

Math Moves

Using movement & emotion to
increase understanding and enjoyment of math.



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Goals & Objectives



The goal of this project is to increase students' understanding and enjoyment of math through the integration of physical movement and emotional connection.

Objectives:

- ✓ Students will develop cooperation and collaboration skills by working in groups.
- ✓ Students will learn how movement, interaction, and emotions relate to learning.
- ✓ Students will increase their retention of math skills and monitor their own progress.

The project meets the following Florida Standards in mathematics:

3rd Grade

MAFS.3.NBT.1.1

Use place value understanding to round whole numbers to the nearest 10 or 100.

MAFS.3.NBT.1.2

Fluently add and subtract within 1000 using strategies and algorithms based on place value.

MAFS.3.MD.2

Draw a scaled picture graph and a scaled bar graph to represent a data set. Solve “how many more” and “how many less” problems using information presented in graphs.

MAFS.3.OA.2.5

Apply properties of operations as strategies to multiply and divide.

MAFS.3.OA.3.7

Fluently multiply and divide within 100.

MAFS.3.NF.1.1

Understand a fraction as the quantity formed by 1 part when a whole is partitioned into equal parts.

MAFS.3.NF.1.2

Understand a fraction as a number on the number line.

MAFS.3.MD.4.8

Solve real world and mathematical problems involving perimeters.

MAFS.3.MD.1.1

Tell and write time to the nearest minute and measure time intervals in minutes.

MAFS.3.MD.4.8

Solve real world and mathematical problems involving perimeter.

4th Grade**MAFS.4.NBT.1.1**

Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right.

MAFS.4.NBT.1.2

Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place.

MAFS.4.NBT.2.4

Fluently add and subtract multi-digit whole numbers using the standard algorithm.

MAFS.4.NBT.2.5

Multiply a whole number of up to four digits by a one-digit number.

MAFS.4.NBT.2.6

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors.

MAFS.4.OA.2.4

Investigate factors and multiples.

MAFS.4.NF.3.5

Express a fraction with denominator 10 as an equivalent fraction with denominator 100.

MAFS.4.NF.3.6

Use decimal notation for fractions with denominators 10 or 100.

MAFS.4.NF.3.7

Compare two decimals to hundredths by reasoning about their size.

MAFS.4.MD.1.2

Use the four operations to solve word problems involving distances, intervals of time, and money.

MAFS.4.MD.3.5

Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement.

MAFS.4.MD.3.6

Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure.

5th Grade**MAFS.5.NBT.2.6**

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors.

MAFS.5.NBT.2.7

Add, subtract, multiply, and divide decimals.

MAFS.5.G.5.1.1

Use a pair of perpendicular number lines, called axes, to define a coordinate system.

MAFS.5.G.1.2

Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.

MAFS.5.MD.3.3

Recognize volume as an attribute of solid figures and understand concepts of volume measurement.

MAFS.5.MD.3.4

Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

MAFS.5.MD.3.5

Relate volume to the operations of multiplication and addition and solve real world and mathematical problems involving volume.

Standards for Mathematical Practice

& Teacher Questions from Go Math! Series



Practice 1: Make sense of problems and persevere in solving them.

Teacher Questions:

What is the problem asking?

What is another way to solve that problem?

What can you do if you don't know how to solve a problem?

Have you solved a problem similar to this one?

Practice 2: Reason abstractly and quantitatively.

Teacher Questions:

What is a situation that could be represented by this equation?

What operation did you use to represent the situation?

Why does that operation represent the situation?

How do you know your answer is reasonable?

Practice 3: Construct viable arguments and critique the reasoning of others.

Teacher Questions:

How does that drawing support your work?

Who can tell us a different method?

Why do you agree/disagree with what she said?

What do you think will happen if...?

Practice 4: Model with mathematics.

Teacher Questions:

Why is that a good model for this problem?

How can you use a simpler problem to help you find the answer?

What conclusions can you make from this model?

How would you change your model if...?

Practice 5: Use appropriate tools strategically.

Teacher Questions:

What could you use to help you solve the problem?
What strategy could you use to make that calculation easier?
How would estimation help you solve that problem?
Why did you decide to use...?

Practice 6: Attend to precision.

Teacher Questions:

How do you know your answer is reasonable?
How can you use math vocabulary in your explanation?
How do you know those answers are equivalent?
What does that mean?

Practice 7: Look for and make use of structure.

Teacher Questions:

How did you discover that pattern?
What other patterns can you find?
What rule did you use to make this group?
Why can you use that property in this problem?

Practice 8: Look for and express regularity in repeated reasoning.

Teacher Questions:

What do you remember about...?
What happens when...?
What if you... instead of...?
What might be a shortcut for...?

H.O.T. Strategies for Problem Solving

Adapted from 8 Steps of Model Drawing



8 STEPS OF MODEL DRAWING



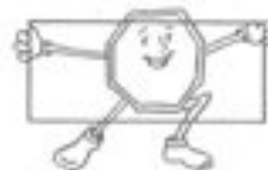
1. Read the entire problem.

2. Decide who is involved
in the problem.



3. Decide what is involved
in the problem.

4. Draw unit bars of
equal length.



5. Read each sentence, one at a time.

6. Put the question mark in place.



7. Work computation to the
side or underneath.

8. Answer the question in a
complete sentence.



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Course Outline



“Emotion is an on/off switch for learning.

The emotional brain, the limbic system, has the power to open or close access to learning, memory, and the ability to make connections.”

-Priscilla Vail

The goal of this project is to increase students’ understanding and enjoyment of math through the integration of physical movement and emotional connection within every lesson.

