

U PPER EAST TENNESSEE COUNCIL OF TEACHERS OF MATHEMATICS



Volume XVI, Issue 3

NEWSLETTER

December 2015

This Day in December...

December 15, 1742: Euler presents the first concise statement of the Fundamental Theorem of Algebra – “every algebraic equation of degree n has exactly n complex roots.”

December 19, 1908: *Scientific American* offers \$500 to anyone who can come up with “a simple explanation of the fourth dimension.”

December 23, 1669: John Wallis writes “In a dark night, in bed, without pen, ink or paper, or anything equivalent, I did by memory extract the square root of 3,00000,00000,00000,00000,00000,00000,00000,00000,00000,00000, which I found to be 1,73205,08075,68077,29353, ... and did the next day commit it to writing.”



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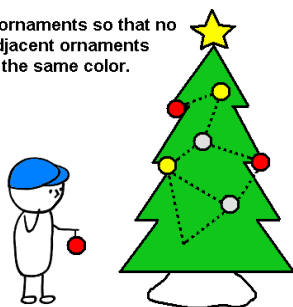
Happy Holidays

From:



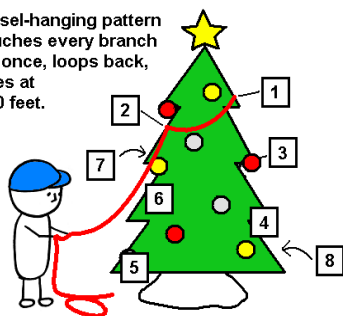
Gold, silver, and red Christmas tree ornaments.

Hang ornaments so that no two adjacent ornaments share the same color.

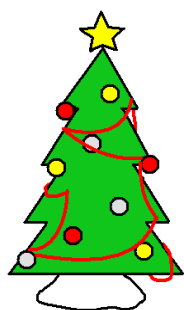


30 feet of tinsel.

Find tinsel-hanging pattern that touches every branch exactly once, loops back, and uses at most 30 feet.



Nailed it.



Christmas is (NP-)hard. □

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Free Printables and Activities for December/January Math

2nd through 4th Grade: [New Year's Activity Book](#)

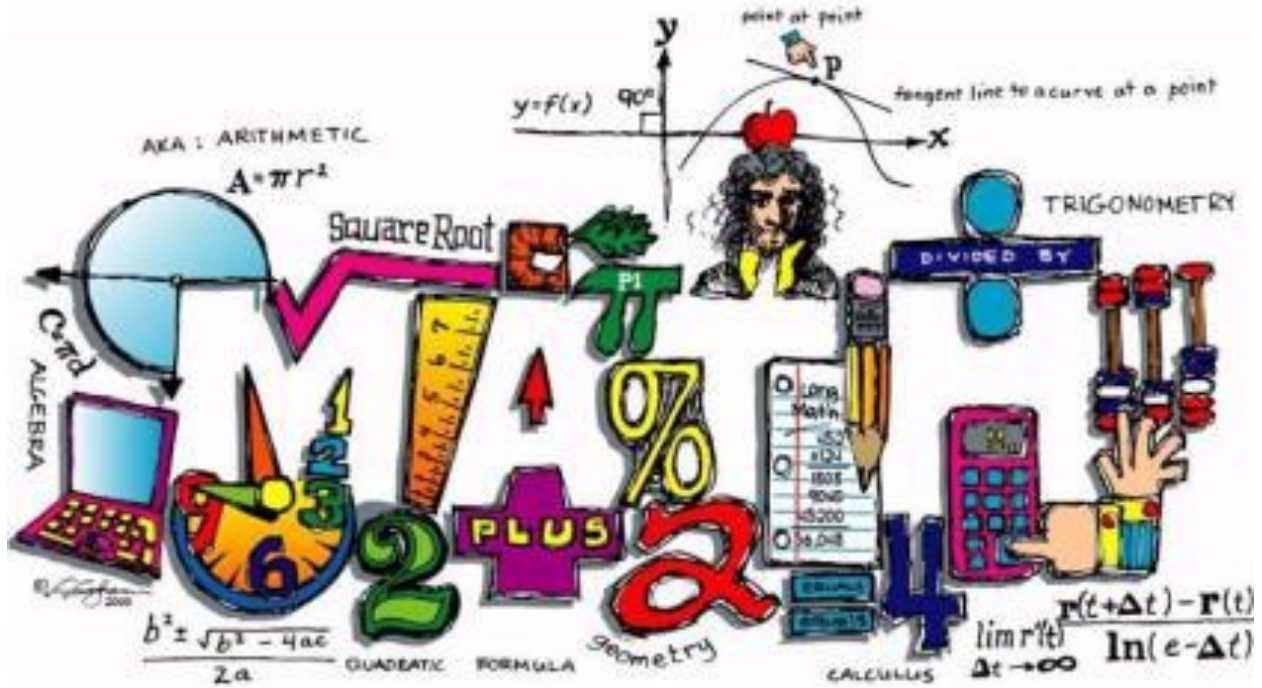
3rd through 5th Grade: [Holiday Shopping Performance Task](#)

