Imagine Math

BUILT for the COMMON CORE

2017–2018 School Year

Common Core State Standards Correlation

Grade 3

Common Core State Standards
Mathematics

Common Core State Standards		Imagine Math	
Grade 3		***Unit***	***Lesson***
Operations and Algebraic Thinking			
Represent and solve problems involving multiplication and division.			
3.OA.A.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.*	Operations and Algebraic Thinking	Concept of Multiplication - Arrays Concept of Multiplication - Grouping Concept of Multiplication - Word Problems
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.*	Operations and Algebraic Thinking	Concept of Division Constructing Division Problems Interpreting Division Problems
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.	Operations and Algebraic Thinking	Multiplication and Division Word Problems - Equations Multiplication and Division Word Problems - Solutions Multiplication and Division Word Problems - Visual Models
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 × ? = 48, 5 = _ ÷ 3, 6 × 6 = ?*	Operations and Algebraic Thinking	Division as an Unknown-Factor Problem Solving Multiplication and Division Equations

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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 × 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.)*	Operations and Algebraic Thinking	Multiplication and Division Fact Families Properties of Addition and Multiplication Relationship Between Multiplication and Division Using Visual Models to Understand the 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.*	Operations and Algebraic Thinking	Division as an Unknown-Factor Problem Multiplication and Division Fact Families Solving Multiplication and Division Equations
Multiply and divide within 100.			
3.OA.C.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.	Operations and Algebraic Thinking	Developing Fluency Using 2 as a Factor Developing Fluency Using 5 or 10 as a Factor Multiplication and Division Fact Families Using Halves and Doubles to Solve Multiplication Problems
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 estimation strategies including rounding.	Operations and Algebraic Thinking	Estimating Sums and Differences - Application Modeling and Solving Two-Step Word Problems Solving Two-Step Word Problems
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.*	Operations and Algebraic Thinking	Additive and Multiplicative Patterns

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Number & 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.	Number and Operations in Base Ten	Reasoning About Place Value and Rounding Rounding to the Nearest Ten and Hundred
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.	Number and Operations in Base Ten	Reasoning About Addition and Subtraction Within 1,000 Structuring Within 1,000
3.NBT.A.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.	Number and Operations in Base Ten	Multiplying by Multiples of Ten
Number & Operations—Fractions			
Develop understanding of fractions as numbers.			
3.NF.A.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 $1/b$.	Number and Operations - Fractions	Understanding Fractions - Equal Areas
3.NF.A.2.A	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.	Number and Operations - Fractions	Unit Fractions on the Number Line
3.NF.A.2.B	Understand a fraction as a number on the number line; represent fractions on a number line diagram. 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.	Number and Operations - Fractions	Fractions on the Number Line

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3.NF.A.3.A	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.	Number and Operations - Fractions	Modeling Equivalent Fractions with Number Lines
3.NF.A.3.B	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. 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.	Number and Operations - Fractions	Visual Models of Equivalent Fractions
3.NF.A.3.C	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. 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.*	Number and Operations - Fractions	Whole Numbers as Fractions Whole Numbers as Fractions on the Number Line
3.NF.A.3.D	Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. 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.	Number and Operations - Fractions	Comparing Fractions with the Same Numerator or Denominator Recognizing Valid Fraction Comparisons I
Measurement & Data			
Solve problems involving measurement and estimation.			
3.MD.A.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.	Measurement and Data	Adding and Subtracting Time

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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.	Measurement and Data	Capacity or Weight
Represent and interpret data.			
3.MD.B.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.*	Measurement and Data	Introduction to Data Displays
3.MD.B.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.	This standard is not addressed.	This standard is not addressed.
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.			
3.MD.C.5.A	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," is said to have "one square unit" of area, and can be used to measure area.	Measurement and Data	Concept of Area Unit Squares
3.MD.C.5.B	Recognize area as an attribute of plane figures and understand concepts of area measurement. 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.	Measurement and Data	Concept of Area

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3.MD.C.6	Measure areas by counting unit squares (square cm, square m, square in, square ft, and improvised units).	Measurement and Data	Concept of Area Unit Squares
3.MD.C.7.A	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.	Measurement and Data	Area of Rectangles
3.MD.C.7.B	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.	Measurement and Data	Area of Rectangles
3.MD.C.7.C	Relate area to the operations of multiplication and addition. 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 $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.	Measurement and Data	Area of Rectangles
3.MD.C.7.D	Relate area to the operations of multiplication and addition. 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.	Measurement and Data	Area of Basic Composite Figures Recognizing Area as Additive
Geometric measurement: recognize perimeter.			
3.MD.D.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.	Measurement and Data	Perimeter

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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.	Geometry	Classifying Quadrilaterals I
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 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.	Number and Operations - Fractions	Understanding Fractions - Notation