Using instructional focus calendars or student’s individualized education plan (IEP) goals as a guide, we can enhance understanding and improve memory of math skills by adding movement (gestures, games) and meaning (personal connections, social interactions). Movement and emotional involvement are proven brain-based strategies for learning. The more multi-sensory we, as teachers, can make our lessons, the more meaningful math becomes to our students. In the beginning of the school year, I teach my students a bit about how their brains work. I show them a model of each hemisphere and tell them the different areas that “light up” when we perform different tasks such as speaking, visualizing, feeling, listening to music, or moving, for example. I explain that when you make the different sides of your brain work together, it’s like a workout for your mind... And what happens when you work out? You get stronger! In addition to maximizing physical movement whenever appropriate, I infuse social/emotional interaction as much as possible into my lessons. By modeling positive social skills and teaching students to take turns practicing the different roles of reciprocal teaching in small groups, all students are more engaged and feel a sense of ownership and responsibility in both their own and each other’s success. Fridays are game days, with friendly competition among students versus their teacher. Students gain points for not only right answers and mathematical explanations of wrong answers, but also good sportsmanship and focus.

I have used the following lesson ideas to increase student performance with my 3rd through 5th grade ESE students in my resource room setting as well as after school tutoring, as evidenced by their pre and post assessment scores & FCAT scale scores for the past 2 years. Groups range in size from 5 to 10, but lessons can easily be adapted to fit general education whole group settings.

Sample Worksheet Templates

Name: _____

Date: _____

Subtract to Compare

LeBron James makes a salary of \$72,000,000 a year. Barack Obama's yearly salary is \$395,000. LeBron makes \$71,605,000 more than the President of the United States of America. In my opinion, LeBron should make A LOT LESS money because playing basketball is not nearly as important as being in charge of an entire country. What do you think?

Name: _____

Date: _____

House #1 for _____	House #2 for me

Adding Whole Numbers

When I grow up, I will buy house #1 for my
_____. _____ deserves it because
_____. Then, I'll buy house
#2 for myself. Both homes together will cost me
_____. I better start saving my money!

Name: _____

Date: _____

Car #1	Car #2

Subtract to Compare

Car #1 costs _____. Car # 2 costs _____.
_____ costs more money. It costs _____ more.
I think I will buy _____ because _____.

Lesson Plan Ideas



“Our mind/body system learns through experiencing life in context, in relationship to everything else, and it is our emotions, our feelings that mediate that context. In order to learn, think or create, learners must have an emotional commitment.”... “Memory is usually rich with bodily sensations of sight, sound, smell, taste, emotions and movements. The neural relatedness of these gives us our remembered pictures.”

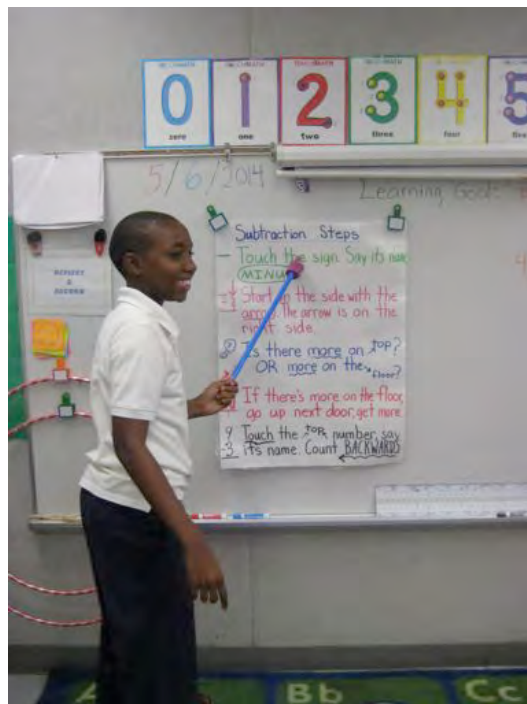
-Neurophysiologist Carla Hannaford



3rd Grade

Addition & Subtraction Within 1,000 MAFS.3.NBT.1.1, MAFS.3.NBT.1.2

Create posters of addition & subtraction strategies & steps with visuals. Teach gestures for each step. Make a short video of students performing the actions and chanting the steps set to music. Play the video regularly before students practice the skill, until they are using the steps independently with success.



Pass out different amounts of desired “treat” to two different students to aid understanding of subtraction with comparison. (Add rhyme. “How many more... what’s up with that? You can’t fool me, I know to subtract!”) To show the common error in reasoning of students adding when they hear “How many more...?”, give Student A 15 lollipops. Give Student B a measly 5 lollipops. If I ask, how many more lollipops does Student A have and someone mistakenly adds and gets an answer of 20, I turn to Student A and ask, “Do you have 20 lollipops?” No! Then I ask, who has more? We line up the lollipops to show who has more, and students can clearly see that Student A has 10 more and that we would need to subtract to find that answer. Once students understand the concept of subtraction with comparison, we move on to bigger numbers. If they get to a word problem involving, “how many more?” and they forget, I remind them to “remember the lollipops” and I hear a lot of “oh yeah, I get it now!”

