Grade 3 Suggested Activities and Supplies to Support Mathematics Education

Below are activities, lessons, parent resources and literature that can be used to enhance and/or support 3rd grade math instruction in the classroom. These activities use hands on concrete models to support conceptual understanding of the five domains. The activities take students from the concrete model to representational and the abstract understanding of the Florida Standards. They are written as a menu of options you may choose from dependent on the needs of your students.

Operations and Algebraic Thinking

In Grade 3, instructional time should focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes.

Cluster 1: Represent and solve problems involving multiplication division

Cluster 2: Understand properties of multiplication and the relationship between multiplication and division

Cluster 3: Multiply and divide within 100

Cluster 4: Solve problems involving the four operations, and identify and explain patterns in arithmetic

A bibliography of children's literature with a focus on multiplication is provided, which can be integrated so that students can connect through literature.

1. Sea Squares, Joy Hulme
2. The Grapes of Math, Greg Tang *
3. Each Orange Had 8 Slices, Paul Giganti, Jr. and Donald Crews *
4. The Hershey's Multiplication Book, Jerry Pallotta
5. The Lion's Share, Matthew McElliot
6. The Best of Times, Greg Tang
7. 7 x 9 = Trouble, Claudia Mills
8. Amanda Bean's Amazing Dream, Cindy Neuschwander *
9. 2 x 2 = Boo!, Loreen Leedy
10. Math Attack!, Joan Horton & Krysten Brooker
11. The King's Chessboard, David Birch & Devis Grebu
12. Ten Times Better, Richard Michelson
13. Divide and Ride, Stuart Murphy
14. One Hundred Hungry Ants, Elinor Pinczes
15. One Hungry Cat, Joanne Rocklin & Rowane Murphy

* This literature is referenced in a lesson below.

Parent Resources **How to Teach the Multiplication Tables to Your Child** http://www.wikihow.com/Teach-the-Multiplication-Tables-to-Your-Child **Using Arrays to Multiply** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/126354 **The Multiplication Game** http://www.cpalms.org/Public/PreviewStandard/Preview/5361	

Introduction to Multiplication using Literature	http://www.cpalms.org/Public/PreviewResource/Preview/22401 This lesson plan can be used to introduce the concept of multiplication to students through the use of literature. The story *Amanda Bean's Amazing Dream* is used to demonstrate the different ways to count items and how multiplication can make that process much faster. **MAFS.3.OA.3.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.
Amazing Arrays	http://www.cpalms.org/Public/PreviewResource/Preview/26760 This is a hands-on lesson for introducing and practicing building arrays to create models that represent the distributive property of multiplication, and then using those arrays to draw models of the equations they represent. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.OA.3.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations. **MAFS.3.OA.2.5:** Apply properties of operations and strategies to multiply and divide

Skip Counting to Multiply (2's, 3's, 5's and 10's)	http://www.cpalms.org/Public/PreviewResource/Preview/73399 Students will build a conceptual understanding of multiplication by creating a hundreds chart, using different colors to assist them with skip counting by 2, 3, 5 and 10. Students will discuss; "How many groups of (2, 3, 5 and/or 10)?" are in each number. **MAFS.3.OA.3.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations. **MAFS.3.OA.1.3:** Use multiplication and division within 100 to solve work problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
Making Sense of Multiplication to Build Fluency of 6's, 7's, 8's, and 9's	http://www.cpalms.org/Public/PreviewResource/Preview/73406 This lesson will help students multiply numbers with factors of 6, 7, 8, or 9 through decomposing numbers in an array and applying the distributive property. Many times, these factors are difficult for students to recall from memory. Teaching students how to use an array can give them a visual representation of the final product. This visual can also help students to make the connection that multiplying whole numbers is a sum of equal groups. Decomposing the numbers and using the distributive property is a strategy for students to use who are having trouble solving these higher factor multiplication facts.

	Use Graph paper to show the arrays – concrete to representational. **MAFS.3.OA.3.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.
All About Multiplication	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23319 This four-lesson unit from NCTM's Illuminations has students explore several meaning and representations of multiplication (number line, equal sets, arrays, and balanced equations). Other multiplication topics covered include: the commutative (order) property, the results of multiplying by 1 and 0, and the inverse property. Students will write and solve multiplication story problems, and convert word problems into equations. **MAFS.3.OA.1.1:** Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. **MAFS.3.OA.3.7:** Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division or properties of operations.