4th through 6th Grade: [Christmas Crafts: Octahedron Ornaments](#)

6th Grade: [Capture 4 Equivalent Fractions](#)

6th through 8th Grade: [Holiday Themed Math Libs](#)

9th through 12th Grade: [Seasonal Systems of Equations](#)



“When you sink or swim with seventh and eighth grade students, sometimes you see the mud at the bottom and sometimes you win the gold.”

- Andrew Oligny on beginning his second year



Playing with Numbers

By: Betty Brown

I have spent my summer working with numbers. I had forgotten how much fun it could be. The stress of daily teaching eight year olds, numbers just weren't that fun anymore. Numbers like: due dates, pages, money collections, attendance, research, percentages, math standards, data folders, and the list goes on and on. It's easy to get caught up in daily routines and requirements and forget the ones you are actually doing it for. In front of me each day are twenty-three eight year olds eagerly awaiting for direction from me. I have 30 years of teaching experience in the elementary classroom, and I've seen several changes through the years. I've tried to teach by choosing the right paths for my students.

Along the way, I've lost sight of what's really important. I teach shortcuts in math the way my teachers taught me. How do these shortcuts work? We don't have a true picture of numbers by taking shortcuts. Shortcuts were discovered by mathematicians long ago. How did they figure out these shortcuts? They played with numbers and made many discoveries about the numbers. We have taken those discoveries and taught our children the quick way to do it or shortcut. We have to allow our students the chance to discover these shortcuts on their own. It's like being excited about seeing a new mystery movie and your friend tells you the ending. It takes most of the excitement out of seeing the movie. We are truly a culture of "a quick fix".

I want to thank Dr. George Poole for opening my eyes and helping me have a better understanding of the true meanings of numbers. He spent the last two weeks allowing his students make their own discovery. Was I nervous about working with numbers? Absolutely, but now I know so much more about numbers because of "George". I have a better understanding by making my own discoveries.

When I step into my classroom in the fall, I am prepared to let my mathematicians make their own discoveries and shortcuts. Taking the time to let students work together and discover their own shortcut will help them control the numbers their way and in turn will help them have a better understanding of numbers in their life.



I Am In Charge!

By: Becky Saunders

Reflecting on my MathElites experience I will say that it was unexpected. I am at heart a total and complete Language Arts person. I am also devoted to Pre-K and Kindergarten students. I love reading. I love teaching reading. I am excited about all the different ways children learn to read. I taught Kindergarten for 10 years. I am inspired by every “ah hah” moment and every light bulb that just comes on. I will honestly say that I did not believe that was possible in Math. I hated Math. I believed that I was just not good at Math. George, as an instructor, and MathElites, as a program, changed that for me this summer.