Represent & Interpret Data
MAFS.3.MD.2.3

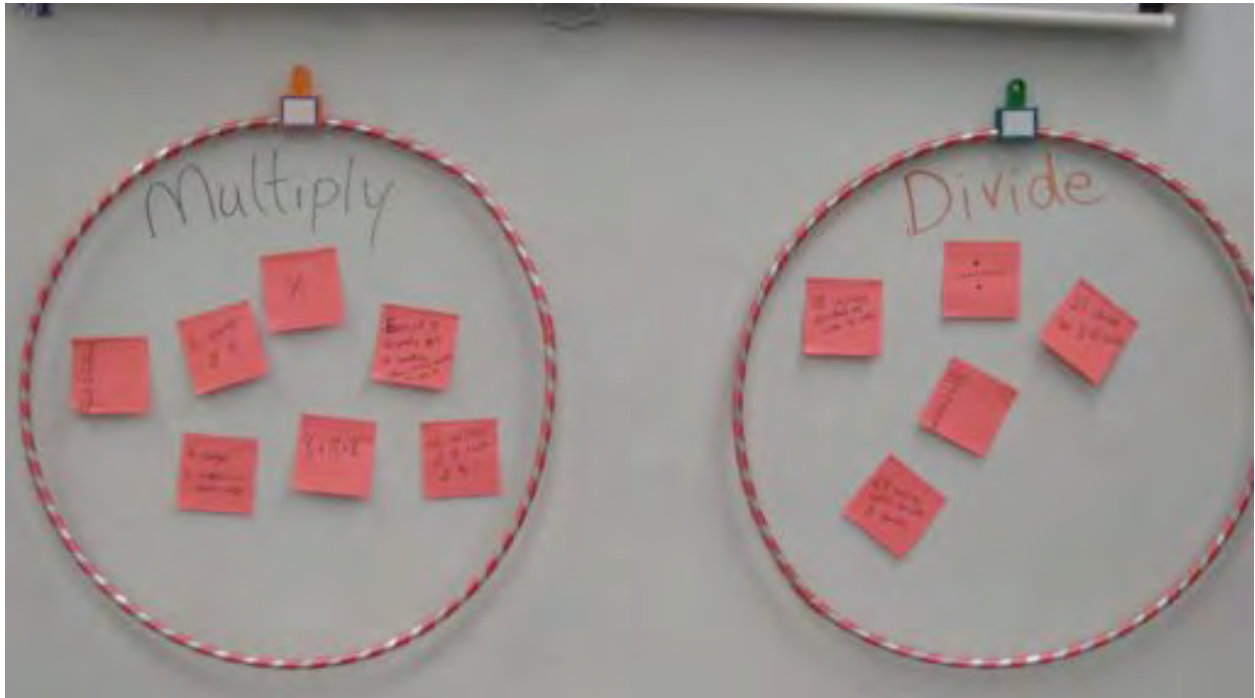


Have students either jump rope or hula-hoop for one minute. Teach them how to measure their pulse. Record their pulse numbers on graph paper. Create questions with students' different pulses, using the graph, such as "What is the difference between the highest and lowest pulse?"

Multiplication & Division

MAFS.3.OA.2.5, MAFS.3.OA.3.7

Model the multiplication and division processes with sets of stickers, seeds, small toys or gummy worms. After students understand and act out the concrete representation of the 2 operations, teach them the other strategies of drawing a picture model or skip-counting using “Touch Points”. Make posters with visuals for each strategy and the corresponding steps. Create and teach gestures for students to rehearse for each step. Solve word problems together, using real-life situations and students’ names. Once students gain confidence, pass out multiplication and division problems on sticky notes (3 equal groups of 6, 21 cookies shared by 3 friends, etc) for teams or pairs of students to sort on the board by sticking it under the right operation (Multiply or Divide). Once all sticky notes are up, have students give a thumbs up or down if they think the problems are under the correct operation. Have students explain why or why not. As an extension, have teams or individuals select a sticky note from the board to stick in their math notebooks and solve. As an adaptation, instead of a sticky note sort on the board, students can “vote with their feet” on different sides of the carpet or have a relay race to 2 buckets labeled “Multiplication” and “Division.” The goal is for students to be actively engaged in deciding and explaining how you know when a word problem requires multiplication and when it requires division.



Fractions

MAFS.3.NF.1.1, MAFS.3.NF.1.2

Use blank board game templates or boards from the Go Math! Grab & Go kits to play fraction games. Let students choose a fun game piece such as colored bears, candy, Monopoly game pieces, or cut-out photographs of your students attached to small binder clips.



Time & Length

MAFS.3.MD.1.1

Add gestures to the time poem, “The little hand points to the hour, the big hand tells the minute. Did you know each hour has sixty minutes in it?” Model elapsed time on a large manipulative clock as students make it on their little clocks. As students gain confidence, call out a time, and have students work in teams or pairs to make the correct time on their clock.

Perimeter

MAFS.3.MD.4.8

Tape measure each side of school garden beds, desks, or books. Have students in teams or pairs find the perimeter of each object.

4th Grade

Place Value

MAFS.4.NBT.1.1, MAFS.4.NBT.1.2

Have pairs of students build numbers with blocks in the thousands. Use this as a basis for establishing solid understanding of comparing numbers. Build on this skill by utilizing larger numbers.



Addition, & Subtraction Within One Million

MAFS.4.NBT.2.4

Play music while students in pairs walk around the room viewing pictures of houses or cars they would like to buy with their friend. By the time the music stops, they should have picked 2 items. With their partner they write an addition and/or subtraction story and paste the pictures next to their writing. Students may add the 2 costs together or compare how much more one will cost. Alternative: show students different job positions of famous or important people with their salaries. Subtract to compare & write what salary and job they would like and why.

Multiply by 1-Digit Numbers

MAFS.4.NBT.2.5

Pick any multiplication fact families that students have trouble remembering & make a rhyme or rap, with actions/gestures, set to music. Add pictures & props to the video to aid memory. We made up rhymes & visuals for the 7 multiplication facts and recorded our movie. Students love to watch themselves, and each time they watch it, they more it will make its way into long-term memory. The sillier the visual, the more likely it will be that students remember. Acting out each visual helps even more.

