Third Grade Common Core Mathematics

Operations and Algebraic Thinking

Represent and solve problems involving multiplication and division.	
_____3.OA.1.Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7.*	I know that in multiplication, the x symbol means "groups of." So 5x3 means 5 groups of 3 things.
_____3.OA.2. Interpret whole-number quotients of whole numbers, e.g., interpret 56 ÷ 8 as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. *For example, describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.*	I can use division to find out how many objects are in one group. Ex. There are 15 cupcakes. If I put the cupcakes into 3 boxes, how many cupcakes will be in each box? I can use division as repeated subtraction to find out how many groups I can make. Ex. There are 15 cupcakes. If I put 5 cupcakes into each box, how many boxes will I need?
_____3.OA.3. Use multiplication and division within 100 to solve word 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.[1]	I can use many different strategies to figure out multiplication and division word problems. *tables, arrays, pictures, number lines, fact families, missing numbers 5x a=15
_____3.OA.4. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?*	I know that the = symbol means "the same as". I can use fact families and my knowledge that multiplication is the opposite of division to figure out missing numbers. When given 3 x ? = 30, I can think... • 3 groups of some number is the same as 30 • 3 times some number is the same as 30 • I know that 3 groups of 10 is 30 so the unknown number is 10 • The missing factor is 10 because 3 times 10 equals 30.

Operations and Algebraic Thinking

Understand properties of multiplication and the relationship between multiplication and division.	
_____3.OA.5. Apply properties of operations as strategies to multiply and divide.[2] *Examples: If 6 × 4 = 24 is known, then 4 × 6 = 24 is also known. (Commutative property of multiplication.) 3 × 5 × 2 can be found by 3 × 5 = 15, then 15 × 2 = 30, or by 5 × 2 = 10, then 3 × 10 = 30. (Associative property of multiplication.) Knowing that 8 × 5 = 40 and 8 × 2 = 16, one can find 8 × 7 as 8 × (5 + 2) = (8 × 5) + (8 × 2) = 40 + 16 = 56. (Distributive property.)*	I can understand and can use properties of multiplication and division. • 0 x 5 = 75x 0 = 0 (Zero Property of Multiplication) • 1 x 6 = 6 x 1 = 6 (Multiplicative Identity Property of 1) • 3 x 4 = 4 x 3 (Commutative Property) • 10 ÷ 2 = 2 ÷ 10 (these are not equal) I can decompose numbers to use the distributive property. *7 x 8 = ? I can branch 7 into a 5 and 2, and get the answer by multiplying 5 x 8 = 40 and 2 x 8 =16 and adding the two products (40 +16 = 56)
_____3.OA.6. Understand division as an unknown-factor problem. *For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8.*	I can use part-part-whole and fact families to solve a division problem. 32 ? 8
Multiply and divide within 100.	
_____3.OA.7.Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.	I have my multiplication and division facts memorized up to 10x10 and 100÷10.
Solve problems involving the four operations, and identify and explain patterns in arithmetic.	
_____3.OA.8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.[3]	I can solve two-step word problems using all four operations. I can use estimating and rounding to solve problems mentally.
_____3.OA.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.*	I can identify patterns between numbers in addition. I can identify patterns between numbers using an addition table. I can identify patterns between numbers in multiplication. I can identify patterns between numbers using an multiplication table.

Number and Operation Base 10

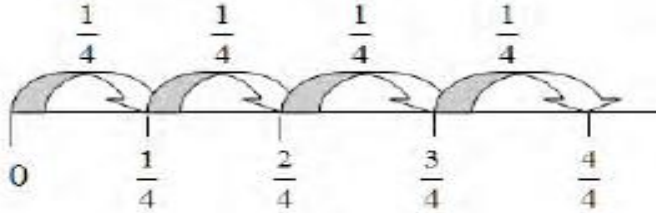| Use place value understanding and properties of operations to perform multi-digit arithmetic.[1]	
_____3.NBT.1. Use place value understanding to round whole numbers to the nearest 10 or 100.	I can use my understanding of place value to round numbers to the nearest ten or hundred. I can use a number line and a hundreds chart to round numbers.
_____3.NBT.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.	I can use many different strategies to solve addition and subtraction problems within 1000. I can explain how my answer is reasonable.
_____3.NBT.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.	I can multiply one digit numbers by multiples of 10. I understand place value when multiplying by tens. Ex. 50 x 4, I know this is 4 groups of 5 tens or 20 tens. Twenty tens equals 200.