Multiplication – It's in the Cards: Looking for Patterns	http://www.cpalms.org/Public/PreviewResource/Preview/23078 This lesson has students using a 0-99 grid paper to skip count in multiples of two, three, five and ten. Then, students are given 3 crayons to color in the twos in red, the threes in yellow, and fives in blue. This will result in multiples of sixes being orange, tens being purple, and fifteens being green. **MAFS.3.OA.4.9:** Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. **MAFS.3.OA.1.1:** Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each.
How Many Circles? How Many Stars?	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/73250 How many Circles? How many Stars? is an activity that will give students a visual representation of multiplication and repeated addition. It will also help students see multiplication as the combining of equal-size groups that can be represented with a multiplication equation. **MAFS.3.OA.1.1:** Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each.

Apples, Oranges, and Bananas of Math?	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1052 In this lesson, the students will work in independently or in small groups to write their own math riddles around the concepts of multiplication. The teacher will use the book, *The Grapes of Math* by Greg **MAFS.3.OA.1.1:** Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. **MAFS.3.OA.1.3:** Use multiplication and division within 100 to solve work problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem. Tang, to support this lesson.
Cheezy Arrays	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/73412 This lesson is a hands-on activity that includes multiplication using arrays. The lesson also serves as a great transition from repeated addition to multiplication. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.OA.1.1:** Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each.

	MAFS.3.OA.1.3: Use multiplication and division within 100 to solve work problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
Cookies for All	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/45560 This lesson allows students to use everyday objects in order to understand equal shares. The lesson uses "The Doorbell Rang" by Pat Hutchins to engage students during the lesson and to make a connection by using literacy in mathematics. **MAFS.3.OA.1.3:** Use multiplication and division within 100 to solve work problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
Discovering the Mystery Factor Through Arrays	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/73450 Students will begin with the use of manipulatives to solve for unknown factors by building arrays. They will progress to drawn models as mastery is shown with manipulatives. ***Use Graph paper to show the arrays – concrete to representational.***

	MAFS.3.OA.1.4: Determine the unknown whole number in a multiplication or division equation relating three whole numbers.
Each Orange Had 8 Slices: Multiplying Equal Groups	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/73278 Students will learn how to represent and count equal groups through the use of literature and situational story problems. Using the story Each Orange Had 8 Slices, students will use manipulatives to create arrays to assist calculation of equal groups. Students will learn to write corresponding addition and multiplication sentences for the arrays. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.OA.1.1:** Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each.
Giddy Up, Round Up: Relating Division to Multiplication	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/49479 In this lesson, students will learn to solve division problems by relating them to multiplication facts. Practice materials focus on the 6's and 8's multiplication facts. **MAFS.3.OA.1.4:** Determine the unknown whole number in a multiplication or division equation relating three whole numbers.

Make Your Way With Arrays	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/29450 This lesson walks the students from representational to the abstract very nicely! Students will solve multiplication and division word problems by drawing arrays and writing the related equation. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.OA.1.3:** Use multiplication and division within 100 to solve work problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.
The Array Frame, your best friend	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/72733 In this lesson, students will learn to use the structure of array frames to build familiarity and fluency with the array as a tool. Students will solve several multiplication word problems using the array as a representation. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.OA.1.3:** Use multiplication and division within 100 to solve work problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.

Measurement and Data

Cluster 1: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects

Cluster 2: Represent and interpret data

Cluster 3: Geometric measurement: understand concepts of area and relate area to multiplication and to addition

Cluster 4: Geometric measurement: recognizing perimeter as an attribute of plane figures and distinguish between linear and area measures

Parent Resources

Reading the exact minute on a clock

http://www.cpalms.org/Public/PreviewResourceUrl/Preview/80551

Solve elapsed time word problems using a number line

http://www.cpalms.org/Public/PreviewResourceUrl/Preview/126481

Time – Math Clocks (virtual)

http://www.cpalms.org/Public/PreviewResourceUrl/Preview/53965

A bibliography of children's literature with a focus on measurement and data is provided, which can be integrated so that students can connect through literature.

