Imagine Math

BUILT FOR Virginia

2017–2018 School Year

Virginia Correlation

2016 Mathematics Standards of Learning

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Grade 3

Virginia Mathematics
Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Grade 3		*Unit*	*Lesson*
Number and Number Sense			
3.1a	The student will read, write, and identify the place and value of each digit in a six-digit whole number, with and without models;	Number and Operations in Base Ten	Reasoning About Place Value and Rounding
3.1b	The student will round whole numbers, 9,999 or less, to the nearest ten, hundred, and thousand; and	Number and Operations in Base Ten	Reasoning About Place Value and Rounding Rounding to the Nearest Ten and Hundred
3.1c	The student will compare and order whole numbers, each 9,999 or less.	Number and Operations in Base Ten	Comparing Whole Numbers
3.2a	The student will name and write fractions and mixed numbers represented by a model;	Number and Operations - Fractions	Fractions on the Number Line Understanding Fractions - Equal Areas Understanding Fractions - Notation Unit Fractions on the Number Line Whole Numbers as Fractions Whole Numbers as Fractions on the Number Line
3.2b	The student will represent fractions and mixed numbers with models and symbols; and	Number and Operations - Fractions	Comparing Fractions with the Same Numerator or Denominator Fractions on the Number Line Understanding Fractions - Equal Areas Understanding Fractions - Notation Unit Fractions on the Number Line Whole Numbers as Fractions Whole Numbers as Fractions on the Number Line
3.2c	The student will compare fractions having like and unlike denominators, using words and symbols (>, <, =, or ≠), with models.	Number and Operations - Fractions	Comparing Fractions with Different Numerators and Different Denominators Comparing Fractions with the Same Numerator or Denominator Recognizing Valid Fraction Comparisons I

Mathematics Standards of Learning		Imagine Math	
Grade 3		*Unit*	*Lesson*
Computation and Estimation			
3.3a	The student will estimate and determine the sum or difference of two whole numbers; and	Operations and Algebraic Thinking	Estimating Sums and Differences - Application
		Number and Operations in Base Ten	Reasoning About Addition and Subtraction Within 1,000 Structuring Within 1,000
3.3b	The student will create and solve single-step and multistep practical problems involving sums or differences of two whole numbers, each 9,999 or less.	Operations and Algebraic Thinking	Division as an Unknown-Factor Problem Estimating Sums and Differences - Application Modeling and Solving Two-Step Word Problems Solving Two-Step Word Problems
3.4a	The student will represent multiplication and division through 10 × 10, using a variety of approaches and models;	Operations and Algebraic Thinking	Concept of Division Concept of Multiplication - Arrays Concept of Multiplication - Grouping Concept of Multiplication - Word Problems Constructing Division Problems Interpreting Division Problems Modeling and Solving Two-Step Word Problems Multiplication and Division Fact Families Multiplication and Division Word Problems - Equations Multiplication and Division Word Problems - Solutions Multiplication and Division Word Problems - Visual Models Relationship Between Multiplication and Division Solving Multiplication and Division Equations Solving Two-Step Word Problems Using Visual Models to Understand the Distributive Property

