Identifier	Poplar - Grade 3 - Mathematics	Introduced	Completed
3 M 1	**MATHEMATICAL PRACTICES**		
3 M 1.01	Makes sense of problems and persevere in solving them.		
3 M 1.02	Reason abstractly and quantitatively.		
3 M 1.03	Construct viable arguments and critique the resoning of others.		
3 M 1.04	Model with mathematics.		
3 M 1.05	Use appropriate tools strategically.		
3 M 1.06	Attend to precision.		
3 M 1.07	Look for and make use of structure.		
3 M 1.08	Look for and express regularity in repeated reasoning.		
3 M 2	**OPERATIONS AND ALGEBRAIC THINKING**		
3 M 2.01	Interpret products of whole numbers, e.g., interpret 5 x 7 as the total number of objects in 5 groups of 7 objects each. Example: Describe a context in which a total number of objects can be expressed as 5 x 7.		
3 M 2.02	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. Example: Describe a context in which a number of shares or a number of groups can be expressed as 56 ÷ 8.		
3 M 2.03	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by uisng drawings and equations with a symbol for the unknown number to represent the problem. (see glossary, table 1)		
3 M 2.04	Determine the unknown whole number in a multiplication or division equation relating three whol numbers. Example: Determine the unknown number that makes the equation true in each of the equations 8 x ? = 48, 5 = ? + 3, 6 x 6 = ?.		
3 M 2.05	Apply properties of operations as strategies to multiply and divide. (Note: Students do not need to use formal terms for these properties.) Example: If 6 x 4 = 24 is known, then 4 x 6 = 24 is also known. (Commutative Property of Mutliplication) 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= 20 = 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 M 2.06	Understand division as an unknown-factor problem. Example: Find 32 ÷ 8 by finding the number that makes 32, when multiplied by 8.		
3 M 2.07	Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division, e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8, or properties of operations.		
3 M 2.08	By the end of grade 3, know from memory all products of two one-digit numbers.		
3 M 2.09	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. (use cultural contexts; example: Determine the miles traveled on the Montana pow wow circuit and compute average gas mileage.) Note: This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order. (order of operations)		
3 M 2.10	Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. Example: Observe that 4 times a number is always even, and explain that 4 times a number can be decomposed into two equal parts.		
3 M 3	**MEASUREMENT AND DATA**		
3 M 3.01	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 M 3.02	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Note: Exclude compound units such as cm^3 and finding the geometric volume of a container. 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. Note: Exclude multiplication comparison problems - problems with notions of "times as much". (see glossary, table 1)		
3 M 3.03	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 more" and "how many less" problems using information presented in scaled bar graphs. Example: Draw a bar graph in which each square in the bar graph might represent 5 pets.		
3 M 3.04	Generate measurement data by measuring lengths using rulers marekd 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, and quarters.		

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3 M 3.05	Recognize area as an attribute of plane figues and understand concepts of area measurement.		
3 M 3.06	Recognize that 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.		
3 M 3.07	Recognize that 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 M 3.08	Measure areas by counting unit squares (square cm, square m, square in, square ft and improvised units)		
3 M 3.09	Relate area to the operations of multiplication and addition.		
3 M 3.10	Find the area of a rectangle with the whole number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.		
3 M 3.11	Multiply side lengths to find areas of rectangles.		
3 M 3.12	Use tilingto show in a concrete case that the area of a rectangle with whole number side lengths and b + c is the sum of a x b and a x c. Use area models to represent the distributive property in mathematical reasoning.		
3 M 3.13	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. (include cultural contexts; example: reservations lands, star quilts)		
3 M 3.14	Solve real world and mathematical problems involving perimeter of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles.		
3 M 4	**NUMBERS AND OPERATIONS IN BASE TEN**		
3 M 4.01	Use place value understanding to round whole numbers to the nearest 10 or 100.		
3 M 4.02	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 M 4.03	Multiply one-digit whole numbers by multiples of 10 in the range of 10-90, e.g., 9 x 80, 5 x 60, using strategies based on place value and properties of operations.		
3 M 5	**NUMBERS AND FRACTIONS**		
3 M 5.01	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 parts of size 1/b.		
3 M 5.02	Understand a fraction as a number on the number line; represent fractions on a number line.		
3 M 5.03	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.		
3 M 5.04	Represent a fraction a/b on a number line diagram by marking off lengths 1/b from 0. Recognize that the resulting interval has size 1/b and that its endpoint locates the number a/b on the number line.		
3 M 5.05	Explain equivalence of fractions in special cases, and compare fractions with reasoning about their size.		
3 M 5.06	Understand two fractions as equivalent if they are the same size, or the same point on a number line.		
3 M 5.07	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.		
3 M 5.08	Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Example: Express 3 in the form 3=3/1; recognize that 6/1 = 6; locate 4/4 and 1 at the same point of number line diagram.		
3 M 5.09	Compare two fractions with the same numerator of 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 M 6	**GEOMETRY**		
3 M 6.01	Understand that shapes in different categories, e.g., rhombuses, rectangles, etc., may share attributes (ex: having 4 sides) and that the shared attributes can define a larger category (ex: quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilatreals that do not belong to any of these subcategories.		
3 M 6.02	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. 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.		