My greatest take away is “numbers are dead.” I should be in charge of the numbers not the numbers in charge of me. I should be manipulating the numbers not the numbers manipulating me. I should be telling the numbers what strategy or operation will be used with this set of numbers not the numbers dictating what will be used in order to solve the set.

Teaching reading I always felt very free in my classrooms to tell children if this doesn’t work for you we will find the strategy that you are most comfortable with in order to understand “how to read” and “what you are reading”. I NEVER felt that way about Math. I did not feel that way when I taught it and I did not feel that way about it when I was in school learning it for myself. I always felt like Math was very black and white. The only thing that mattered was if the computational answer was correct. Addition and subtraction is worked by stacking the numbers on top of one another (if they were side by side you rewrote them). Addition is worked by “carrying” things over. Subtraction is worked by “borrowing”. This was it. This was Math and this is how Math works. I never thought or even considered that I needed to build a picture of Math or visualize for Math like you do in reading. Because after all, what’s to visualize I am either “carrying” or “borrowing”.

George completely changed all this for me. I will not pigeon hole my students this year when I teach Math. I will not even teach, introduce, or use “carrying” or “borrowing”. I will teach my students to make a picture of exactly what they “see” or “the movie in their brain” from the word problem or equation that is presented to them. We will work math problems using: shifting, minuend splitting, hop, skip, and jump, Alexi’s method, or Banana split to the nines with a scoop. The strategy that works for the student is the strategy the student should use because THEY ARE IN CHARGE OF THE NUMBERS. I should be filling their tool box with as many different tools as possible, just like I do in reading. All the different tools allow the students to be in charge how they choose to work their Math problems.

I will also start this teach year with a meeting with my parents just to let them know Math is going to look different this year and that OK. Math is going to look more like Reading. Math is going to reflect your child and how they learn differently from anyone else and that’s OK too. I am excited to start this year. I believe it is going to be great and I will grow with my students this year!

Adding a Creative Twist to Writing about Math

By: Cheree Osborne Gast

I have always loved math and have been successful with it, all the way up to engineering classes at Virginia Tech. Engineering did prove to be out of my level of expertise, so I found a better spot in accounting. Now I am happily teaching 5th grade math, and loving every minute of it. I often have students that love math just as much as I do, but I also have those that could care less about finding the volume of a rectangular prism or interpreting the remainder. These students often excel in other areas, such as writing or art.

Areas that tend to lend themselves more towards creativity. My go-to strategy of engaging such students has been by allowing them to write creative word problems to give equations context. Recently I was fortunate to participate in the two week Eastman Scholar MathElites program hosted by Eastman Chemical Company and East Tennessee State University's Center for Excellence in Math and Science Education. During one of our workshops I was thrilled to discover a new twist on allowing my students' creative writing to shine: the RAFT writing strategy.

The RAFT writing strategy is way to encourage students to explore different roles when writing, consider a varied audience, use multiple formats and focus on cross-curricular topics. This type of writing can be adapted for any subject area, even math. Students consider the following points before writing:

Role of the Writer: Who or what are you as the writer?

Audience: To whom are you writing?

Format: In what format are you writing?

Topic: What are you writing about?

As you can see, the possibilities for this strategy are endless and provide an avenue for students that crave a way to use creativity when expressing their math knowledge. Below are just a few of the ideas I plan to incorporate in my 5th grade math class this year:

(See Chart, next page)

I am confident that my students will enjoy using their RAFT creations to demonstrate mastery of mathematical ideas. More information on this strategy can be found at: www.readingrockets.org/strategies/raft. Here you can find more examples, hard copy templates for planning a RAFT, and even an online interactive RAFT template that allows students to type and print their writing piece. Happy RAFTing!