Mathematics Standards of Learning		Imagine Math	
Grade 3		*Unit*	*Lesson*
3.4b	The student will create and solve single-step practical problems that involve multiplication and division through 10 x 10; and	Operations and Algebraic Thinking	Concept of Multiplication - Word Problems Constructing Division Problems Division as an Unknown-Factor Problem Modeling and Solving Two-Step Word Problems Multiplication and Division Word Problems - Equations Multiplication and Division Word Problems - Solutions Solving Two-Step Word Problems
3.4c	The student will demonstrate fluency with multiplication facts of 0, 1, 2, 5, and 10; and	Operations and Algebraic Thinking	Multiplication and Division Word Problems - Equations
		Number and Operations in Base Ten	Multiplying by Multiples of Ten
3.4d	The student will solve single-step practical problems involving multiplication of whole numbers, where one factor is 99 or less and the second factor is 5 or less.	Operations and Algebraic Thinking	Concept of Multiplication - Word Problems
3.5	The student will solve practical problems that involve addition and subtraction with proper fractions having like denominators of 12 or less.	Number and Operations - Fractions	Adding and Subtracting Fractions with Like Denominators in Real-World Situations
Measurement and Geometry			
3.6a	The student will determine the value of a collection of bills and coins whose total value is $5.00 or less;	Measurement and Data	Introduction to Money Sense
3.6b	The student will compare the value of two sets of coins or two sets of coins and bills; and	Measurement and Data	Introduction to Money Sense
3.6c	The student will make change from $5.00 or less.	This standard is not addressed.	This standard is not addressed.
3.7a	The student will estimate and use U.S. Customary and metric units to measure length to the nearest 1/2 inch, inch, foot, yard, centimeter, and meter; and	This standard is not addressed.	This standard is not addressed.
3.7b	The student will estimate and use U.S. Customary and metric units to measure liquid volume in cups, pints, quarts, gallons, and liters.	This standard is not addressed.	This standard is not addressed.

Mathematics Standards of Learning		Imagine Math	
Grade 3		*Unit*	*Lesson*
3.8a	The student will estimate and measure the distance around a polygon in order to determine its perimeter using U.S. Customary and metric units; and	Measurement and Data	Perimeter
3.8b	The student will estimate and count the number of square units needed to cover a given surface in order to determine its area.	Measurement and Data	Area of Rectangles Concept of Area Recognizing Area as Additive Unit Squares
3.9a	The student will tell time to the nearest minute, using analog and digital clocks;	This standard is not addressed.	This standard is not addressed.
3.9b	The student will solve practical problems related to elapsed time in one-hour increments within a 12-hour period; and	This standard is not addressed.	This standard is not addressed.
3.9c	The student will identify equivalent periods of time and solve practical problems related to equivalent periods of time.	This standard is not addressed.	This standard is not addressed.
3.10	The student will read temperature to the nearest degree.	This standard is not addressed.	This standard is not addressed.
3.11	The student will identify and draw representations of points, lines, line segments, rays, and angles.	Geometry	Identifying and Classifying Lines, Rays, and Segments
3.12a	The student will define polygon;	This standard is not addressed.	This standard is not addressed.
3.12b	The student will identify and name polygons with 10 or fewer sides; and	This standard is not addressed.	This standard is not addressed.
3.12c	The student will combine and subdivide polygons with three or four sides and name the resulting polygon(s).	This standard is not addressed.	This standard is not addressed.
3.13	The student will identify and describe congruent and noncongruent figures.	This standard is not addressed.	This standard is not addressed.

Mathematics Standards of Learning		Imagine Math	
Grade 3		*Unit*	*Lesson*
Probability and Statistics			
3.14	The student will investigate and describe the concept of probability as a measurement of chance and list possible outcomes for a single event.	This standard is not addressed.	This standard is not addressed.
3.15a	The student will collect, organize, and represent data in pictographs or bar graphs; and	This standard is not addressed.	This standard is not addressed.
3.15b	The student will read and interpret data represented in pictographs and bar graphs.	Measurement and Data	Introduction to Data Displays
Patterns, Functions, and Algebra			
3.16	The student will identify, describe, create, and extend patterns found in objects, pictures, numbers and tables.	Operations and Algebraic Thinking	Additive and Multiplicative Patterns
3.17	The student will create equations to represent equivalent mathematical relationships.	Operations and Algebraic Thinking	Properties of Addition and Multiplication

