach someone how I understood math, she looked at me like I had grown a second head. It made me realize how much I didn't know when it came to teaching others, which turned into a challenge and led me back to school.

Special Education Concentration

When I decided on a teaching career, I thought back to when I was a teenager and volunteered at a horse arena. We taught students at a nearby deaf and blind school how to ride horses. It was a uniquely wonderful experience, and helped to steer me towards a degree in Special Education. When becoming a Special Education teacher, I was



taught the skills and strategies to help students below grade level make gains. I was taught about IEP's, the laws for students with special needs, and various strategies for teaching basic reading and math skills. I was so excited to get my first job: a 5th-6th grade Resource Math teacher! I was completely unprepared for what I was expected to teach: 5th and 6th grade standards—long division, unit rate and ratios, coordinate planes, place value, and more. Of course I had taken the Praxis II and was highly qualified to teach Math grades K-6, but what does that mean? I'm capable of completing the math problems myself, but teaching them is something completely different. Add to that the fact that everyone learns differently (and can't see the pictures in my head!) and I was overwhelmed! I scrambled for the better part of the school year trying to find strategies to help my students "get it." I wandered the school during planning at least once per week peeking in other teachers' classrooms, trying to see how they taught skills. I was constantly searching the internet for what other teachers were using, and I felt like I constantly played "catch up."

Learning Teaching Strategies and Becoming a Better Teacher

My math ability always included a pencil and a piece of paper (sometimes even a calculator). I watched my classmates' ability to add numbers in their head and didn't understand how it was being done. Then, I saw teachers using different strategies in class, going over ten-frames and using the "Add to Make 10" strategy. I had never seen anything like this before! It made sense to make numbers easier to add together. Using this strategy has made it easier for me to add and subtract larger numbers, where once I had to have paper and pencil.

The Add to Make 10 strategy works for larger numbers as well because it helps to add easily in your head. For example, $48+34=$ I can change the 48 by decomposing it into $(40+8)$ and the 34 into $(30+4)$. I

Now have

Place Value Box Multiplication

$$\begin{array}{r}
 456 \times 35 = 15,960 \\
 \begin{array}{r}
 \begin{array}{|c|c|c|c|} \hline
 & 3 & 0 & 5 \\ \hline
 4 & 12 & 00 & 0 \\ \hline
 5 & 15 & 00 & 0 \\ \hline
 6 & 18 & 0 & 0 \\ \hline
 \end{array} &
 \begin{array}{r}
 35 \\
 \times 10 \\
 \hline
 180 \\
 +35 \\
 \hline
 350 \\
 +180 \\
 \hline
 530 \\
 +350 \\
 \hline
 15,960
 \end{array} &
 \begin{array}{l}
 \text{Partial Products} \\
 12,000 \\
 2,000 \\
 1,500 \\
 250 \\
 180 \\
 + 80 \\
 \hline
 15,960
 \end{array}
 \end{array}$$

$$\begin{aligned}
 (40+8)+(30+4) &= (40+30)+(8+4) = \\
 (70)+(12) &= 82
 \end{aligned}$$

I loved learning about new strategies to help my students! Base-10 and Lattice or block multiplication, Lucky 7 division, and butterfly fractions were instrumental in my students' growth last year. Different strategies helped different students. A lot of students didn't understand how to multiply large numbers. I had one student respond to a question on a practice sheet "How would you multiply 432 by 25?" stating she would need a calculator or larger.

What Next?

Mathletes has given me multiple strategies that will help my students gain the skills they need to succeed in understanding the standards being taught. I especially love the Group Roles sheet given to us by a former Mathlete. This sheet gives not only the role and definition, but an example of what the student could say in completing that role. These will be especially helpful in having students working in groups without having as much teacher intervention. I have also learned different solution paths that students may have, and that different doesn't mean wrong.

In preparing to start my second year of teaching, I feel better prepared and excited to see what the school year will bring. I have attended multiple professional development classes for

differentiating assignments and intervention strategies for reading and math which has helped me to understand and feel more comfortable with what I need to do for my students. Mathletes has been a wonderful addition to my professional development this summer and I look forward to implementing these strategies in my classroom.