Role of the Writer	Audience	Format	Topic 7
Math Fact Family	5 th Grade Students	Public Announcement	Why X Math Fact Family is the Easiest to Remember
The Zero in the One's Place in the Second Line of the Multiplication Algorithm	The World	FAQ	Ever Wonder Why there is Always a Zero There?
The Volume Formula	Cubed Units	Marriage Proposal	Why Cubed Units and Volume were Made to be Together!
The Remainder and The Problem Question	The Problem Question	Rant	Why Does Everyone Ignore Us? We Matter Because...
The Whole	$\frac{1}{2}$, $\frac{3}{4}$	Newspaper Article	Breaking News Story on Why $\frac{3}{4}$ Isn't Always Greater than $\frac{1}{2}$.
The Thousandths Place	Employer	Resume	The Uses of the Thousandths Place
“Of”	Students	Apology Letter	I am sorry, I don't ALWAYS mean to multiply, you must be aware of context!
Estimation	Students	Sob Story	I am not just a educated “guess!”

Reflections on Reading, Writing, and Arithmetic

By: Sheilla Coplin

Sometimes, we all need to reflect, and think about where we have been, to appreciate where we now are. Have you ever reflected about your own personal journey in education? I encourage, as you read this article, to close your eyes, and allow yourself to travel back in time, to those early years of your schooling. What types of experiences come to mind? Do you recall how the classrooms were arranged? Did the scent of the building, tell you, immediately upon entering, that you were coming to a school?

For me, this is easy, even though it was over 50 years ago. I can recall the smell of the school building, the desks being in straight rows, and the real blackboards with chalk and erasers on the ledge. I remember the nuns, each dressed in their formal habits, and black shoes. I can still hear the sound of their long rosaries, clinking-and-clanking as they walked down the seemingly endless hallways of my first eight years of grade school.

My very first memorable experience in math occurred when I was in the first grade. My parents attended a meeting with the sister who taught me that year. It seemed I could not grasp simple addition and subtraction facts. It was a very important meeting, as Mother and Daddy both sat out in the hallway, while I took this little test of math facts. Evidently, the outcome of my performance was contingent on being promoted, although no one ever said anything like this directly to me. I remember the sister coming next to my desk and pointing to a couple of addition problems, like $2+5$, and she made sure I saw her smile, where I placed seven as my answer, only minutes before. However, she nudged me a little, when I put a different answer for $5+2$. It took me a few minutes to catch on to what I had done. Hurriedly, I changed this answer to seven, along with a few more of my blunders. I must have done it well enough to please her, because I remember my parents hugging me and smiling. Afterwards, they spoke with the sister, and we finally made the trip back home.



Now as I fast forward to sixth grade, I experienced a second enormous struggle in math. This time it was with integers. My dilemma was so intense, I had to attend summer school. Not only did I have to go, but I rode my bicycle back and forth to the school every day. It was several miles away, not just around the corner. By summer's end, a light bulb turned on, and integers with their operations was added to my list of mastered skills

I am proud of the education I received; however, as I look back on those first eight years, I remember more struggles than successes. Education in those days was so different than what it is today. I recall the sisters up at the board, pounding the important information into us. We had to sit in our straight rows like tin soldiers, not moving a muscle, unless spoken to. Rote memorization was commonplace, whether it was multiplication facts, or auxiliary verbs; the sisters made sure these concepts were committed to memory. And yet, as I look back to those tender, learning years of my youth, I now recognize I missed out on some very key educational components. In their article, *Integrating Math and the Language Arts*, co-authors Jo Cleland and Ron Zambo state that, "Multiple relationships between language arts and mathematics are apparent in the process standards identified by the National Council of Teachers and Mathematics. These processes include problem solving, reasoning, communication, connections and representations" (p. 156).

During my school experiences, working with math manipulatives of any kind was non-existent. Collaboration with other students was the exception rather than the norm. On one such rare occasion, however, I remember checking another student's science workbook homework, while she checked mine. Mary got all her answers correct, while I missed several of mine. I remember looking at her, just wondering how she could be so smart. I also recall the terrible feelings of inferiority, and sadness about my own performance. Today, I recognize what I did not know back then; I am a visual learner. For many skills, I must see them worked out, before I can master them. I'd say this is true for the majority of our students of today.