Grade 4

Virginia Mathematics
Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Grade 4		*Unit*	*Lesson*
Number and Number Sense			
4.1a	The student will read, write, and identify the place and value of each digit in a nine-digit whole number;	Number and Operations in Base Ten	Place Value Concepts Understanding Place Value Relationships
4.1b	The student will compare and order whole numbers expressed through millions; and	Number and Operations in Base Ten	Using Place Value Concepts to Compare Whole Numbers
4.1c	The student will round whole numbers expressed through millions to the nearest thousand, ten thousand, and hundred thousand.	Number and Operations in Base Ten	Rounding Whole Numbers Using Rounding in Problem Solving
4.2a	The student will compare and order fractions and mixed numbers, with and without models;	Number and Operations - Fractions	Comparing Decimal Fractions Comparing Fractions - Visual Models Comparing Fractions with Different Numerators and Different Denominators Recognizing Valid Fraction Comparisons II
		Number and Operations in Base Ten	Comparing and Ordering Decimal Fractions
4.2b	The student will represent equivalent fractions; and	Number and Operations - Fractions	Decomposing Fractions and Mixed Numbers Generating Equivalent Fractions Modeling Equivalent Fractions Modeling Equivalent Fractions with Number Lines Reducing Fractions Visual Models of Equivalent Fractions Writing Fractions as Mixed Numbers and Mixed Numbers as Fractions
4.2c	The student will identify the division statement that represents a fraction, with models and in context.	Number and Operations - Fractions	Understanding Fractions as Division

Mathematics Standards of Learning		Imagine Math	
Grade 4		*Unit*	*Lesson*
4.3a	The student will read, write, represent, and identify decimals expressed through thousandths;	Number and Operations in Base Ten	Decimal Notation I Decimal Notation II Decimals to Thousandths Place Value Relationships Within Whole Numbers and Decimals
		Number and Operations - Fractions	Decimals to Hundredths
4.3b	The student will round decimals to the nearest whole number;	This standard is not addressed.	This standard is not addressed.
4.3c	The student will compare and order decimals; and	Number and Operations in Base Ten	Comparing Decimals to Hundredths Introduction to Comparing Decimals to Hundredths Comparing Decimals to Thousandths
		Number and Operations - Fractions	Recognizing Valid Decimal Comparisons
4.3d	The student will given a model, write the decimal and fraction equivalents.	Number and Operations - Fractions	Understanding Fractions - Relationship Between Numerator and Denominator Understanding Fractions with Denominators of 10 and 100
Computation and Estimation			
4.4a	The student will demonstrate fluency with multiplication facts through 12 x 12, and the corresponding division facts;	Operations and Algebraic Thinking	Multiplication and Division Fact Families
4.4b	The student will estimate and determine sums, differences, and products of whole numbers;	Number and Operations in Base Ten	Estimating Solutions to Multistep Word Problems Multiplying 3-digit by 2-digit Whole Numbers Using the Standard Algorithm Using Halves and Doubles to Solve Multiplication Problems
4.4c	The student will estimate and determine quotients of whole numbers, with and without remainders; and	Number and Operations in Base Ten	Dividing Multiples of Ten Dividing Whole Numbers - One-Digit Divisors Estimating Solutions to Multistep Word Problems
		Operations and Algebraic Thinking	Interpreting Remainders Using Equations to Model and Solve Multi-step Problems

Mathematics Standards of Learning		Imagine Math	
Grade 4		*Unit*	*Lesson*
4.4d	The student will create and solve single-step and multistep practical problems involving addition, subtraction, and multiplication, and single-step practical problems involving division with whole numbers.	Number and Operations in Base Ten	Adding and Subtracting with the Standard Algorithm Adding Whole Numbers Multiplying 2-Digit Numbers by 2-Digit Numbers Multiplying Whole Numbers
		Operations and Algebraic Thinking	Developing Fluency Using 2 as a Factor Developing Fluency Using 5 or 10 as a Factor Interpreting Remainders Using Equations to Model and Solve Multi-step Problems Using Halves and Doubles to Solve Multiplication Problems
4.5a	The student will determine common multiples and factors, including least common multiple and greatest common factor;	Operations and Algebraic Thinking	Relating Factors and Multiples I Relating Factors and Multiples II
		The Number System	Greatest Common Factor Greatest Common Factor - Applications Least Common Multiple
4.5b	The student will add and subtract fractions and mixed numbers having like and unlike denominators; and	Number and Operations - Fractions	Adding and Subtracting Fractions with Like Denominators Adding and Subtracting Fractions with Like Denominators in Real-World Situations Adding Fractions with Denominators of 10 or 100
4.5c	The student will solve single-step practical problems involving addition and subtraction with fractions and mixed numbers.	Number and Operations - Fractions	Adding and Subtracting Fractions with Like Denominators in Real-World Situations
4.6a	The student will add and subtract with decimals; and	Number and Operations in Base Ten	Adding and Subtracting Decimals
4.6b	The student will solve single-step and multistep practical problems involving addition and subtraction with decimals.	Number and Operations in Base Ten	Adding and Subtracting Decimals in Real-World Situations