1. Tiger Math, Ann Whitehead Nagda & Cindy Bickel
2. Tally O'Malley, Stuart Murphy
3. The Great Graph Contest, Loreen Leedy
4. The Dog is a Paw a Foot?, Kris Hirschmann
5. Inch by Inch, Leo Lionni
6. Jim and the Beachstalk, Raymond Briggs
7. Measuring Penny, Loreen Leedy
8. Millions to Share, David, Schwartz
9. Just a Minute, Teddy Slater
10. What Time is it, Mr. Crocodile?, Judy Sierra

How Big? (Constancy of Volume) http://www.cpalms.org/Public/PreviewResourceUrl/Preview/53925 **Weighing In** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/1411 **Geoboard** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/54187	
Area: Add or Multiply?	http://www.cpalms.org/Public/PreviewResource/Preview/73707 This lesson is designed to connect the operation of multiplication to the concept of area. It begins with a review of counting squares in a rectangle to find the area then gradually moves to multiplying the sides**.** Finally, students will determine dimensions based on the area of the rectangle. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.MD.3.7:** Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side length by tiling it, and show that the area is the same as would be found by multiplying the side lengths b. Multiply side lengths to find areas of rectangles with whole-

	number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
From Arrays to Area	http://www.cpalms.org/Public/PreviewResource/Preview/73287 Students will be asked to use different strategies to figure out the area of rectangles and use real-world experiences. Students progress from using tiles and array models, using the distributive property of multiplication, to the use of area models and finally to exploring the area formula. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.MD.3.7:** Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side length by tiling it, and show that the area is the same as would be found

	by multiplying the side lengths b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
All About Area	http://www.cpalms.org/Public/PreviewResource/Preview/73033 This lesson is an introductory lesson about area at the third grade level. It addresses only part *a* and *b* of this standard During this lesson students will are given a choice of different units (one smaller, one larger) in order to determine the area of a given rectangle. Efficiency is a goal of this lesson, as well as students understanding the concept of why we multiply the length times the width in order to determine the area.

	Use Graph paper to show the arrays – concrete to representational. **MAFS.3.MD.3.7:** Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side length by tiling it, and show that the area is the same as would be found by multiplying the side lengths b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
Area of Rectangles: A More Efficient Way	http://www.cpalms.org/Public/PreviewResource/Preview/29427 In this lesson, students will connect the concepts of counting each square unit and multiplying the side lengths to compute the area of a rectangle. They will extend this knowledge by computing a side

	length, when given only the area and the other side length. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.MD.3.7:** Relate area to the operations of multiplication and addition. a. Find the area of a rectangle with whole-number side length by tiling it, and show that the area is the same as would be found by multiplying the side lengths b. Multiply side lengths to find areas of rectangles with whole-number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and b + c is the sum of a × b and a × c. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.

Perimeter – It's a Linear Measurement	http://www.cpalms.org/Public/PreviewResource/Preview/30425 In this lesson, students are introduced to perimeter by finding the perimeter of polygons, and when given a perimeter, compute unknown side lengths. Students also draw rectangles with a specific perimeter and draw rectangles with a specific area but different perimeters. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.MD.4.8:** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
Same Perimeter, Different Area	http://www.cpalms.org/Public/PreviewResource/Preview/30633 In this lesson, students are presented with a problem that has them create rectangles with the same perimeter and prove that they have different areas. They calculate and record their data while noticing that there are several strategies for finding area. Students also search for relationships among the perimeters and areas and find which rectangle has the greatest area. ***Use Graph paper to show the arrays – concrete to representational.*** **MAFS.3.MD.4.8:** Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter

	given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
Hands on the Clock	http://www.cpalms.org/Public/PreviewResource/Preview/32941 This lesson gives students an opportunity to work with clocks to identify time intervals to the nearest minute. **MAFS.3.MD.1.1:** Tell and write time to the nearest minute and measure time intervals in minutes.
Your Time is Up!	http://www.cpalms.org/Public/PreviewResource/Preview/49901 Time Out! In this lesson, students will learn about elapsed time. Watching two short videos, using Promethean Planet flip charts, working with number lines, and working with an online tool will all be ways that the students learn about elapsed time. **MAFS.3.MD.1.1:** Tell and write time to the nearest minute and measure time intervals in minutes.
Do You Have a Minute?	http://www.cpalms.org/Public/PreviewResource/Preview/29699 In this lesson students use an analog clock to tell time to the nearest minute. Addition word problems involving time increments of minutes are solved by students using a number line.

