3rd Grade - Iowa Core - I Cans...

STANDARDS	I CANs....
Operations and Algebraic Thinking	Operations and Algebraic Thinking
Represent and solve problems involving multiplication and division.	**Represent and solve problems involving multiplication and division.**
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. (3.OA.1.)	I can understand multiplication as the product of whole numbers, such as 5 groups of 7 objects(5 X 7 = 35)
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. (3.OA.2.)	I can understand division as sharing objects equally, such as 32 objects in 8 groups(32 ÷ 8 = 4)
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. (3.OA.3.)	I can solve multiplication and division word problems within 100 using models and drawings.
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 = ?. (3.OA.4.)	I can find the unknown number in a multiplication and division number model. (8 X ? = 16, ? ÷ 5 = 6, ? X 7 = 42)
Understand properties of multiplication and the relationship between multiplication and division.	**Understand properties of multiplication and the relationship between multiplication and division.**

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5. Apply properties of operations as strategies to multiply and divide. 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.) (3.OA.5.)	I can understand and apply properties of multipliction and division. (commutative, associative, and distributive)
6. Understand division as an unknown-factor problem. For example, find 32 ÷ 8 by finding the number that makes 32 when multiplied by 8. (3.OA.6.)	I can use fact families to solve division problems.
Multiply and divide within 100	
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. (3.OA.7.)	a. I can use strategies to solve multiplication and division facts. b. I can quickly and correctly solve multiplication and division facts. (by the end of the year)
Solve problems involving the four operations, and identify and explain patterns in arithmetic.	
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.OA.8.)	a. I can use number sentences to solve two-step word problem using all four operations. b. I can use mental math and estimation to decide if my answer makes sense.
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. (3.OA.9.)	I can find and describe number patterns.

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Number and Operations in Base Ten	Number and Operations in Base Ten
Use place value understanding and properties of operations to perform multi-digit arithmetic.	**Use place value understanding and properties of operations to perform multi-digit arithmetic.**
1. Use place value understanding to round whole numbers to the nearest 10 or 100. (3.NBT.1.)	I can round numbers to the nearest to 10 or 100.
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. (3.NBT.2.)	I can correctly solve addition and subtraction problems within 1000.
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. (3.NBT.3.)	I can multiply a one-digit number with a two-digit number ending in zero.
Number and Operations—Fractions	Number and Operations—Fractions
Develop understanding of fractions as numbers. - (Limited to fraction with denominators of 2, 3, 4, 6, 8)	**Develop understanding of fractions as numbers. - (Limited to fraction with denominators of 2, 3, 4, 6, 8)**
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. (3.NF.1.)	I can understand and represent the numerator and denominator of a fraction.
2. Understand a fraction as a number on the number line; represent fractions on a number line diagram.	I can draw equal parts and label those parts on a number line for a fraction between 0 and 1.
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	
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. (3.NF.2.)	
3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size.	

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a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line.	I can recognize that if two fractions are the same size or are on the same location on a number line, they are equivalent.
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.	I can show and explain equivalent fractions using models.
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.	I can understand how whole numbers and fractions are equivalent(ex. 3 = 3/1, 4/1 = 4, 2/2 = 1)
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. (3.NF.3.)	I can compare two fractions with the same numerator or same denominator by size and can explain using models.

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Measurement and Data	Measurement and Data
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	**Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.**
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. (3.MD.1.)	I can tell and write time to the nearest minute and solve elapsed time word problems.
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, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem. (3.MD.2.)	a. I can measure and estimate liquid volumes and masses using gram(g), kilograms(kg), and liters(l). b. I can solve word problems involving mass or liquid volume within the same unit.
Represent and interpret data.	**Represent and interpret data.**
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. (3.MD.3.)	I can draw a scaled picture and scaled bar graph and can solve one- and two-step problems using the information shown.
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. (3.MD.4.)	I can measure lengths in inches and record that data on a line plot marked with whole numbers, halves, and quarters.
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	**Geometric measurement: understand concepts of area and relate area to multiplication and to addition.**

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5. Recognize area as an attribute of plane figures and understand concepts of area measurement.	I can understand that is area is made up of square units.
a. 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.	
b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units. (3.MD.5.)	
6. Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units). (3.MD.6.)	I can measure the area of by counting unit squares(tiling).
7. Relate area to the operations of multiplication and addition.	
a. 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.	a & b. I can understand the relationship between tiling a rectangle and using the operations of multiplication and addition to find the area of rectangles.
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.	c. I can use tiling to show how the distributive property can be used to find the area of a shape that has been divided into two rectangles. (ADD MODEL)
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. (3.MD.7.)	d. I can find the area of a shape that can be decomposed into rectangles by adding the areas of those rectangles.

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Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	**Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.**
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. (3.MD.8.)	I can solve real world problems involving perimeter and understand the relationship rectangles have between area and perimeter.
Geometry	Geometry
Reason with shapes and their attributes.	Reason with shapes and their attributes.
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. (3.G.1.)	I can categorize shapes by their attributes and draw them.
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. (3.G.2.)	I can divide a shape into parts with equal areas and label each part as a fraction.