Mathematics Standards of Learning		Imagine Math	
Grade 4		*Unit*	*Lesson*
Measurement and Geometry			
4.7	The student will solve practical problems that involve determining perimeter and area in U.S. Customary and metric units.	Measurement and Data	Area of Basic Composite Figures
4.8a	The student will estimate and measure length and describe the result in U.S. Customary and metric units;	This standard is not addressed.	This standard is not addressed.
4.8b	The student will estimate and measure weight/mass and describe the result in U.S. Customary and metric units;	This standard is not addressed.	This standard is not addressed.
4.8c	The student will given the equivalent measure of one unit, identify equivalent measures of length, weight/mass, and liquid volume between units within the U.S. Customary system; and	Measurement and Data	Units of Measure - Customary
4.8d	The student will solve practical problems that involve length, weight/mass, and liquid volume in U.S. Customary units.	This standard is not addressed.	This standard is not addressed.
4.9	The student will solve practical problems related to elapsed time in hours and minutes within a 12-hour period.	Measurement and Data	Adding and Subtracting Time
4.10a	The student will identify and describe points, lines, line segments, rays, and angles, including endpoints and vertices; and	Measurement and Data	Angles
4.10b	The student will identify and describe intersecting, parallel, and perpendicular lines.	This standard is not addressed.	This standard is not addressed.
4.11	The student will identify, describe, compare, and contrast plane and solid figures according to their characteristics (number of angles, vertices, edges, and the number and shape of faces) using concrete models and pictorial representations.	Geometry	Classifying 3-Dimensional Figures Classifying Quadrilaterals I

Mathematics Standards of Learning		Imagine Math	
Grade 4		*Unit*	*Lesson*
4.12	The student will classify quadrilaterals as parallelograms, rectangles, squares, rhombi, and/or trapezoids.	Geometry	Classifying Quadrilaterals I
Probability and Statistics			
4.13a	The student will determine the likelihood of an outcome of a simple event;	Statistics and Probability	Probability and Sample Spaces
4.13b	The student will represent probability as a number between 0 and 1, inclusive; and	Statistics and Probability	Probability and Sample Spaces
4.13c	The student will create a model or practical problem to represent a given probability.	Statistics and Probability	Probability and Sample Spaces
4.14a	The student will collect, organize, and represent data in bar graphs and line graphs;	This standard is not addressed.	This standard is not addressed.
4.14b	The student will interpret data represented in bar graphs and line graphs; and	This standard is not addressed.	This standard is not addressed.
4.14c	The student will compare two different representations of the same data (e.g., a set of data displayed on a chart and a bar graph, a chart and a line graph, or a pictograph and a bar graph).	This standard is not addressed.	This standard is not addressed.
Patterns, Functions, and Algebra			
4.15	The student will identify, describe, create, and extend patterns found in objects, pictures, numbers, and tables.	Operations and Algebraic Thinking	Generating and Describing Number Patterns
4.16	The student will recognize and demonstrate the meaning of equality in an equation.	Expressions and Equations	Distinguishing Between Expressions and Equations