	MAFS.3.MD.1.1: Tell and write time to the nearest minute and measure time intervals in minutes.
Introduction to Bar Graphs	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/30659 This lesson allows students to learn what bar graphs are used for, how to interpret the data presented, and how to organize their own data using bar graphs. **MAFS.3.MD.2.3:** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve on and two-step “how many more” and “how many less” problems using information presented in the scaled bar graphs.
This is My Country	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28446 Students will display the data (countries or states/districts of birth of third graders) on a bar graph. They will analyze and discuss the data using the terms "more than" and "less than." It is suggested the students use this same data to create a Pictograph and then compare the appearance of the two. **MAFS.3.MD.2.3:** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve on and two-step “how many more” and “how many less” problems using information presented in the scaled bar graphs.

Pizza, Pizza!: Pizza at Home	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/5613 This lesson has students surveying family members or others in their community in order to obtain data regarding their pizza preferences. Next they will get into groups (based on which of the three questions they chose to ask). They will then compare their results and decide how they are going to display their results in a graphical fashion. Students will individually complete their graphs and display them in different parts of the classroom, based on what type of graph they chose. From there, they will compare their data with one another. **MAFS.3.MD.2.3:** Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve on and two-step "how many more" and "how many less" problems using information presented in the scaled bar graphs.
Measure Up! Measuring to Make a Line Plot	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/46631 In this lesson, students will generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch and show the data by making a line plot. **MAFS.3.MD.2.4**: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot where the horizontal scale is marked off in appropriate units – whole numbers, halves or quarters.

Kick the Can	http://www.cpalms.org/Public/PreviewResource/Preview/70199 Students are asked to compare group observations, measure and estimate content of liquids, and prepare and participate in a range of conversations in order to design a method for choosing the healthiest beverage to supply to school children. **MAFS.3.MD.2.4**: Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot where the horizontal scale is marked off in appropriate units – whole numbers, halves or quarters. **MAFS.3.MD.1.2:** Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units

Numbers and Operations in Base Ten

Cluster 1: Use place value understanding and properties of operations to perform multi-digit arithmetic **Parent Resources** **This virtual manipulative will help the students to carry out the function of subtraction through the use of base ten blocks.** http://nlvm.usu.edu/en/nav/frames_asid_155_g_2_t_1.html?open.instructions **Examples rounding to the nearest 10 and 100** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/126508 **Place Value Number Line** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/30209 **Adding hundreds, tens, and ones** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/125606 **Base Blocks Addition**	**A bibliography of children's literature with a focus on place value and operations is provided, which can be integrated so that students can connect through literature.** 1. 365 Penguins, Jean Luc Fromental 2. The 512 Ants on Sullivan Street, Carol Losi & Patrick Merill 3. Math-terpieces, Greg Tang 4. Panda Math, Ann Nagda

http://www.cpalms.org/Public/PreviewResourceUrl/Preview/31462 **Base Blocks Subtraction** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/53693	
I'm Hot He's Not	http://www.cpalms.org/Public/PreviewResource/Preview/72736 In this lesson, students will demonstrate knowledge of Place Value to round whole numbers to the nearest 10 and 100 using the following strategies: Number line, number strip, Counting on and back. Students will be given three problems to demonstrate the relationship of nearness on a number line in three of the four strategies learned to round whole number to the nearest 10 or 100. **MAFS.3.NBT.1.1:** Use place value understanding to round whole numbers to the nearest 10 or 100

What Decade is it? – Rounding Whole Numbers to the Nearest 10	http://www.cpalms.org/Public/PreviewResource/Preview/34637 In this lesson, students will tap prior knowledge of place value and dimes to round numbers to the nearest 10. Students will use number lines with tick marks in increments of 10 to visualize the closer decade and then progress to using the place value of numerals to round to the tens place. Pairs of students will participate in a rounding activity using a number line. **MAFS.3.NBT.1.1:** Use place value understanding to round whole numbers to the nearest 10 or 100
Astounding Addition	http://www.cpalms.org/Public/PreviewResource/Preview/73416 In this lesson, students will explore and demonstrate various addition strategies within 1000. **MAFS.3.NBT.1.2:** fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
Jumping Beans: Adding with Open Number Lines	http://www.cpalms.org/Public/PreviewResource/Preview/49872 Students will use the open number line as a strategy to add within 1,000. The lesson begins with a formative assessment that evaluates students' strategies for efficiently solving addition sentences within 1,000. In order for students to have practice reinforcing the skill, students will complete the guided practice with open number lines, as well as playing the game, Jumping Beans. To conclude the lesson,