A second area where I feel a deficit in my education occurred, was in the area of children's literature. While we had hardback readers in grade school, and read in them daily, I now know I missed out on a great deal of children's literature. I never even heard of a Caldecott Winning storybook prior to taking a course called Children's Literature, in my undergraduate degree preparation. In that course, my beloved instructor, Dr. Evelyn Miller, assigned 40 children's books for us to read. We had to write summaries of these works, on 5-7 notecards, and keep them in a file box, for use during our years of teaching. Dr. Miller read to us every day; it might have been just a short book, or a few pages, but she read to our class. We were college students! Her love of literature, and model of reading, instilled a strong desire in me, of reading to my future students. But it also helped me to recognize, that I missed out on the connections between math and literature; connections that renowned educator, Marilyn Burns, stresses are important in the classroom. She writes that, "Children's Literature is an effective tool for math instruction because it:

- 1) Incorporates stories into teaching and learning of math.
- 2) Introduces math concepts in a motivating manner.
- 3) Acts as a source for generating problem solving and building problem skills.
- 4) Helps build a conceptual understanding of Math."

When I taught elementary school for 11 years, I read to my students nearly every day. However, when I later moved to the middle school, I found it difficult to accomplish this goal. I became like the teachers Jo Cleland and Ron Zambo refer to in their article, "*Integrating Math and the Language Arts*". They state, "While the majority of the teachers in their study felt integrating literature into the math classroom was useful, at the higher grade levels, there were more obstacles to doing so. They cite the obstacles include time, lack of resources, along with professional development." (p. 156)

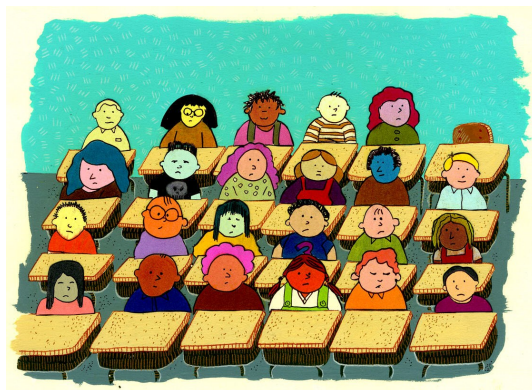
Another benefit of integrating language arts into the mathematics classroom, according to Cleland and Zambo, is that "Story writing helps students articulate their understanding of concepts." One idea I've used as a middle school math teacher, is what I call, MY MATH JOURNEY Sheet. During the first few days of school, as I am getting to know my students, I give them a copy of this sheet, and ask them to share their math journey with me, in writing. I always preface this activity by orally sharing my own math journey with them; including my first and sixth grade experiences I've shared in this article. Additionally, I often have my students write about how to solve math problems in their math journal, so they will have a written record of how a particular skill is completed.

I just learned while here at ETSU, that an online program called EPIC, is available for teachers to have free access to thousands of children's literature books. Also, I located a list of books compiled by Marilyn Burns. Her list of Literature books along with specific math skills related in those books is found on the Scholastic web site. As I am about ready to begin a new school year with a brand new group of seventh graders, I plan to take advantage of the free EPIC online service of accessing literature for them, while utilizing the books Ms. Burns has identified to parallel the math skills I am teaching.

Being a part of this year's MathElites program at ETSU, has been a blessing in so many ways. This program, taught by Dr. Ryan Nivens, has enabled me to not only be challenged in mathematics, but it has allowed me time to reflect on my own practices as a math educator. It has reminded me, I must include literature with my math instruction. I want my students to be successful in math, as well as language arts. But most importantly, I want them to look back on their journey in education with positive memories of how these subjects helped to prepare them for their future, wherever it leads them.

Entering Year Number Two – I Think I Need More..... Planning!