Lattice Multiplication

$$\begin{array}{r}
 231 \times 47 = 10,857 \\
 \begin{array}{r}
 \begin{array}{|c|c|c|c|} \hline
 2 & 3 & 1 & \\ \hline
 0 & 8 & 1 & 2 \\ \hline
 1 & 4 & 2 & 1 \\ \hline
 \end{array} &
 \begin{array}{r}
 47 \\
 \times 231 \\
 \hline
 1617 \\
 +9240 \\
 \hline
 10,857
 \end{array} &
 \begin{array}{l}
 1x \\
 231 \\
 \times 47 \\
 \hline
 1617 \\
 +9240 \\
 \hline
 10,857
 \end{array}
 \end{array}$$

"Mathletes has given me multiple strategies that will help my students gain the skills they need to succeed in understanding the standards being taught."

First Year of Teaching- Transitional License

by Chelsea Herald,
Science Hill High School

Transitional Licensure—it seems like a great deal! You have a college degree and how hard can teaching really be? You have heard your entire life that teachers are lazy or "those who can't do, teach". Well, let me tell you, that could not be farther from the truth. I took a job teaching seventh grade math in a cute little city. I toured the school and admired all the "cute" little school things. After all, I remembered being in middle school and knew that middle school math was easy for me. This was going to be a breeze. I thought to myself—I cannot believe someone is actually going to pay me to come talk about easy math all day. All through the first week of in-service, I remember wondering why everyone was so worked up. This job was easy. Clearly, I must be smarter than all of these people because I am not worried about this at all. I will write down a few things, but really all I have to do is look at the topic and I will be able to talk about that for ninety

minutes. Sure, that will be no problem.

Well, let us just fast forward to that first day of "actual" teaching. I marched off to work with my teacher's edition and my new "teacher" clothes. I was going to blow this job out of the park. The first day would only be twenty-minute classes and all I really needed to do was introduce myself—right? I came into my first class with my PowerPoint ready to go. I would tell them all about myself. I would tell them how I just graduated and this was my first time teaching. I would proclaim how great I was at math and how I was great with kids because I have a two year old. I stand at the door to greet each student—just like I read in all those cool "teacher" books. Wait a minute... Kids are bigger than I thought. Some of these kids are as tall as I am. I start to get nervous, but I think there is no way this could be that hard. I get all of the kids seated without a seating chart and open up my PowerPoint. I introduce myself and tell my whole life story—in three minutes. A few of the kids have questions. Question 1: "What are we going to be learning this year?" Whoa, that is a great question! I wonder what they will be learning? I probably should have looked through the book. I spout out a few things that I will later find

are not true. About five minutes into class, I am done answering any questions and talking about the ridiculous "rules" I had come up with. Now I have twenty twelve-year olds staring at me waiting for me to do something. Unfortunately for all of us, I have no idea what to do next. I start asking silly questions and having the students raise their hands. Immediately, they think I am a substitute and not their real teacher. I politely try to explain that I will be their "real" teacher. I now see that even though I was paid to be the "real" teacher, I never really was. After a few minutes, I gave up. For ten more minutes I just let them talk. It was a disaster. As soon as that was over, I realized I would have to do this all over again. Only this time, the class was even larger and I went through my introductions even faster. I ended up just letting them talk, also, and I answered way too many personal questions that students should never know about their teacher. I had one student calling me by my first name within 10 minutes and several up out of their seat jumping around.

Now I think to myself—"Self, what on earth were you thinking?" Perhaps this was not the easiest job on earth. In fact, I think they aren't paying me nearly enough to do this. It wasn't until the second week that I figured out

what a lesson plan was and that I should be making them. Yes, that might help. I begin writing lesson plans in very little detail because surely a "math expert" like myself would not need to be that prepared to teach a seventh grade math class. Each day I lost more and more control over my classroom, until finally I was useless. I went home crying every day knowing that not only was I failing myself, but also I was failing these wonderful children. I had good students looking at me wishing I would just control the class so that they could focus. If only they could feel my desperation and how badly I wanted the exact same thing. I tried to play it off and just bided my time. I thought it would be unacceptable to quit my job in the middle of the year. Teachers just don't leave their students like that. Well, this teacher did and it was a wonderful decision. I have no idea if those students I had learned after I left, but it could not have been any worse.

