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OPERATIONS AND ALGEBRAIC THINKING

REPRESENT AND SOLVE PROBLEMS INVOLVING MULTIPLICATION AND DIVISON

3.OA.A.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. For example, describe a context in which a total number of objects can be expressed as 5 x 7.

3.OA.A.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.A.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.A.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 x ? = 48, 5 = ? ÷ 3, 6 x 6 = ?

UNDERSTAND PROPERTIES OF MULTIPLICATION AND THE RELATIONSHIP BETWEEN MULTIPLICATION AND DIVISION

3.OA.B.5 - Apply properties of operations as strategies to multiply and divide. Examples: if 6 x 4 = 24 is known then 4 x 6 = 24 is also known (Communicative properties of multiplication). 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 30, or by 5 x 2 = 10, then 3 x 10 = 30 (Associative property of multiplication). Knowing that 8 x 5 = 40 and 8 x 2 = 16, one can find 8 x 7 as 8 x (5 + 2) = (8 x 5) + (8 x 2) = 40 + 16 = 56 (Distributive property).

3.OA.B.6 - Understand division as an unknown-factor problem. For example, find 32÷8 by finding the number that makes 32 when multiplied by 8.

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MULTIPLY AND DIVIDE WITHIN 100

3.OA.C.7 - Fluently multiple and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8x5=40, one knowns 40÷5=8) or properties of operations. By the end of Grade 3, know from memory all products of two 1-digit numbers.

SOLVE PROBLEMS INVOLVING THE FOUR OPERATIONS, AND IDENTIFY AND EXPLAIN PATTERNS IN ARITHMETIC

3.OA.D.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 estimate strategies including rounding.

3.OA.D.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.

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NUMBER AND OPERATIONS IN BASE TEN

USE PLACE VALUE UNDERSTANDING AND PROPERTIES OF OPERATIONS TO PERFORM MULTI-DIGIT ARITHMETIC

3. NBT. A. 1 - Use place value understanding to round whole numbers to the nearest 10 or 100.

3. NBT. A. 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. A. 3 - Multiply one-digit whole numbers by multiples of 10 in the range 10-90 (e.g., 9x80, 5x60) using strategies based on place value and properties of operations.

NUMBER AND OPERATIONS: FRACTIONS

DEVELOP UNDERSTANDING OF FRACTIONS AS NUMBERS

3.NF.A.1 - Understand a fraction 1/b as a quantity formed by 1 part when a whole is portioned into b equal parts: understand a fraction a/b as the quantity formed by a parts of size 1/b.

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MEASUREMENT AND DATA

SOLVE PROBLEMS INVOLVING MEASUREMENT AND ESTIMATION OF INTERVALS OF TIME, LIQUID VOLUMES, AND MASSES OF OBJECTS

3.MD.A.1 - Tell and write the 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.

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3.MD.A.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.

REPRESENT AND INTERPRET DATA

3.MD.B.3 - Draw a scaled picture graph and a scaled bar graph to represent a date 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.B.4 - Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show data by making a line plot, where the horizontal scale is marked off in appropriate units – whole numbers, halves, or quarters.

GEOMETRIC MEASUREMENT: UNDERSTAND CONCEPTS OF AREA AND RELATE AREA TO MULTIPLICATION AND ADDITION

3.MD.C.5 - Recognize area as an attribute of plane figures and understand concepts of area measurement.

A. A square with side length 1 unit, called a "unit square," has "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.C.5 - Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units.)

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GEOMETRY

REASON WITH SHAPES AND THEIR ATTRIBUTES

3.G.A.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.A.2 - Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For examples, 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.