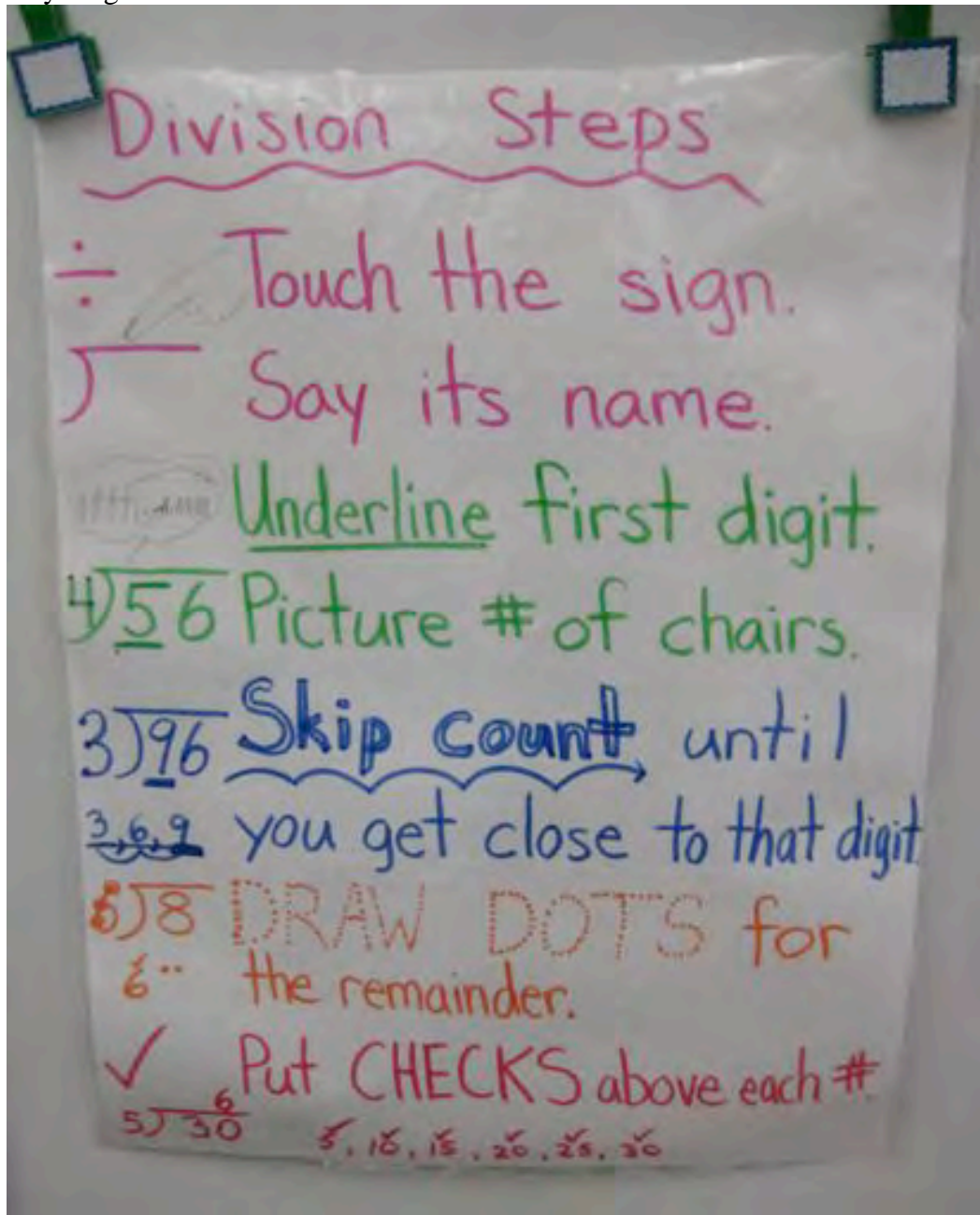
7 x 1, think of a bun (Visual: 7 pickles on a bun). 7 x 2, think of a shoe (a shoe stomping on 14 ants). 7 x 3, think of a tree (21 birds in the tree). 7 x 4, think of a door (your friend knocks on your door & surprises you with 28 dollars!). 7 x 5, think of a hive (35 bees chase you through the park!). 7 x 6, think about bricks (It took 42 bricks to build your house). 7 x 7, angels in heaven (49 angels going up into the sky). 7 x 8, think of a gate (56 bulls rush out of the gate!). 7 x 9, waiting in line (there are 63 people ahead of you in line, waiting to use the bathroom!).



To aid recall of the 8s facts, we used the following memory trick. Students associate familiar locations with each fact. For example, I cut out the multiples of 8 from large pieces of construction paper, each number being a different color. Around the room, in order, I taped the numbers in familiar locations, such as the door, the comfy library chair, on top of the computer, on the rocking chair, etc., until they have traveled around the room. Students eventually can close their eyes and visualize the different locations around the room with the associated multiple of 8. Even when they are at home, they can “walk around the room” in their minds and review the multiplication facts of 8.

Divide by 1-Digit Numbers
MAFS.4.NBT.2.6

Develop visuals and gestures for the steps of division. I adapt the sayings of TouchMath and add hand/body movements for students to perform with their partners or as a group, each time we do a division problem together. Students will soon internalize the steps. I often hear them “talking math” to themselves while they complete problems independently later. That’s when I know they’ve got it!