By: Andrew Oligny



Entering education as a second career was a decision my wife and I made after I'd worked as an insurance adjuster for nearly seventeen years. It was a good profession that taught me volumes about life, along with teaching me the many pitfalls of human character when we're faced with a crisis and our money is involved. It was time for a change, and I'd wanted to teach kids for years, so entering into education was an invigorating and exciting thought process. I enjoyed teaching kids baseball on the little league fields, had three kids of my own going through school, and the schedule is pretty good, so why not, right??

I thought I was ready to be a teacher when I accomplished completion of a Master of Education degree along with one year of internship in the Elizabethton City School district. I did very well in school and learned a lot of head knowledge. My experiences as an intern were very fulfilling and I fell further in love with education and kids. I was as ready as anyone could be coming out of school.

The immediate setting of one's own classroom is unlike the business world, where everyone gets their own office and you can take a break when you need to. There was no education to help prepare for monitoring or regulating student discipline, keeping track of student money for fund-raisers, or cleaning desks. How much time does it take to count money when a student wants to pay for a candy bar, or 52 of them, with quarters, dimes, nickels, and pennies from the change jar at home? As with many things in life, one really doesn't know what something entails until they have to do it themselves. When you finally get your own classroom and the bell rings, it's time to "sink or swim", and it's the real thing. When you sink or swim with seventh and eighth grade students, sometimes you see the mud at the bottom and sometimes you win the gold.

Coming out of college, where we are accurately taught that kids learn in many different ways, we learn day-to-day almost exclusively with lecture. Strange... I'm also old enough to have learned during my educational years almost exclusively with lecture. So, I began things hoping and assuming that students would pay attention and learn from me lecturing how to divide fractions. After all, I am a mathematician at heart, and I'll **explain** why it makes sense.... Yeah.... That's not always the case with most middle school aged kids, as there is a perfectly normal, but constant challenge to focus for this age group. Just about anything other than math is what they'd prefer to focus on most days, and without a really good plan, their default is to trail off into doodling, thinking hard about how to create their next character on Minecraft, or day-dreaming about their shoes, and just why Nike made them that way – what cool colors...

Without someone else teaching 8th Grade math within my school, I am on an island with little or no daily help. I/We need to reach out to others around us who are in the same boat. I really didn't know how many other teachers WERE in the same boat during my first year. How does a first year teacher navigate the year without any planning help??? Not very well, really. Sure, I put things together and

thought about what I was going to teach every day, but I really didn't know what worked and what didn't my first year. I found out pretty quick that too much lecture is not an attention grabber for a majority of middle schoolers. Overall, my students did quite well with a boring lecture teacher who was constantly trying to get everyone's attention, but I've learned that there is so much more potential.

Simply put, I talk too much, and do more of the thinking than the students do with lecture. In my second year, I plan to shut up more, while ramping things up a bit. This will take planning! I've always been an advocate of the thinking process – making sure that things made mathematical common sense on the way to an answer, but my students remained focused on the bottom line answer. I have always had confidence in being able to **lecture** the common sense, but maybe it doesn't work that way for a lot of kids. They need something else. This year, instead of just being on focused on “knowing the answer”, my class will enjoy more group work, make more diagrams, create more verbal and pictorial descriptions of mathematical concepts, and THEN, write down “the answer”. We'll know WHY it's the answer instead of just knowing an answer. They will LEARN! To make things even better, we'll all have a lot more fun, and students will retain much more that way.

Planning is the one thing that I am committed to doing better in my second year. Good planning is the key to keeping students involved and focused. This will take much more extensive time and collaboration than I ever thought it would, but it is clearly a teacher's key to a firm foundation and an attentive classroom. Over the summer break, I was blessed to have been able to participate in a two-week continuing education class that was sponsored by ETSU and Eastman. I have now met numerous middle school math teachers who are in the same boat that I am. I've learned a bit more about what works and what doesn't. Shift gears often. Have different representations of learning. Let them work in **accountable** groups. Graph it. Put the information in a table. Is there a formula for that? Let THEM do the thinking. I've learned a more involved and fun way for me to teach. I've learned a more involved and fun way for my students to learn. I've learned that I have planning partners who are a phone call or an e-mail away, and I plan to use them often!