Grade 5

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Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Grade 5		*Unit*	*Lesson*
Number and Number Sense			
5.1	The student, given a decimal through thousandths, will round to the nearest whole number, tenth, or hundredth.	Number and Operations in Base Ten	Reasoning About Rounding Decimals Rounding Decimals to the Nearest Tenth and Hundredth
5.2a	The student will represent and identify equivalencies among fractions and decimals, with and without models; and	Number and Operations in Base Ten	Fraction and Decimal Equivalents
5.2b	The student will compare and order fractions, mixed numbers, and/or decimals in a given set, from least to greatest and greatest to least.	Number and Operations in Base Ten	Comparing Fractions and Decimals
5.3a	The student will identify and describe the characteristics of prime and composite numbers; and	Operations and Algebraic Thinking	Factors
5.3b	The student will identify and describe the characteristics of even and odd numbers.	Operations and Algebraic Thinking	Odd or Even
Computation and Estimation			
5.4	The student will create and solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of whole numbers.	Number and Operations in Base Ten	Dividing Whole Numbers - Standard Algorithm Dividing Whole Numbers - Two-Digit Divisors Multiplying Whole Numbers - Standard Algorithm Operations with Whole Numbers - Mixed Practice
5.5a	The student will estimate and determine the product and quotient of two numbers involving decimals; and	Number and Operations in Base Ten	Calculating with Decimals Dividing Decimals to Hundredths Multiplying and Dividing by Powers of Ten Multiplying by Powers of Ten Multiplying Decimals to Hundredths Using Reasoning and Estimation to Calculate with Decimals

Mathematics Standards of Learning		Imagine Math	
Grade 5		*Unit*	*Lesson*
5.5b	The student will create and solve single-step and multistep practical problems involving addition, subtraction, and multiplication of decimals, and create and solve single-step practical problems involving division of decimals.	Number and Operations in Base Ten	Adding and Subtracting Decimals in Real-World Situations
5.6a	The student will solve single-step and multistep practical problems involving addition and subtraction with fractions and mixed numbers; and	Number and Operations - Fractions	Adding and Subtracting Fractions Adding and Subtracting Fractions - Multistep Word Problems Adding and Subtracting Mixed Numbers with Like Denominators Adding and Subtracting Mixed Numbers with Like Denominators - Conceptual Strategies Adding Fractions Subtracting Fractions Word Problems with Fractions and Mixed Numbers - Estimation Word Problems with Fractions and Mixed Numbers - Visual Models
5.6b	The student will solve single-step practical problems involving multiplication of a whole number, limited to 12 or less, and a proper fraction, with models.	Number and Operations - Fractions	Solving Word Problems with Multiplication of Fractions by Whole Numbers
5.7	The student will simplify whole number numerical expressions using the order of operations.	Expressions and Equations	Evaluating Simple Expressions
Measurement and Geometry			
5.8a	The student will solve practical problems that involve perimeter, area, and volume in standard units of measure; and	Measurement and Data	Area and Perimeter of Rectangles Volume of Rectangular Prisms I
5.8b	The student will differentiate among perimeter, area, and volume and identify whether the application of the concept of perimeter, area, or volume is appropriate for a given situation.	Measurement and Data	Area and Perimeter of Rectangles

Mathematics Standards of Learning		Imagine Math	
Grade 5		*Unit*	*Lesson*
5.9a	The student will given the equivalent measure of one unit, identify equivalent measurements within the metric system; and	Measurement and Data	Units of Measure - Metric
5.9b	The student will solve practical problems involving length, mass, and liquid volume using metric units.	This standard is not addressed.	This standard is not addressed.
5.10	The student will identify and describe the diameter, radius, chord, and circumference of a circle.	This standard is not addressed.	This standard is not addressed.
5.11	The student will solve practical problems related to elapsed time in hours and minutes within a 24-hour period.	Measurement and Data	Adding and Subtracting Time
5.12	The student will classify and measure right, acute, obtuse, and straight angles.	Measurement and Data	Angles Angles 0 to 180
5.13a	The student will classify triangles as right, acute, or obtuse and equilateral, scalene, or isosceles; and	Geometry	Classifying Triangles
5.13b	The student will investigate the sum of the interior angles in a triangle and determine an unknown angle measure.	This standard is not addressed.	This standard is not addressed.
5.14a	The student will recognize and apply transformations, such as translation, reflection, and rotation; and	This standard is not addressed.	This standard is not addressed.
5.14b	The student will investigate and describe the results of combining and subdividing polygons.	This standard is not addressed.	This standard is not addressed.
Probability and Statistics			
5.15	The student will determine the probability of an outcome by constructing a sample space or using the Fundamental (Basic) Counting Principle.	Statistics and Probability	Compound Probability Probability and Sample Spaces
5.16a	The student, given a practical problem, will represent data in line plots and stem-and-leaf plots;	Statistics and Probability	Stem-and-Leaf Plots
5.16b	The student, given a practical problem, will interpret data represented in line plots and stem-and-leaf plots; and	Measurement and Data	Line Plots
		Statistics and Probability	Stem-and-Leaf Plots