	students will evaluate a solution to an open number line problem. **MAFS.3.NBT.1.2:** fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction dents will evaluate a solution to an open number line problem.
Decoding Decomposing (Adding two 4-digit Numbers)	http://www.cpalms.org/Public/PreviewResource/Preview/46528 A lesson to teach why decomposing numbers can help with adding numbers to the thousands place. **MAFS.3.NBT.1.2:** fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction dents will evaluate a solution to an open number line problem.
Ten, Ten, We All Win!	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/73055 In this lesson, students will be able to multiply one-digit numbers by 10 in the range of 10-90 using strategies based on place value and properties of operations. **MAFS.3.NBT.1.3:** Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9 × 80, 5 × 60) using strategies based on place value and properties of operations.

Peace Love Baseball	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/73221 In this interactive lesson, the students will successfully multiply one digit whole numbers by multiples of 10. The students will also work collaboratively. **MAFS.3.NBT.1.2:** fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction dents will evaluate a solution to an open number line problem.

Number and Operations – Fractions

Cluster 1: Develop understanding of fractions as numbers

Parent Resources

Equivalent Fractions
http://illuminations.nctm.org/Activity.aspx?id=3510

Build a Fraction

http://www.cpalms.org/Public/PreviewResourceUrl/Preview/53004

Closest ½
http://www.cpalms.org/Public/PreviewResourceUpload/Preview/43345

Fraction Pieces
http://www.cpalms.org/Public/PreviewResourceUrl/Preview/54474

Fractions – Visualizing
http://www.cpalms.org/Public/PreviewResourceUrl/Preview/5304

Clipart ETC Fractions
http://www.cpalms.org/Public/PreviewResourceUrl/Preview/12598

A bibliography of children's literature with a focus on fractions is provided, which can be integrated so that students can connect through literature.

1. Fraction Fun, David Adler
2. Pizza Fractions, Jerry Pollatta
3. Whole-y Cow!, Taryn Souders
4. The Lion's Share, Matthew McElligott
5. Working with Fractions, David Adler
6. The Wishing Club, Donna Jo Napoli
7. Go Fractions, Judith, Stamper
8. Apple Fractions, Jerry Pallotta
9. Fraction Action, Loreen Leedy

Comparing Fractions on a Number Line and with Rectangular Models	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/126417 In this Khan Academy video four fractions are compared by plotting them on a number line and drawing models. *This is a teaching tool for the teacher as an example of how to bring your students through the concrete – representational – abstract model of teaching fractions.* **MAFS.3.NF.1.3:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Investigating Fractions with Pattern Blocks	http://illuminations.nctm.org/Lesson.aspx?id=1308 This lesson promotes problem solving and reasoning with fractions as students investigate the relationships between various parts and wholes. It also focuses on representation because students are given multiple opportunities to investigate the relative value of fractions. Students use communication skills as they work in pairs to articulate and clarify their understanding of fraction relationships. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
Fun with Pattern Block Fractions: Pattern Block Fractions	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23429 This lesson is designed to follow the lesson, Investigating with Pattern Blocks from Illuminations/ National Council of Teachers of Mathematics. Pairs of students use physical and virtual pattern blocks to identify fraction relationships. They also use the pattern blocks to define and identify numerators and denominators.

	MAFS.3.NF.1.1: Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
Fun with Pattern Block Fractions: Exploring the Value of the Whole	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23435 This lesson has students focus on the relationship of parts to a given whole. Students will work in pairs or groups, comparing the fractional relationship between different pattern blocks. Students should demonstrate understanding that the area of equivalent fractions is relative to what is defined as the whole. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
Fun with Pattern Block Fractions: Expanding Our Pattern Block Fraction Repertoire	http://www.cpalms.org/Public/PreviewResourceUrl/Preview/23434 This lesson increases the number of fractions students can represent by increasing the whole from one yellow hexagon (from a set of pattern blocks) to two, three, and four yellow hexagons. Students will identify

	fractions when a geometric shape is given as the whole and another smaller shape is given, and represent the fractional relationship of two shapes using written notation. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole.
Making our own fraction manipulatives!	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/32335 Students will make and use a set of fraction manipulatives including whole, halves, fourths, and eighths to represent parts of a whole. They may be used later to discover fraction relationships. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.

