Area: Operations and Algebraic Thinking

Big Idea: Represent and solve problems involving multiplication and division.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective:	1: Interpret products of whole numbers (e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each).				
• 3.OA.1		• product • whole number	• Unit 1 Lessons 1-10, 1-14, 16, 18, 19; Unit 2 Lessons 2, 4, 7, 9-11, 13, 15	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	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.)				
• 3.OA.2		• quotient • whole number	• Unit 1 Lessons 4-7, 9, 10, 12-19; Unit 2 Lessons 2, 4, 7, 9-11, 13, 15	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	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		• array	• Unit 1 Lessons 2-4, 6, 7, 9, 10, 12-14, 16, 18, 19; Unit 2 Lessons 2, 4, 7, 9, 10, 11, 13, 15; Unit 3 Lessons 2-5, 14; Unit 5 Lessons 2, 3, 7-9, 11	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	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		• unknown • variable	• Unit 1 Lessons 1, 4-14, 16, 18, 19; Unit 2 Lessons 1-11, 13-15; Unit 5 Lesson 3	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Operations and Algebraic Thinking

Big Idea: Understand properties of multiplication and the relationship between multiplication and division.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: 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. (Commutative property of multiplication). 3 x 5 x 2 can be found by 3 x 5 = 15, then 15 x 2 = 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.5		• commutative property • associative property • distributive property	• Unit 1 Lessons 3, 6, 11, 12, 14, 15, 19; Unit 2 Lessons 1, 8, 12, 15	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 2: 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		• factor	• Unit 1 Lessons 4-18; Unit 2 Lessons 1-14	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

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Area: Operations and Algebraic Thinking

Big Idea: Multiply and divide within 100.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective:	1: 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 one-digit numbers.				
• 3.OA.7		• factor • product • quotient	• Unit 1 Lessons 1-19; Unit 2 Lessons 1-15	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Operations and Algebraic Thinking

Big Idea: Solve problems involving the four operations, and identify and explain patterns in arithmetic.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective:		1: 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 (limited to problems with whole numbers and whole-number answers). Students should understand Order of Operations.			
• 3.OA.8		• order of operations • estimation • rounding • parentheses	• Unit 2 Lessons 9-11, 13; Unit 4 Lesson 17; Unit 5 Lessons 7-11	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:		2: 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		• pattern	• Unit 1 Lessons 1, 5-8, 10, 12, 15, 19; Unit 2 Lessons 1, 3, 5, 6, 8, 14, 15; Unit 4 Lesson 17	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Number and Operations in Base Ten

Big Idea: Use place value understanding and properties of operations to perform multi-digit arithmetic.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: Use place value understanding to round whole numbers to the nearest 10 or 100.					
• 3.NBT.1		• place value • rounding	• Unit 4 Lessons 1-8, 10, 17, 18; Unit 5 Lesson 4	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 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. (A range of algorithms may be used.)					
• 3.NBT.2		• place value • algorithm • trade-first • partial-sums	• Unit 3 Lessons 11, 12; Unit 4 Lessons 1-4, 7-18; Unit 5 Lessons 1-6, 8, 9, 11	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 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. (A range of algorithms may be used.)					
• 3.NBT.3		• multiples	• Unit 2 Lesson 12	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Number and Operations - Fractions

Big Idea: Develop understanding of fractions as numbers.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective:	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. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)				
• 3.NF.1		• fraction • denominator • numerator	• Unit 7 Lessons 1, 2, 9	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	2: Understand a fraction as a number on the number line; represent fractions on a number line diagram. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)				
• 3.NF.2		• number line • fraction • numerator • denominator	• Unit 7 Lessons 1-3	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	3: 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.				
• CC.3.NF.2a		• fraction, number line, partition	• Unit 7 Lessons 2-4, 8	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	4: 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 1/b on the number line.				
• CC.3.NF.2b		• fraction, number line	• Unit 7 Lessons 2-4, 8	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Number and Operations - Fractions

Big Idea: Develop understanding of fractions as numbers.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 5: Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. (Grade 3 expectations in this domain are limited to fractions with denominators 2, 3, 4, 6, and 8.)					
• 3.NF.3		• equivalent fractions • greater than • less than • compare • numerator • denominator • whole numbers	• Unit 7 Lessons 4-9	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 6: Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line					
• CC.3.NF.3a		• equivalent	• Unit 7 Lessons 6-9	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 7: 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					
• CC.3.NF.3b		• equivalent	• Unit 7 Lessons 6-9	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 8: Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers					
• CC.3.NF.3c		• whole number, equivalent	• Unit 7 Lesson 8	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