Now I'm **really** ready.....! Aren't I??..



Before becoming a teacher I was in manufacturing for ten years. I got to know so many different people and see how school affects their lives long-term. Inevitably, because of my occupation as an engineer, I worked with engineers and scientists. However, many of the people I worked with were not. I got to work with great people that had jobs which did not require degrees. Unfortunately, while some people are happy with that life, a lot of people find that “school is not their thing,” which was why they were stuck with their job. I was amazed at how many people came to that conclusion. These same people felt they were “dealt a bad hand in life.” They felt like they always had to scrape for everything they had. I quit that job to be a teacher. I imagined myself to be a great teacher. I was not the best at school, and I had to figure things out my own way. I always thought patience and a caring personality was the key to getting through to anyone. I thought that I would be able to make a difference. I want to share some of the misconceptions that I had coming into my teaching position, and how I intend to overcome some of the problems I had because of these misconceptions.

After being a teacher for a year, my perspective has changed. Everyone hears that teaching is hard work and requires a lot of dedication. I found teaching took more than that. Working 60 hour weeks in manufacturing was hard, but I could handle it. Working one day in school proved to be more taxing than any day in manufacturing. Coming home the first couple of weeks of teaching I would start reading a book like I normally did after work, and I would conk out and fall asleep. The classroom environment is so dynamic. A teacher is giving instructions, engaging the students, asking questions, answering questions, thinking about the next transition, keeping students on task, preventing outbursts or distractions, and constantly assessing. I found that teachers have to do all those things while still having to deal with each individual student. Did they miss a class? How do they get the material? How do they make up the material? Why did they miss? Are there things going on at home? I once thought the kids were in “LaLa Land!” No, they are thinking about what they will be doing when they get home. Some of them are cooking for the family, helping to take care of the younger siblings, or working. They are depended on to support their family as much as any “bread winner.”

To answer these questions and understand what you have to do, you must get to know your students. Relating to my colleagues and peers was never an issue growing up or in manufacturing. However, my colleagues depended on me, and my peers had years to see what a great guy I am. With students you have days. If the connection is not made in the first couple of weeks in the class, it will be much harder to make it happen. In a work environment people learn to depend on you to get the job done. There were components of a job that required my peers to make connections with me. The connection might have been a group project or a duty that I was to perform such as data analysis. In the classroom, the students are just as shy or apprehensive as we are to make the connections. It is our place to force the connection. It has to be quick, and it has to stick by showing that you care. While getting to know your students, teachers have to maintain their persona. That persona is what the students see day in and day out. When I say persona, I am not referring to being fake. However, the students have to see confidence. The only way to pull that off is by being organized, firm, and consistent because as soon as students see anything less, they see where their bar is set.

Be careful what you allow to happen in the class. Cell phones, bullying, and laziness cannot be tolerated. Cell phones can make you or break you. The cell phone can be a great tool in the classroom with all the apps and online resources, but they can really cause trouble as well. Students love pictures and videos, and they take them any chance they get. Students post online too much. Some postings are fine, but many are inappropriate. Avoid it if you can. One aspect of teaching I did not expect to encounter so much is bullying. Bullying seems much more prevalent now than when I was in school. Bullying can be as simple as one student saying that another student is stupid. Again, be firm and consistent. You should never let it happen from anyone. If you do, it will ruin a classroom environment. Finally, sleeping can create huge issues in the class. Many students do not want to do any more than they have to do. If they see another student sleeping, they will want to be lazy themselves. Even if they know the person sleeping is failing, it creates a distraction. I was always taught that you should do your best no matter what others are doing. Mind your own business. However, students do not see it that way.