“What’s the part? What’s the whole?”	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/32876 In this lesson, students will correctly model and discover fractions and their whole relationships. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.
Fraction Folding- Part I	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/27912 In this lesson, students will build base knowledge of fractions as parts of a whole. They will differentiate examples and non-examples of fractions. They will label unit fractions. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole

Fraction Folding- Part 2	http://www.cpalms.org/Public/PreviewResource/Preview/30352 Students will use foldables to create and name fractions. Students will sing a song to learn the terms numerator and denominator. Students will begin to identify equivalent fractions. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole
Fun with Fractions	http://www.cpalms.org/Public/PreviewResource/Preview/30161 In this five lesson unit with overview from NCTM's Illuminations, student activities explore relationships among fractions through work with the length model. Students construct fraction strips and use fraction bars throughout the unit to make sense of basic fraction concepts, to compare fractions and order fractions and to work with equivalency in fractions. Specific learning objectives, a material list, an instructional plan, questions for the students, assessment options, extensions, and teacher reflections are given for each lesson. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.

	MAFS.3.NF.1.3: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record th results of comparison with the symbols >, <, or =, and justify the conclusions, e.g., by using a visual fraction model.
Fraction Name Art	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/49707 This lesson is designed to introduce and give students practice with the concept of fractions as part of a set. Students will use their classmates to create fraction statements, play a guessing game with color tiles, and finally write fractional statements about their own Name Art! **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.

Comparing Fractions with Brownies	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/31351 Students will demonstrate their understanding of comparing fractions with the same numerator through engaging problem solving using real-world application with brownies as a model. Students will be actively engaged in a fraction war game and "would you rather have" statements to solidify their understanding of comparing fractions with the same numerator. **MAFS.3.NF.1.3:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Comparing Fractions with Pizza	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/31355 In this lesson, students will demonstrate their understanding of comparing fractions with the same denominator through engaging problem solving with real-world application to pizza using a model. Students will be actively engaged in a Fraction War game and Would You Rather Have statements to solidify their understanding of comparing fractions with the same denominator. **MAFS.3.NF.1.3:** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Interactive Fraction Number Lines	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/27853 In this lesson students make models of fractions, including a human number line. Using a number line, students develop conceptual understanding of fractions. Students use the number line to represent and compare fractions less than one. The activities are engaging and include full participation/engagement of all students. The fractions are limited to positive fractions less than one with a denominator of 2 or 4 including 0 and 1 whole. **MAFS.3.NF.1.2:** Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0-1 as the whole and partitioning it into b equal parts. Recognize that each part has size 1/b and that the endpoint of the part based on 0 locates to number 1/b on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths 1/b from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line.
The Fraction String	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28938 In this lesson students create a model of a number line using string and adding machine tape. Students discover how to partition the string into equal sections, and name the fractional pieces, including fractions

	greater than 1. **<u>MAFS.3.NF.1.2:</u>** Understand a fraction as a number on the number line; represent fractions on a number line diagram. a. Represent a fraction 1/b on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size 1/b and that the endpoint of the part based at 0 locates the number 1/b on the number line. b. Represent a fraction *a/b* on a number line diagram by marking off *a* lengths *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.
Comparing and Placing Unit Fractions on a Number Line	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/28932 In this lesson, 3rd grade students will discover the value of fractions with a numerator of 1. The students will be able to compare the fractions and be able to correctly place them on a number line. **<u>MAFS.3.NF.1.3:</u>** Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., 1/2 = 2/4, 4/6 = 2/3). Explain why the fractions are equivalent, e.g., by using a visual fraction model.

	c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. *Examples: Express 3 in the form 3 = 3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of a number line diagram.* d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model.