Factors, Multiples, & Patterns

MAFS.4.OA.2.4

A quick, no-prep team game is to draw a tic tac toe board on the white board with dry erase markers. Divide your group into 2 teams. In each tic tac toe square, write a review problem such as a number for which students will have to name a factor or multiple, or a short number pattern with a missing number for students to figure out. If the student (or pair of students), gets the correct answer, they earn an “X” or “O” for their team. 3 in a row wins the game. We also play a family feud style review with divisibility rules and factors.



Relate Fractions & Decimals

MAFS.4.NF.3.5, MAFS.4.NF.3.6, MAFS.4.NF.3.7, MAFS.4.MD.1.2

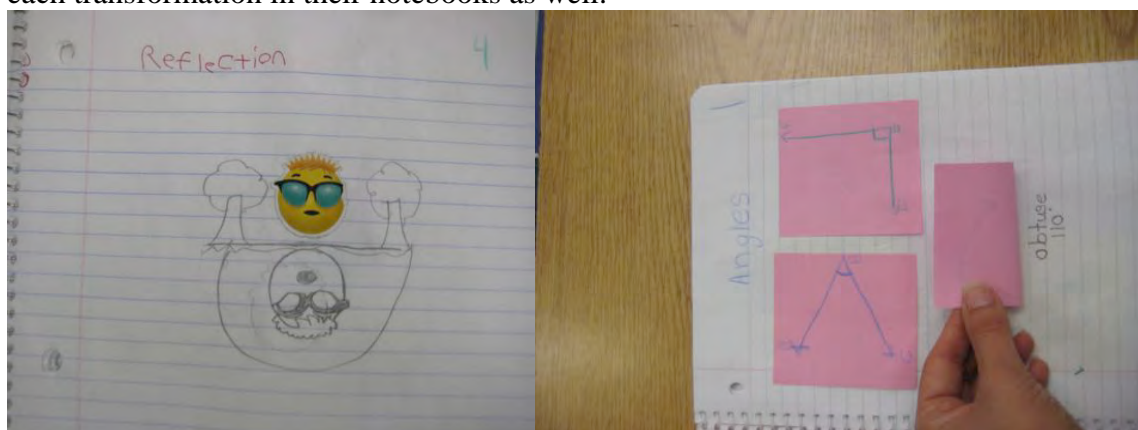
In their math notebooks, we kept a table of contents for each new skill, with a progress chart glued on the back cover. For the lessons on relating decimals, fractions, and percents, I printed out color visual charts with pictures of real money (something students care about!), so they could relate pennies to hundredths, dimes to tenths, and quarters to fourths. Everyday, they practiced matching different decimals with fractions, referring back to their notebooks for support. I give them 5-question quizzes occasionally, and every time we talk about their scores as a percent related to fifths (1 out of 5 is 20% correct, 2 out of 5 is 40%, etc.). This repetition and relating it to something they care about... their quiz grade!... helps them understand and remember these skills.



Angles & Transformations

MAFS.4.MD.3.5, MAFS.4.MD.3.6

Have students draw a right, obtuse, acute, and straight angle on sticky notes and stick them in their math notebooks. Under each sticky, they write the name & degree of each angle. Students enjoy reviewing/studying their colorful, interactive notes, quizzing themselves & each other to see if they remember what's under the sticky. Also, have students act out each angle (with their arms) in front of the class with their arms and have other students guess. Make it even more multisensory by giving them memory tricks, like saying “acute” in a cute, little voice because it’s an angle smaller than 90 degrees & saying “obtuse” in a huge, deep voice because it’s bigger than 90 degrees. When you form your arms to make a right angle, it can look like a capital L, so they can remember, L like left & left goes with right. To teach transformations, students take turns acting out reflections, rotations, and translations. They choose a sticker they like and draw each transformation in their notebooks as well.



For a fun review game, have students answer questions for their team with family feud style buzzers, or throw a bean bag into a bucket (bozo buckets), with increasingly difficult questions in buckets farthest away, or play project a Jeopardy game from a free online template. For a quick review BEFORE a lesson, try “pop up.” Have students “pop” up out of the seats (just a few inches so as to be quick) if they agree with a statement. Then call on one of the students to explain why they agree or disagree, using math vocabulary and critical thinking. Other variations could be to wave their hands in the air, touch their nose, or “strike a pose,” if they agree, stay frozen if they disagree. For example, a review statement would be “An acute angle could be 100 degrees.” True or False?