Number and Operation Fractions

Develop Understanding of fractions as numbers. Grade 3 expectations are limited to fractions with denominators 2, 3, 4, 6, 8.)	
_____3.NF.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*.	I know that fractions must have equal parts. I know that a fraction can show parts of a whole and parts of a set. I know that when a whole is cut into equal parts, the denominator represents the number of equal parts. I know the numerator of a fraction is the count of the number of equal parts that are shaded or different from the other parts.
_____3.NF.2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. _____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. _____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.	I can use a number line to represent fractions.
_____3.NF.3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	I can compare fractions by looking at the size of the parts and the number of the parts. Ex. example,1/9 is smaller than 1/3 because when one whole is cut into 9 pieces, the pieces are much smaller than when One whole is cut into 3 pieces.
_____Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. _____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.	I can use a number line to figure out if two fractions are equivalent. I can use visual models (pictures) to figure out equivalent fractions. I can explain why fractions are equivalent using visual models.
_____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.*	I can write a whole number as a fraction. I know that a fraction is the same as division. Ex. 3/1 is 3 wholes divided into one group
_____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.	I can compare the size of two fractions with the same numerator or the same denominator. I know that I can only compare fractions when they are from the same whole. Ex. ½ of a large pizza is not the same as ½ of a small pizza

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Measurement-Data

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	
_____3.MD.1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.	I can tell time to the nearest minute. I can solve word problems about time to the minute.
_____3.MD.2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).[1] Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.[2]	I can measure objects using grams, kilograms, and liters. I can solve word problems about mass and volume.
Represent and interpret data.	
_____3.MD.3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. _For example, draw a bar graph in which each square in the bar graph might represent 5 pets._	I can correctly draw a picture graph. I can correctly draw a scaled bar graph. I can use a graph to answer one and two step word problems.
_____3.MD.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.	I can use a ruler to measure to the nearest inch, ½ inch, and ¼ inch. I can show my data on a line plot.
Geometric measurement- understand concepts of area and relate area to multiplication and to addition.	
_____3.MD.5. Recognize area as an attribute of plane figures and understand concepts of area measurement._ A square with side length 1 unit, called "a unit square," is said to have "one square unit" of area, and can be used to measure area._ A plane figure which can be covered without gaps or overlaps by _n_ unit squares has an area of _n_ square units.	I know that I can use a unit square to find the area of a plane figure.

Measurement-Data

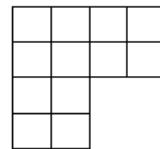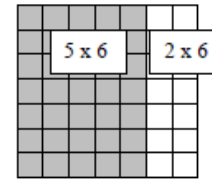|	
_____3.MD.6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	I can find the area of a plane figure by counting unit squares.
_____3.MD.7. Relate area to the operations of multiplication and addition. _____Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. _____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. _____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 $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. _____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.	I can find the area of a rectangle by tiling it or by multiplying the side lengths. I know that this is the same thing. I can find the area of a rectangle using real world math problems. I can use the distributive property to find the area of a rectangle. I can find the area of a rectilinear figure (a polygon that has all right angles) by breaking the figure apart and finding the area of each piece. Then I can add the area together. Break it apart 4x2=8 2x2=4 8+4= 12 square units
Geometric measurement -recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	
_____3.MD.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.	I can find the perimeter of polygons. I can find the perimeter of polygons when one side length is missing.

Geometry

Reason with shapes and their attributes.	
_____3.G.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.	I know that a quadrilateral is a closed shaped with four sides (square, rectangle, trapezoid, parallelogram, rhombus). I know that parallelograms include: squares, rectangles, rhombi, or other shapes that have two pairs of parallel sides. I can sort shapes based on their characteristics or attributes. I can draw shapes.
_____3.G.2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. *For example, partition a shape into 4 parts with equal area, and describe the area of each part as 1/4 of the area of the shape.*	I can partition (divide) a shape into equal fractional parts. I know that each of these parts have the same area. $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$ $\frac{1}{4}$