Geometry

Cluster 1: Reason with shapes and their attributes	**A bibliography of children's literature with a focus on 2-dimensional shapes is provided, which can be integrated so that students can connect through literature.**
Parent Resources **In this lesson, you will find clip art and various illustrations of polygons, circles, ellipses, star polygons, and inscribed shapes**. http://www.cpalms.org/Public/PreviewResourceUrl/Preview/14637 **Match shapes and numbers to earn stars in this fractions game.** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/50628 **This virtual manipulative will allow the students to form different kinds of patterns. Learners will be able to describe parts in relation to a whole group. They will also be able to distinguish between characteristics of shapes.** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/54003 **This interactive Flash activity asks the user to sort shapes into a 2 by 2 chart, known as a Carroll Diagram, based on their properties. Properties used to sort include "quadrilateral" or "not quadrilateral" and "regular polygon" or "not regular polygon."** http://www.cpalms.org/Public/PreviewResourceUrl/Preview/30197	1. The Greedy Triangle, Marilyn Burns 2. Grandfather Tang's Story, Ann Tompert 3. The Silly Story of Goldie Locks and the Three Squares, Grace Maccarone 4. Shape by Shape, Suse MacDonald 5. If You Were a Polygon, Marcie Aboff 6. I Spy Shapes in Art, Lucy Micklethwait

Investigating Fractions with Pattern Blocks	http://illuminations.nctm.org/Lesson.aspx?id=1308 This lesson promotes problem solving and reasoning with fractions as students investigate the relationships between various parts and wholes. It also focuses on representation because students are given multiple opportunities to investigate the relative value of fractions. Students use communication skills as they work in pairs to articulate and clarify their understanding of fraction relationships. **MAFS.3.G.1.2:** Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. **MAFS.3.NF.1.1:** Understand a fraction 1/b as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size 1/b.
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It's All About the Shapes	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/31389 The teacher begins the lesson by reading *The Greedy Triangle* to the class to review shape names and attributes. The students create shapes using geoboards and follow up their exploration with Shape Concentration (a game played with a partner). The teacher gathers the students together (whole group) and

	completes a large Venn Diagram comparing two different shapes. The students write in their journals observations they discovered during the lesson along with creating four squares in their journals (1st square - write word, 2nd square-write definition including attributes, 3rd square - draw a picture, 4th square - draw an example). **MAFS.3.G.1.1:** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
Shape Up or Ship Out!	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/49868 In this lesson, students will sort two dimensional shapes according to their likenesses or differences. Students will enjoy doing the "drawing lines" activity. The students will learn how to classify these shapes according to shared attributes. They will use these properties to understand the world of geometry as they progress in their schooling. **MAFS.3.G.1.1:** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes

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Quadrilateral Quest	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/32949 In this lesson, students categorize shapes by comparing and analyzing the attributes of quadrilaterals. Students use shared attributes to establish categories. **MAFS.3.G.1.1:** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
Hoops for Quadrilaterals	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/72971 This is an interactive lesson that allows students to inquire, learn, and successfully categorize various quadrilaterals. They will love the challenge and have fun working collaboratively in the classroom.

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Pretzel Quadrilaterals	http://www.cpalms.org/Public/PreviewResourceLesson/Preview/37939 This lesson helps students to realize that shapes have attributes that define them. Students should also discover that a shape can have multiple names based on the definitions of that shape. **MAFS.3.G.1.1:** Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), and that the shared attributes can define a larger category (e.g., quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.

Supply List

Suggested class supplies for each student

Math Notebook/Journal
Math Folder
Scissors
Construction paper
Colored pencils
Pencils
Index cards
Place value charts
Blank hundreds charts
Number lines (can use string and index cards)
Number strips
(1 per 2 or 3 students) Egg cartons and small objects to show “groups of things”
Empty containers to show liquid volume (milk jugs, cans, jars, etc.)
Rulers

Operations and Algebraic Thinking

(class set) two colored circles
(class set) square tiles
graph paper
(class set) place value blocks
box of toasted O cereal
2 boxes of Cheeze Its
hundreds chart for each student

Number and Operations in Base Ten

(class set) place value blocks

Number and Operations – Fractions

(12) graduated cylinders (plastic)
(12) Tape Measurers
(6) Balance Scales
(6) meter/yard sticks
(1) Large Judy clock
(class set) Judy clocks
(class set) square tiles

Measurement and Data

(class set) geoboards and rubber bands
(class set) fraction bars
(class set) fraction circles
(class set) pattern blocks
(class set) relationship rods
(class set) two colored circles
(class set) square tiles

Geometry

(class set) tan grams
(class set) two colored square tiles
(class set) pattern blocks
(per 2-3 students) 2-D shapes