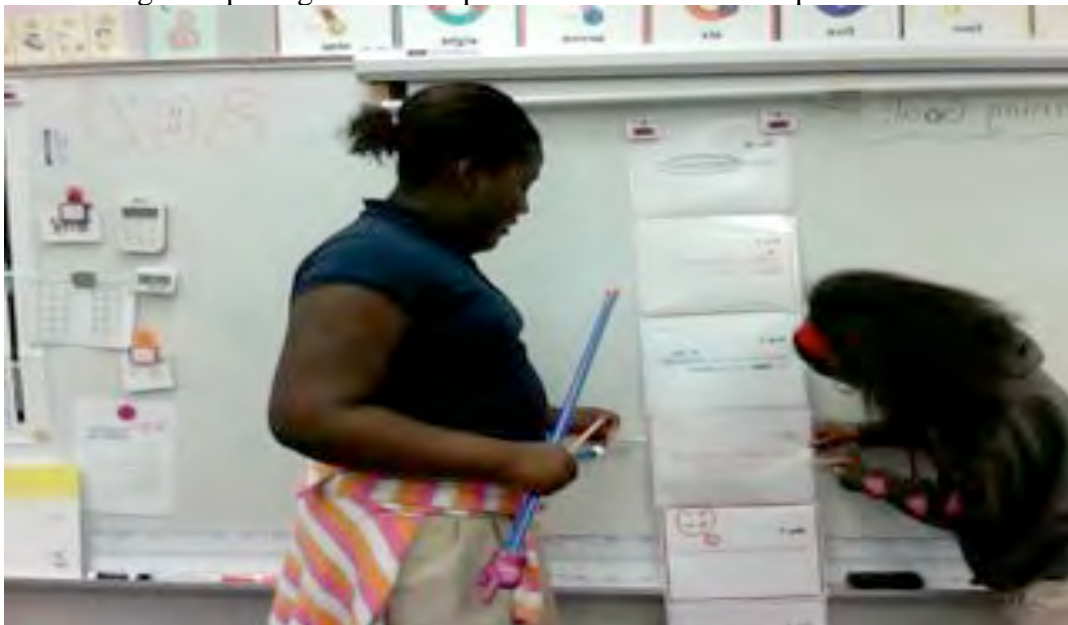
5th Grade

Division

MAFS.5.NBT.2.6

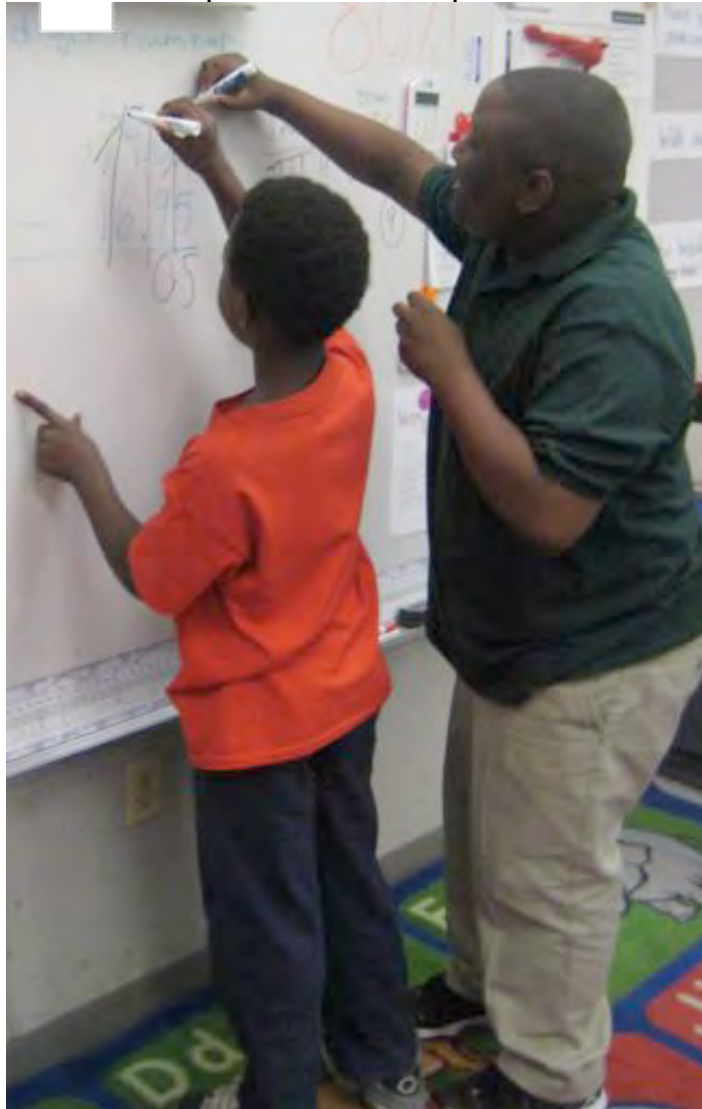
After teaching the divisibility rules, label buckets with different categories such as “divisible by 2,” “divisible by 5,” etc., and write 2-5 digit numbers on index cards. With partners, have students sort index cards into the correct bucket. You can also play this as a relay race game and use only 2 buckets, “divisible by 3,” “NOT divisible by 3,” etc. Another variation is to write numbers on sticky notes and have students sort numbers on large chart paper around the room or on the white board under the correct divisibility rule.

When solving division word problems, teach students the roles of reciprocal teaching. In the beginning, offer a lot of support as students practice the roles of reader, clarifier, questioner, and summarizer. All students must visualize, discuss, model/draw/act out, and record the problem and their work, with the support of their group. Each student must be able to explain the group’s answer and justify its reasonableness. With each problem, I guide students through the 7 steps of problem solving that I put on laminated cards on the board. As students gain independence, I have them work in groups or pairs, as I guide & support them as needed. To help them internalize the steps and make sure they get used to checking their work and proving the reasonableness of their answers, I assign one person on each team to be in charge of moving their clip (clothespins with their names on them) after they’ve completed each step. This helps their confidence, independence, problem solving skills, as well as their social skills, as they persevere in solving challenging math problems in an engaging way. To make the word problems more interactive, I cut out the H.O.T. problems or practice test questions and glue one on an envelope. I will put the answer inside on an index card, so that the activity can be self-checking. Students are always excited when they open up their envelope to find they got the correct answer. They love to be in charge of opening that envelope... like there is a secret prize inside!



Decimals
MAFS.5.NBT.2.7

Cut out newspaper ads of things students like such as food, shoes, tablets, iphones, etc. Type out multi-step (addition & subtraction) word problems and glue each problem on the back of the envelope. Glue the ad on the front. Put the answer on an index card inside the envelope. Don't let them peek! If you need to, seal the envelopes. Let students pick the preferred items they'd like to buy, and have them solve the problem with their partners.



