3rd Grade Mathematics Scope & Sequence

Unit	Standard(s)/Outcome(s)/Topic(s)	Essential/Guiding Questions
Unit 1: Foundation of Multiplication, Division, and Area (Sept./Oct.)	3.OA.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. -describe a context in which a total number of objects can be expressed as 5 x 7. 3.OA.2: Interpret whole-number quotients of whole numbers. -For example, 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 equally into equal shares of 8 objects each. -describe a context in which a number of shares or a number of groups can be expressed as 56/8 3.OA.3: Use multiplication and division within 100 to solve word problems in situations involving equal groups, and arrays. - use drawings and equations with a symbol for the unknown number to represent the problem. 3.OA.5: Apply properties of operations as strategies to multiply and divide. -If 6 x 4 is known, then 4 x 6 = 24 is also known. 3.OA.7: 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 40/8=5) or properties of operations. -By the end of Grade 3, know from	• How does a number represent a group or unit? • How can multiplication/division be represented? • What is the relationship between multiplication and division? • How do patterns make math facts predictable? • How can we use mathematical properties to find and justify solutions to problems? • How does what we measure determine how we measure?

	memory all	

	products of two one-digit numbers. 3.OA.9: Identify arithmetic patterns (including patterns in the addition and multiplication table) and explain them using properties of operations. 3.MD.5: Recognize area as an attribute of plane figures and understand concepts of area and measurement. a. A square with 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.1: Tell and write time to the nearest minute 3.MD.3: Draw a scaled picture graph (and scaled bar graph to represent a data set of several categories. Solve one-and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs. 2.G.2: Partition a rectangle into rows and columns of same-size squares and count to find the total number of them. 3.MD.6: Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units). 3.MD.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	

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Unit 2: Addition and Subtraction/ Measurement (Oct./ Nov.)	3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100 3.NBT.2: Fluently add and subtract within 1000 using strategies and algorithms based on the following: - place value -properties of operations -the relationship between addition and subtraction 3.OA.7: 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 40/8=5) or properties of operations. -By the end of Grade 3, know from memory all products of two one-digit numbers. 3.OA.8: Solve two-step word problems. 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.MD.1: Measure time intervals in minutes. Solve	• How can mental strategies be used to add and subtract fluently? • How can numbers and measurements be combined and separated? • How can estimation help solve problems? • How can understanding the relationship between addition and subtraction help you perform multi-digit arithmetic? • How can understanding place value help you perform multi-digit arithmetic?

	word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram. 3.MD.2: Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l). Add and subtract to solve one-step word problems	• How does understanding the properties of operations help you perform multi-digit arithmetic? • How does what we measure determine

	involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with measurement scale) to represent the problem. 3.MD.3: (continue) 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.8: Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length	how we measure? • What drawings and equations can be used to solve this problem and why?
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Unit 3: Equal Partitioning and Naming Fractions (Nov./Dec.)	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. 3. NF.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 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.	• What is a fraction? • Why is it important to be able to use fractions in "real life'? • How does the size of the whole or set impact the relative value of the fraction named? • How can fractions be represented on a number line? • How are unit fractions
	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.G.2: Partition shapes into parts with equal area. 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 ¼ of the area of the shape.	used to compose other fractions? • Why is there no least or greatest fraction on the number line? • How can whole numbers be expressed as fractions?
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Unit 4: Multiplication and Division (January)	3.0A.2: Interpret whole-number quotients of whole numbers. -For example, 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 equally into equal shares of 8 objects each. -describe a context in which a number of shares or a number of groups can be expressed as 56/8. 3.0A.3: Use multiplication and division within 100 to solve word problems in situations with measurement quantities. Use drawings and equations with a symbol for the unknown number to represent the problem. 3.0A.5: Apply properties of operations as strategies to multiply and divide. -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)	• How does a number represent a group or unit? • How can multiplication/division be represented? • What is the relationship between multiplication and division? • How do patterns make math facts predictable? • How can we use mathematical properties to find and justify solutions to problems? • How does fact fluency

	-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) 3.0A.7: 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 40/8=5) or properties of operations. -By the end of Grade 3, know from memory all products of two one-digit numbers 3.0A.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. 3.0A.9: Identify arithmetic patterns (including patterns in the addition and multiplication table) and explain them using properties of operations. 3.MD.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 measurement scale) to represent the problem. 3.MD.3: Draw a scaled picture graph and scaled bar graph to represent a data set of several categories. Solve one-and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.	improve efficiency when solving problems?