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Area: Number and Operations - Fractions

Big Idea: Develop understanding of fractions as numbers.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 9: 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					
• CC.3.NF.3d		• numerator, denominator, >, <	• Unit 7 Lessons 4, 5, 8, 9	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

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Area: Measurement and Data

Big Idea: Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 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		• time interval • elapsed time	• Unit 3 Lessons 6-10, 15	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 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		• measure • estimate • volume • liquid • mass • gram • kilogram • liter	• Unit 3 Lessons 2-5	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Measurement and Data

Big Idea: Represent and interpret data.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective:	1: 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		• picture graph • bar graph • scale	• Unit 3 Lessons 11, 12, 14	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	2: 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		• data • length • ruler • half • fourths • line plot • scale	• Unit 3 Lessons 1, 13-15	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Measurement and Data

Big Idea: Geometric measurement: Understand concepts of area and relate area to multiplication and to addition.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective:	1: 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 is said to have an area of n square units.				
• 3.MD.5		• area • plane figures • square units	• Unit 1 Lesson 11; Unit 2 Lessons 2; Unit 6 Lessons 5, 7	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	2: A square with side length q unit, called "a unit square" is said to have "one square unit" of area, and can be used to measure area				
• CC.3.MD.5a		• unit sqaure	• Unit 1 Lessons 11; Unit 2 Lesson 2; Unit 6 Lessons 5, 7	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	3: A plane figure that can be covered without gaps or overlaps by n unit squares is said to have an area of n square units				
• CC.3.MD.5b		• plane figure, unit squares	• Unit 1 Lesson 11; Unit 2 Lesson 2; Unit 6 Lessons 5, 7	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	4: Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).				
• 3.MD.6		• square cm • square m • square in • square ft • square units	• Unit 1 Lesson 11; Unit 6 Lessons 5, 6, 10	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective:	5: Relate area to the operations of multiplication and addition.				
• 3.MD.7		• area • rectangle • tiling • distributive property • partial-products	• Unit 1 Lessons 11, 12, 14; Unit 2 Lessons 2, 6, 8; Unit 6 Lessons 5-9, 11	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

Area: Measurement and Data

Big Idea: Geometric measurement: Understand concepts of area and relate area to multiplication and to addition.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 6: 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					
• CC.3.MD.7a		• rectangle, area, tiling	• Unit 1 Lesson 11; Unit 2 Lesson 2; Unit 6 Lessons 5, 6	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 7: 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					
• CC.3.MD.7b		• rectangle, whole-number	• Unit 1 Lessons 11, 12, 14; Unit 2 Lessons 6, 8; Unit 6 Lessons 5-9	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 8: 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					
• CC.3.MD.7c		• tiling, sum, distributive property	• Unit 1 Lessons 11, 12, 14; Unit 6 Lesson 6	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 9: 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					
• CC.3.MD. 7d		• rectilinear, rectangle	• Unit 1 Lesson 11; Unit 2 Lessons 2, 6, 8; Unit 6 Lessons 8, 9, 11	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

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Area: Measurement and Data

Big Idea: Geometric measurement: Recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: 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 area or with the same area and different perimeter.					
• 3.MD.8		• perimeter • polygon • rectangle • area	• Unit 6 Lesson 5-7, 9, 11	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments

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Area: Geometry

Big Idea: Reason with shapes and their attributes.

PA/Common Core Standards	Assessment Anchors/ Eligible Content	Key Vocabulary	Learning Activities	Materials/ Resources/ Technology Tools	Common Summative Assessments/ Targeted Outcomes
Objective: 1: Understand that shapes in different categories (e.g., rhombuses, rectangles, etc.) 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.					
• CC.3.G.1		• rhombus • rectangle • square • quadrilateral • pentagon • hexagon • octagon • triangle	• Unit 6 Lessons 1-4, 11	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments
Objective: 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 is 1/4 of the area of the shape.					
• CC.3.G.2		• partition • equal areas • unit fraction of the whole	• Unit 6 Lesson 1; Unit 7 Lessons 1, 2, 9	• Student Activity Book, Homework/Remembering Book, Manipulatives	• Math Expressions Assessments