Get to know and collaborate with your colleagues. They all have ideas. Many are eager to listen and give advice when needed. You will become familiar with the teachers that are willing to share. They will be able to help keep you sane by allowing you to vent, giving advice, and helping you plan your lessons. Even teachers outside your area can help with lessons. English teachers can help find good reading material for your class. If you are a math teacher, ask the science teachers how they do unit conversions. Ask the history professors what mathematicians they cover in class, if any. See if anyone is willing to line up lessons together so that students will see connections between various subjects. If students make connections between your class and others, it allows them to see you are working with other teachers. If the students like that other teacher, it gives you another chance to make a connection with the student.

Making connections with the students and teachers is by far the hardest aspect of teaching. You can't wait for others to make the connections for you. Although teaching was not quite what I thought it would be, I still feel I can make a difference in the lives of these students.

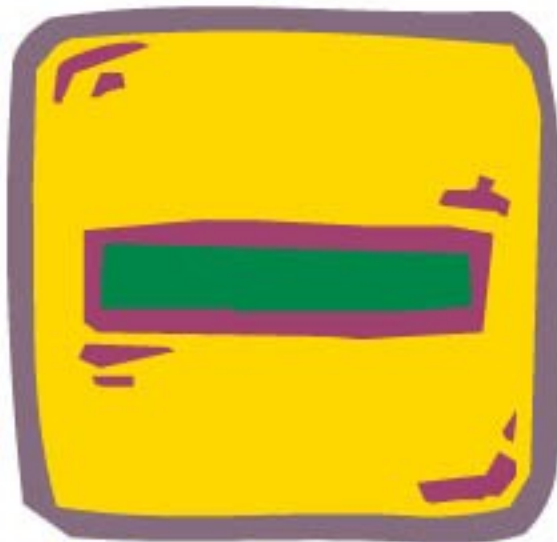


Using a Blank Number Line to Subtract Mentally

By Brad Johnson

When I started teaching 2nd grade 20 years ago, I taught my students to subtract using regrouping similar to the way I'd been taught. Although when I started teaching it I realized I hadn't used that method to subtract since I was in grade school. I used a calculator or subtracted mentally. It wasn't until a few years ago when a colleague handed me an article on subtracting with a blank number line did I realize that I used a blank number line in my head when I subtracted large numbers. I also used it for dividing large numbers in my head. Now I emphasize subtracting mentally using a blank number line in my classroom.

Students should be comfortable counting forward and backward by ones, twos, fives, tens, and hundreds before introducing blank number lines. Given a subtraction problem, $71-47$, students place the minuend and subtrahend on the number line. The placement of the numbers doesn't have to be exact at this time. The students should have enough room in between to jump to the other number. Starting with the smaller subtrahend, students make a jump toward the minuend to the first "friendly" number 50. They can count up by ones – 48, 49, 50, or those more comfortable with basic facts can add 3 to the 7 to get to friendly 50. Now they can count by tens to get to 70 – 60, 70, or just make one jump of 20. All that's left is a jump of one to the minuend, 71. Now add up the jumps to find the difference – $3+20+1=24$. The difference between 71 and 47 is 24. Students can see it on their number lines and with practice they can make their number placement and jumps closer to proportion with the values of the numbers and jumps. Within a school year, most students will be able to visualize the number line in their head and make impressive calculations accurately.





MEMBERSHIP APPLICATION

Mail completed for m to:

Jerry Whitaker
 Mathematics Curriculum Coordinator
 Washington County Schools
 3089 Highway 11W
 Blountville, TN 37617

Membership Fee \$10 Payable to: UETCTM

Name: _____

Home Address: _____

Phone: () _____

School: _____

School Phone: () _____

School Address: _____

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*The Upper East Tennessee Council for Teachers
 of Mathematics is an organization for anyone I
 involved in mathematics education from pre-school
 through college in the greater Tri-Cities region.
 The purpose of UETCTM is to promote excellence
 in teaching mathematics and to share best practices
 among mathematics educators.*