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Unit 5: Equivalence and Comparing Fractions and Measurement/ Data (Feb./Mar.)	3.NF.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., ½=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. 3.MD.4: Generate measurement data by measuring lengths using rulers marked with	• What is a fraction? • Why is it important to be able to use fractions in "real life"? • How does the size of the whole or set impact the relative value of the fraction named? • How can fractions be represented on a number line? • How are unit fractions used to compose other fractions? • Why is there no least or greatest fraction on the number line? • How can we use reasoning to compare fractions? • How can fractions with different-sized fractional parts

	halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriately unitswhole numbers , halves, or quarters.	describe the same sized region? • How can whole numbers be

	3.OA.7: 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 40/8=5) or properties of operations. -By the end of Grade 3, know from memory all products of two one-digit numbers.	expressed as fractions? • How can length be measured and data be recorded?
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Unit 6: Multiplication, Division, and Area (Mar./Apr.)	3.0A.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 $8 \times p = 48$, $5 = n \div 3$, $6 \times 6 = s$ 3.0A.6: Understand division as an unknown factor problem. -For example, find 32/8 by finding the number that makes 32 when multiplied by 8. 3.0A.7: Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g. knowing that $8 \times 5 = 40$,one knows 40/8=5) or properties of operations. -By the end of Grade 3, know from memory all products of two one-digit numbers. 3.0A.8: Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. 3.0A.9: Identify arithmetic patterns (including patterns in the addition and multiplication table)	• How does a number represent a group or unit? • How can multiplication /division be represented? • How can you use the relationship between multiplication and division to solve problems with an unknown? • How can factors be broken apart to find unknown products? • How can we use mathematical properties to find and justify solutions to problems? • How does what we measure determine

	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.MD.3: Draw a scaled picture graph and scaled bar graph to represent a data set of several categories. Solve one-and two step "how many more" and "how many less" problems using information presented in scaled bar graphs. 3.MD.7: Relate area to the operations of multiplication and addition. 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 x b and a x 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 rectangles, applying this technique to solve real world problems 3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100. 3.NBT.3: Multiply one-digit whole numbers by multiples of 10 in the range	how we measure?

	10 - 90 (e.g., 9 x 80, 5 x 60) using strategies based on place value and	

	properties of operations.	
Unit	Standard(s)/Outcome(s)/Topic(s)	Essential/Guiding Questions
Unit 7: Geometry and Measurement (Apr./May)	3.G.1: Understand that shapes in different categories (e.g. rhombuses, rectangles, and others) may share attributes (e.g., having four sides) AND 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.MD.3: Draw a scaled picture graph (and scaled bar graph to represent a data set of several categories. Solve one-and two-step "how many more" and "how many less" problems using information presented in scaled bar graphs.) 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 perimeter. 3.OA.7: Fluently multiply and divide within 100,	• How can geometric shapes be described and classified? • How does what we measure determine the units we use to measure? • How does a change in the area of an object affect its perimeter? • How does a change in the perimeter of an object affect its area? • What drawings and equations can be used to solve this problem and why?

	using strategies such as the relationship between multiplication and division (e.g. knowing that 8 x 5 = 40 ,one knows 40/8=5) or properties of operations. -By the end of Grade 3, know from memory all products of two one-digit numbers.	

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Unit 8: Demonstrate Computational Fluency in Problem Solving (May/June)	3.MD.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 measurement scale) to represent the problem. 3.NBT.1: Use place value understanding to round whole numbers to the nearest 10 or 100. 3.NBT.2: Fluently add and subtract within 1000 using strategies and algorithms based on the following: - place value -properties of operations -the relationship between addition and subtraction	• How can mental strategies be used to compute fluently? • How can numbers be combined and separated? • How can estimation help solve problems? • How can understanding place value help you perform multi-digit arithmetic? • How can understanding the relationship between addition and

	3.0A.7: 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 x 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers. 3.0A.8: Solve two-step problems involving the four operations. Represent these problems using equations with a letter standing for the unknown	subtraction help you perform multi-digit arithmetic? • How does understanding the properties of operations help you perform multi-digit arithmetic?

	quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.	