Mathematics Standards of Learning		Imagine Math	
Grade 5		*Unit*	*Lesson*
5.16c	The student, given a practical problem, will compare data represented in a line plot with the same data represented in a stem-and-leaf plot.	This standard is not addressed.	This standard is not addressed.
5.17a	The student, given a practical context, will describe mean, median, and mode as measures of center;	Statistics and Probability	Deviation from the Mean Measures of Center - Mean Measures of Center - Median
5.17b	The student, given a practical context, will describe mean as fair share;	Statistics and Probability	Deviation from the Mean
5.17c	The student, given a practical context, will describe the range of a set of data as a measure of spread; and	Statistics and Probability	Measures of Spread - Range
5.17d	The student, given a practical context, will determine the mean, median, mode, and range of a set of data.	Statistics and Probability	Deviation from the Mean Measures of Center - Mean Measures of Center - Median Measures of Spread - Range
Patterns, Functions, and Algebra			
5.18	The student will identify, describe, create, express, and extend number patterns found in objects, pictures, numbers and tables.	Operations and Algebraic Thinking	Generating and Describing Number Patterns
5.19a	The student will investigate and describe the concept of variable;	This standard is not addressed.	This standard is not addressed.
5.19b	The student will write an equation to represent a given mathematical relationship, using a variable;	Operations and Algebraic Thinking	Writing and Interpreting Simple Expressions Writing Simple Expressions
5.19c	The student will use an expression with a variable to represent a given verbal expression involving one operation; and	This standard is not addressed.	This standard is not addressed.
5.19d	The student will create a problem situation based on a given equation, using a single variable and one operation.	This standard is not addressed.	This standard is not addressed.

Grade 6

Virginia Mathematics
Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Grade 6		*Unit*	*Lesson*
Number and Number Sense			
6.1	The student will represent relationships between quantities using ratios, and will use appropriate notations, such as a/b, a to b, and a:b.	Ratios and Proportional Relationships	Identifying Ratios Ratios
6.2a	The student will represent and determine equivalencies among fractions, mixed numbers, decimals, and percents; and	Expressions and Equations	Fraction, Decimal, and Percent Equivalents
		Number and Operations - Fractions	Using Division to Write Fractions as Decimals
		Ratios and Proportional Relationships	Calculations with Percent Percent Concepts
6.2b	The student will compare and order positive rational numbers.	Ratios and Proportional Relationships	Calculations with Percent Percent Concepts Reasoning with Percents
		The Number System	Classifying and Ordering Real Numbers Comparing Rational Numbers I Comparing Rational Numbers II
6.3a	The student will identify and represent integers;	The Number System	Integer Concepts Integer Concepts with a Number Line
6.3b	The student will compare and order integers; and	The Number System	Classifying and Ordering Real Numbers Comparing Rational Numbers I Comparing Rational Numbers II Integer Concepts Integer Concepts with a Number Line
6.3c	The student will identify and describe absolute value of integers.	The Number System	Absolute Value I Absolute Value II
6.4	The student will recognize and represent patterns with whole number exponents and perfect squares.	Expressions and Equations	Understanding Exponents