Ordered Pairs

MAFS.5.A.G.5.1.1, MAFS.5.G.1.2

Use painter's tape to place the first quadrant of the coordinate plane tape on the floor. Have partners take turns picking a card with an (x,y) coordinate pair on it and the other person has to walk to the location on the grid. Partners can also act out word problems such as finding the midway points and finding the points to make a particular quadrilateral.



Volume

MAFS.5.MD.3.3, MAFS.5.MD.3.4, MAFS.5.MD.3.5

Use gestures to aid memory of different formulas. Have students fill in a rectangular prism (a shoebox) with little cubes to demonstrate volume (cubic units) and have students cover it with little square stickers to show surface area (square units). With partners, have students measure real objects around the school and find the area or volume. To practice surface area, bring in boxes of different sizes and have students work in teams to measure each side and find the surface area. I put the answer inside each box so it's a bit more exciting to discover if they are correct!



All grades:

Share the teaching.: Put students in charge of leading a reteach/review of a concept taught. This gets students engaged, allows them to be out of their seats, and take leadership. Step in as needed.

Use the carpet: Even 5th graders like to sit on the carpet or on stability balls and comfy chairs. Make these a part of your classroom environment. When students are comfortable, they're better able to learn.

Brain Breaks: When students get frustrated and have been working hard on a difficult lesson, we take a "Brain Break." This can also be used as a reward for a review game. Students can choose a stick with a quick movement activity to lead for the whole class. This is a fun way to re-energize and release stress. I also, as a reward, let students earn minutes of dance time, letting the class leader choose the Pandora station on my laptop (jazz, Kidz Bop, Spanish guitar, instrumental hip-hop, etc.).



Adaptation ideas



Special Programs (Students with Intellectual Disabilities or Autism Spectrum Disorder) Adaptations:

Identify your students' desired reinforcers and use them daily to increase motivation. Develop strong number sense and basic computation skills by creating multisensory math lessons with TouchMath kits or make your own with project materials. Purchase fun manipulatives to make math both concrete and meaningful. Use photos and names of students in math word problems to focus students' attention and encourage them to make real-world connections.

General Education Elementary Adaptations:

Use Whole Brain Teaching techniques to increase engagement of students during whole group instruction. Think of gestures for each math skill to be taught. Teach the whole class the gesture, practice it with the whole group, then have partners reteach each other. Develop multisensory math centers using math sorts and games. Play students versus teacher with small teams. Create math chants/rhymes and add music to make short videos of a skill.

Gifted Elementary Adaptations:

Have students create math games, real-world projects, and personalized word problems. Use reciprocal teaching strategies in small group instruction while other students are working on independent work or math centers. In small group, assign students the role of Leader, Questioner, Clarifier, Visualizer, and Evaluator. As students gain confidence, allow them to take more responsibility until they are able to lead the group themselves. Social interaction increases engagement and learning, so put students in charge!

Middle and High School:

Create buy-in with older students by tying in real-world applications and connecting skills to future careers. Use student interests to develop special projects using needed math skills.

Cross-Curriculum:

Think of how you could incorporate more physical movement (gestures, role-plays, games, "voting with your feet") and emotional connection (friendly competition, reciprocal teaching groups, personal meaning) across all subject areas including Reading, Writing, Social Studies, and Science.

Evaluation & Student Assessment



To evaluate the effectiveness of my programs, I have students keep their own progress chart and goals in their folders or notebooks. Two individual progress charts are attached. On the first one, I write the standard or skill in the long vertical boxes at the bottom and allow the students to color in the small boxes to show their accuracy (8 out of 10, 80%, etc.). In addition, we write their pre-test scores on the left cover of their notebooks and their goal scores on the right. Every week, I try to meet with them to do a quick reflection on their progress. I try to encourage my students to take ownership of their learning by celebrating individual growth. I also allow them to personalize their folders/notebooks by choosing their favorite stickers, pictures and/or quotes to decorate with, which helps them feel valued in my classroom.

To evaluate and reflect on my own efforts to build a positive classroom full of active learners, I like to use the checklist by Jane Bluestein in *Clip & Save Checklist: Creating an Emotionally Safe Classroom*. I adapted the teacher self-evaluation checklist that I think is useful here. Rate yourself at the beginning and end of each quarter or year to reflect on how well you are incorporating movement and positive emotions into your instructional practice.

Teacher Self-Evaluation

Always – 3

Sometimes – 2

Rarely- 1

Never – 0

- _____ I provide opportunities for success to each child in the classroom.
- _____ I offer students a variety of ways to demonstrate their knowledge.
- _____ I try to build positive social behaviors and character skills in class.
- _____ I accommodate a variety of interests and motivators in my lessons.
- _____ I plan for tactile, kinesthetic, visual, verbal, and auditory learners.
- _____ I make sure kids have ample opportunities to move their bodies.
- _____ I avoid using humiliation, sarcasm, and anger in dealing with students.
- _____ I honor students' needs for respect, attention, and motivation.
- _____ I model standards of behavior and language that I expect.
- _____ I sometimes let students create or adapt assignments to make them personally meaningful.
- _____ I motivate through access to positive outcomes, rather than avoidance or fear of negative outcomes.
- _____ I respect students' affective needs and am committed to listening and supporting their feelings and problem-solving skills in positive ways.

_____ Total Score

Notes / Future Goals: _____

Progress Monitoring Data Sheet

Math Goal 1:

Date:					
P.M. Tool					
Accuracy					

Math Goal 2:

Date:					
P.M. Tool					
Accuracy					

Math Goal 3:

Date:					
P.M. Tool					
Accuracy					

Notes: _____

Student Pre / Post Self-Assessment

Name: _____

Date: _____

Directions: Please rate on a scale of 0 to 4 how you feel about each statement.

Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
I am good at math.	0	1	2	3
I can solve math problems.	0	1	2	3
I like math.	0	1	2	3
Math is useful to me.	0	1	2	3
I enjoy doing math with others.	0	1	2	3

Collaborative Group Evaluation

Name: _____

Date: _____

Skill	Needs Improvement 0 points	Proficient 1 point	Exceptionally Impressive 2 points
On task	Talked about something unrelated to math work, wasted time, didn't finish.	Stayed on task most of the time. Needed one reminder from teacher. Finished on time.	Stayed focused on math work the entire time, with no reminder from teacher.
Respect	Argued, caused disruptions, interfered with other groups, loud, put someone down.	Used quiet voices. Were helpful to each other. Needed one reminder from teacher.	Worked quietly with no teacher reminders. Encouraged each other. Offered help to group members.
Cooperation	Didn't take turns, didn't listen when group member was speaking, was bossy.	Took turns. Listened to each other. Shared the work load equally. Needed one teacher reminder.	Solved problems and worked together without teacher help or distracting others.
Work	Rushed, made careless mistakes, didn't follow directions, didn't do the work.	Worked carefully. Checked work. Followed directions. Needed one reminder from teacher.	Extra effort put into work. Double-checked work without teacher reminder.
Individual Contribution	Didn't work well with others. Didn't add anything positive to the group. Copied off others.	Helped others. Added to the group's work. Needed one reminder.	Did own share of work & helped others stay on track. Needed no teacher help.

Total Points= _____

Scale: 0- 4 Unacceptable

5 – 7 Proficient

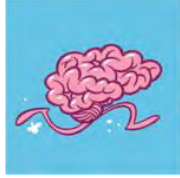
8 – 10 Exceptional

Teacher Comments/Ways to improve:

Program Evaluation Plan

Goals	Student Activities Related to Goal	Performance Outcomes	How Outcomes will be Measured	Person Responsible	Time Frame
<p>To increase students' math skills</p> <p>To improve students' ability to work collaboratively</p> <p>To increase students' enjoyment & confidence in math</p>	<p>Infuse physical movement and/or emotional connection into every math lesson</p>	<p>At least 80% of students will increase their overall math score by at least one grade level</p> <p>At least 80% of students will perform proficiently as members of a team</p> <p>At least 80% of students will increase their confidence in and enjoyment of math</p> <p>Teacher will score at least 30 points on post self-evaluation</p>	<p>Grade equivalency as measured by KeyMath3 Assessment</p> <p>Rated as "Proficient" as measured by Teamwork Rubric by end of school year</p> <p>Rated by student self-assessment pre & post project implementation</p> <p>Rated by teacher self-evaluation post project</p>	<p>Teacher</p>	<p>Pre-test & self-assessments administered in August – September</p> <p>Post-test & self-assessments administered in April - May</p>

Technology



You may use interactive whiteboards, online game templates, online scoreboards, online timers for games, online buzzers, and response systems to add motivation and engagement in your instruction. In my classroom, I use an LCD projector to show videos, animated lessons, or pictures of math in real life situations, such as the Egyptian pyramids when we study 3-D solids. I use laptops for students to access their i-Ready Diagnostic and Instruction licenses for math. I use i-movie to record and add instrumentals to our math chants and rhymes. I use Photo Booth to take pictures and videos of students performing different skills, teaching math gestures with the steps or strategies they've been learning. I use Pandora Radio while they are doing independent work or as a reward or for a "brain break."

Resource List



Websites:

cooperative learning rubrics:

<https://www2.uwstout.edu/content/profdev/rubrics/elemteamworkrubric.html>

<https://www2.uwstout.edu/content/profdev/rubrics/primaryteamworkrubric.pdf>

i-ready.com (license fee required)

jeopardylabs.com (free online jeopardy template)

teacherspayteachers.com

youtube.com

pinterest.com

(Search: Whole Brain Teaching, Reciprocal Teaching, Interactive Notebooks, Lapbooks)

Curriculum / Programs:

Moving with Math

TouchMath

Hands On Equations

Singapore Math

Free Stuff!

<http://browardedfoundation.org/what-we-do/tools-for-schools-broward/schedule-appointment>

Broward Education Foundation's "free teacher store" – Tools for Schools Broward
Contact your school's liaison for your username & password to set up a shopping trip appointment!

Craigslist.org (click on "FREE")

Freecycle.org

Possible Budget Items



On Cloud Nine – Number Line, Plastic	\$55.95	Ganderpublishing.com
On Cloud Nine – Cubes	\$29.95	Ganderpublishing.com
Learning Resources Answer Buzzers	\$14.92	Amazon.com
Chart Tablet	\$8.99	Nationalschoolproducts.com
Wilson Jones Binder	\$2.89 each	Office Depot
Scented stickers, pencils, markers, etc.	\$4.99 & up	Everythingsmells.com
Color Ink Cartridge	\$25.00 & up	Office Depot
TouchMath Workbooks	\$10.00 each	Touchmath.com
TouchMath Kits	\$228.00 each	Touchmath.com
TouchMath Number Cards	\$19.00 (set of 10)	Touchmath.com
TouchMath Desktop Touchlines	\$19.00 (set of 24)	Touchmath.com
TouchMath Texture Cards	\$99.00	Touchmath.com
ScotchBlue Painter’s Tape, Large	\$6.73	Home Depot
Sensory items (wobble cushions, fidgets, stability balls, pointers)	\$2.79 & up	Therapyshoppe.com

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