Fast forward to my new job. I transitioned into a ninth grade Algebra I teaching position. While in the end this turned out well, the beginning is not to be envied. I told myself that I had already taught one semester, no matter how badly, and now I could start all over. I knew all the things not to do—right? So, I begin again with a

modified version of my PowerPoint and now I have 25 fourteen-year-olds staring at me. Unlike the seventh graders, ninth graders are completely silent the first few days. I could not get a single volunteer and I became very anxious. Sometime during one of my discussions on the first day I managed to say the words "cheese balls". Seriously, what teacher says the words "cheese balls" to their students? I do, apparently. I go home feeling that this job will be a disaster, as well. Maybe I just am not cut out for being an educator. Maybe I just do not have the proper skills required. I stayed at work every day the first couple of weeks until approximately 8 P.M. I put everything together I could think of and even managed to hook up my document camera. I struggled for at least the first month in making it to work without losing the majority of my breakfast to the wonderful "ring de la trash". One day, I decided I had to change things. I read book after book on how to manage a classroom. I never truly managed to manage the classroom, but I learned many things about the actual students. I did not understand their personalities prior to this and truly, I do not think I cared to know. I thought my knowledge would be enough and that it would all work out. It did not.

Around the middle of my first semester teaching high school Algebra, I finally did something right. Somehow, my students were starting to like me and I was starting to look forward to coming to work. I stayed too late at work and spent about eighty hours a week working. I poured my heart and soul into my job and by the end, most of my students could tell. I made true connections with many of my students. I also made some enemies. Some of the students were determined to never trust me again after I showed that I was not an "expert" in the classroom. Most forgave me, though, and actually started trying to help me understand them. I let them know that I cared about them as individuals and that even though I may not have a lot of experience, I was very open to their ideas. I worked with them and not against them. I opened my heart to them.

To conclude this experience, I would like to add that I would not trade the experience for anything. I would trade some of the angry children that think I am a terrible teacher, but I would not trade what I have learned. I have learned what it feels like to fail. I have been broken down so that I will build myself back up into the educator I want to be. I have opened my eyes up to my own ignorance and allowed myself to

accept that I actually do not know everything about school. Having gone to high school does not make you qualified to be a high school teacher. I may have had a smoother first year if I had gone a more traditional route. I may have learned some of these valuable experiences in a safer environment, namely student teaching. What I do not think would have happened, though, is my own personal growth. I have actually changed as an individual. I care more about children. I care more about whether or not they learn and grow as individuals. I am nicer to people overall, and accept people that I would have never accepted before. My entire life will be different now, and I am eternally grateful for the day I thought, "Maybe I should apply for a teaching position!" It may not be for everyone. Some people may not benefit from the failing experience I have had. Some people would not even fail. I, however, embrace my failure and think it was the best thing that could have ever happened in my career.



"I poured my heart and soul into my job and by the end, most of my students could tell. I made true connections with many of my students."



Solving and Creating Math Word Problems

by Kesha Ryan,
Kingsley Elementary School



As a new teacher I walked into the classroom looking for my teacher manuals right away. My first year of teaching math I followed my teacher manual word for word. My second year I did branch out a little and begin to create or find other resources to use in my math instruction. Now that I have attended Mathletes I realize that most all of the math that I had my students doing involved naked numbers. They were learning a rote strategy and just solving without thinking. This year I plan to teach students to become thinkers!

In Mathletes I have learned the importance of math word problems. I know by experience in the classroom that students tend to shut down when they see a word problem. Many children will always seek help before even reading the entire problem, or some will answer a two part problem with only one solution. This school year I will be sure to have one math task each day that is a word problem. I will start the beginning of the year teaching my students strategies to solving word problems. It is important that children know first of all that they have time to complete the problem and that the teacher doesn't expect the word problem to be solved quickly. In teaching my strategies I will be sure to make this clear to my students. Strategies that I have in

mind for solving word problems are as follows:

1. Take your time.
2. Read the problem at least twice if not more.
3. Use a highlighter to highlight the actual question you are trying to answer.
4. Highlight all the numbers in your problem.
5. Cross out any unneeded information.
6. Decide which operation you need to use in order to solve.
7. Solve the problem.