Mathematics Standards of Learning		Imagine Math	
Grade 6		*Unit*	*Lesson*
Computation and Estimation			
6.5a	The student will multiply and divide fractions and mixed numbers;	Number and Operations - Fractions	Dividing Unit Fractions by Whole Numbers Dividing Whole Numbers by Unit Fractions Multiplying Fractions by Fractions Multiplying Fractions by Whole Numbers Multiplying Fractions by Whole Numbers to Solve Multistep Problems Multiplying Unit Fractions by Whole Numbers Multiplying with Fractions and Mixed Numbers Solving Word Problems with Multiplication of Fractions by Whole Numbers Understanding and Multiplying with Negative Mixed Numbers Understanding Products with Fractions
		The Number System	Adding and Subtracting Rational Numbers I Dividing Fractions by Fractions Using the Relationship Between Multiplication and Division to Divide Fractions
6.5b	The student will solve single-step and multistep practical problems involving addition, subtraction, multiplication, and division of fractions and mixed numbers; and	Number and Operations - Fractions	Adding Fractions - Estimation Strategies Subtracting Fractions - Estimation Strategies
		The Number System	Adding and Subtracting Rational Numbers I Operations with Fractions - Mixed Practice Using Division of Fractions to Represent and Solve Problems
6.5c	The student will solve multistep practical problems involving addition, subtraction, multiplication, and division of decimals.	Number and Operations in Base Ten	Adding and Subtracting Decimals Adding and Subtracting Decimals in Real-World Situations Calculating with Decimals Using Reasoning and Estimation to Calculate with Decimals

Mathematics Standards of Learning		Imagine Math	
Grade 6		*Unit*	*Lesson*
6.6a	The student will add, subtract, multiply, and divide integers;	The Number System	Adding and Subtracting Rational Numbers II Multiplying and Dividing Rational Numbers
6.6b	The student will solve practical problems involving operations with integers; and	The Number System	Adding and Subtracting Rational Numbers II
6.6c	The student will simplify numerical expressions involving integers.	Expressions and Equations	Evaluating Simple Expressions
Measurement and Geometry			
6.7a	The student will derive π (pi);	This standard is not addressed.	This standard is not addressed.
6.7b	The student will solve problems, including practical problems, involving circumference and area of a circle; and	Geometry	Area of Circles Circumference
6.7c	The student will solve problems, including practical problems, involving area and perimeter of triangles and rectangles.	Geometry	Area of Parallelograms Area of Triangles
6.8a	The student will identify the components of the coordinate plane; and	Geometry	Introduction to the Coordinate Plane Representing Real-World Quantities in the First Quadrant
		The Number System	Rational Numbers in the Coordinate Plane I Rational Numbers in the Coordinate Plane II
6.8b	The student will identify the coordinates of a point and graph ordered pairs in a coordinate plane.	Geometry	Distance on the Coordinate Plane I Introduction to Scatter Plots Introduction to the Coordinate Plane Representing Real-World Quantities in the First Quadrant
		The Number System	Distance on the Coordinate Plane II Integers in the Coordinate Plane I Integers in the Coordinate Plane II Rational Numbers in the Coordinate Plane I Rational Numbers in the Coordinate Plane II

Mathematics Standards of Learning		Imagine Math	
Grade 6		*Unit*	*Lesson*
6.9	The student will determine congruence of segments, angles, and polygons.	This standard is not addressed.	This standard is not addressed.
Probability and Statistics			
6.10a	The student, given a practical situation, will represent data in a circle graph;	Statistics and Probability	Circle Graphs
6.10b	The student, given a practical situation, will make observations and inferences about data represented in a circle graph; and	Statistics and Probability	Circle Graphs
6.10c	The student, given a practical situation, will compare circle graphs with the same data represented in bar graphs, pictographs, and line plots.	This standard is not addressed.	This standard is not addressed.
6.11a	The student will represent the mean of a data set graphically as the balance point; and	Statistics and Probability	Measures of Center - Mean
6.11b	The student will determine the effect on measures of center when a single value of a data set is added, removed, or changed.	Statistics and Probability	Measures of Center - Median Measures of Spread - Range
Patterns, Functions, and Algebra			
6.12a	The student will represent a proportional relationship between two quantities, including those arising from practical situations;	Ratios and Proportional Relationships	Proportional Relationships in Tables and Equations
6.12b	The student will determine the unit rate of a proportional relationship and use it to find a missing value in a ratio table;	This standard is not addressed.	This standard is not addressed.
6.12c	The student will determine whether a proportional relationship exists between two quantities; and	Ratios and Proportional Relationships	Proportional Relationships in Tables and Equations