My goal is to build confidence in my students as they practice solving word problems with me each day. By the end of the school year I hope to see my students solving 1, 2, or 3 step word problems independently that really require them to think or even struggle. I am looking forward to seeing their different strategies and to watch them teaching their peers as they share their work with one another. I truly believe that with much guidance and scaffolding at the beginning of the year, by the end of the year my students will become true problem solvers that are searching for a real challenge and will no longer fear word problems, but even create them.

Community is Bigger than the Classroom

by Derek Cassel,
Twin Springs High School

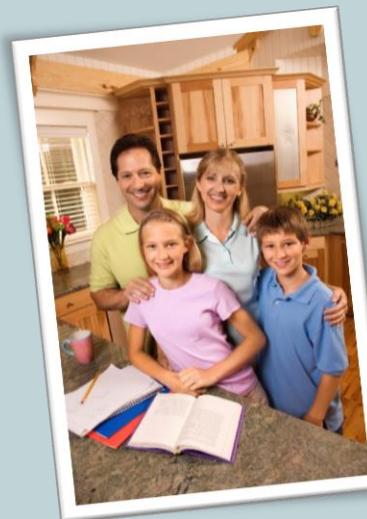
From the first day of my 8th grade year until I started teaching in 2011, I thought the classroom was the only setting where instruction took place. I would attend class day in and day out and take notes on the topics the teacher would tell me were important and follow the examples closely. I was able to learn in this environment, but was everyone in the classroom the same as me? Since becoming a teacher I have been able to understand the many facets of learning and how each student has a unique style. I can now answer the question with relative ease. Was every student like me? No. Throughout college I studied how students learn at different rates and in diverse ways. I didn't fully understand these concepts until I had my first classroom and realized that in order to maximize the student rate of achievement, I must focus on the community I was creating within my classroom. A good community along with a

balanced approach from the teacher can achieve maximum student learning.

Classroom Community

The classroom is the first place where instruction takes place. Teachers can create a natural learning environment by ensuring he or she provides differentiated instructions to meet all needs of students, as well as, ensuring that students work together. Not every student needs to like each other, or want to work with each other, but in a well-balanced community, everyone does what they need to do to reach a common goal.

The goal
in any



classroom should be student achievement and learning. Using differentiated instruction, student involvement, and student ownership will ensure that every student is touched and every student is motivated to work each day.

School Community

Students need to be in a school where all of their teachers work together. Cross curriculum instruction is becoming more and more important in our schools. When teachers collaborate and communicate with one another the benefits gained will be far reaching. Creating the collaborative environment with co-workers will ensure students don't receive mixed signals from class to class. The school should also provide services for students who may need extra help, or who may be exceptionally gifted. Students need to be aware of peer and teacher lead tutoring services and other programs that will help them succeed. Having a well-organized school community can really help student learning if used properly.

Outside Community

Students should be able to leave school and continue their education at home. Learning should not just happen during the 50 or 90 minutes they do in the classroom. They should be able go home and share the learning experiences they had with family or peers, as well as collaborate through homework or other

assigned extended learning. One of the reasons that the students aren't interested in homework is because quite simply homework isn't that interesting. Without careful assessment homework can become a mundane and tedious extension of the lessons taught earlier in the day. Homework should be relevant to



the material covered in class but, also be something engages students' interests, presents an attainable challenge, and leaves them with a sense of accomplishment.



In conclusion, creating an environment where students can communicate, be free to take ownership over their learning, and feel safe will greatly enhance achievement. Teachers have control of their classrooms and have the ability to facilitate their own classroom environment. It takes everyone to work together to have a well-functioning school. Administrators, teachers, parents, and students all play a vital role in the learning community and nurturing that environment can only lead to progress.

"Learning should not just happen during the 50 or 90 minutes they do in the classroom. They should be able go home and share the learning experiences they had with family or peers, as well as collaborate through homework or other assigned extended learning."



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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 Tri-Cities region. This year we will have a single-day conference in the spring at a day and location yet to be announced. The purpose of UETCTM is to promote excellence in teaching mathematics and to share best practices among mathematics educators.