Mathematics Standards of Learning		Imagine Math	
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6.12d	The student will make connections between and among representations of a proportional relationship between two quantities using verbal descriptions, ratio tables, and graphs.	Ratios and Proportional Relationships	Proportional Relationships in Tables and Equations
6.13	The student will solve one-step linear equations in one variable, including practical problems that require the solution of a one-step linear equation in one variable.	Expressions and Equations	Reasoning About One-Step Equations Writing and Solving One-Step Equations
6.14a	The student will represent a practical situation with a linear inequality in one variable; and	Expressions and Equations	Concept of Inequalities I
6.14b	The student will solve one-step linear inequalities in one variable, involving addition or subtraction, and graph the solution on a number line.	Expressions and Equations	Concept of Inequalities I

Grade 7

Virginia Mathematics
Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Grade 7		*Unit*	*Lesson*
Number and Number Sense			
7.1a	The student will investigate and describe the concept of negative exponents for powers of ten;	Expressions and Equations	Interpreting Numbers Written in Scientific Notation
7.1b	The student will compare and order numbers greater than zero written in scientific notation;	Expressions and Equations	Interpreting Numbers Written in Scientific Notation
7.1c	The student will compare and order rational numbers;	The Number System	Comparing Rational Numbers I Comparing Rational Numbers II
7.1d	The student will determine square roots of perfect squares; and	Expressions and Equations	Understanding Square and Cube Roots
7.1e	The student will identify and describe absolute value of rational numbers.	The Number System	Absolute Value I Absolute Value II
Computation and Estimation			
7.2	The student will solve practical problems involving operations with rational numbers.	The Number System	Multiplying and Dividing Rational Numbers Operations with Rational Numbers I Operations with Rational Numbers II Writing and Interpreting Expressions with Rational Numbers
7.3	The student will solve single-step and multistep practical problems, using proportional reasoning.	Ratios and Proportional Relationships	Using Proportions to Solve Problems
Measurement and Geometry			
7.4a	The student will describe and determine the volume and surface area of rectangular prisms and cylinders; and	Geometry	Surface Area and Volume of Rectangular Prisms Volume of Cylinders
		Measurement and Data	Volume of Rectangular Prisms I Volume of Rectangular Prisms II

Mathematics Standards of Learning		Imagine Math	
Grade 7		*Unit*	*Lesson*
7.4b	The student will solve problems, including practical problems, involving the volume and surface area of rectangular prisms and cylinders.	Geometry	Surface Area and Volume of Rectangular Prisms Surface Area of Cylinders Volume of Cylinders
		Measurement and Data	Volume of Rectangular Prisms II
7.5	The student will solve problems, including practical problems, involving the relationship between corresponding sides and corresponding angles of similar quadrilaterals and triangles.	Ratios and Proportional Relationships	Introduction to Similar Figures Using Similar Figures to Solve Problems
7.6a	The student will compare and contrast quadrilaterals based on their properties; and	Geometry	Classifying Quadrilaterals II
7.6b	The student will determine unknown side lengths or angle measures of quadrilaterals.	This standard is not addressed.	This standard is not addressed.
7.7	The student will apply translations and reflections of right triangles or rectangles in the coordinate plane.	Geometry	Reflections Translations
Probability and Statistics			
7.8a	The student will determine the theoretical and experimental probabilities of an event; and	Statistics and Probability	Simple Probability
7.8b	The student will investigate and describe the difference between the experimental probability and theoretical probability of an event.	This standard is not addressed.	This standard is not addressed.
7.9a	The student, given data in a practical situation, will represent data in a histogram;	Statistics and Probability	Bar Graphs and Histograms
7.9b	The student, given data in a practical situation, will make observations and inferences about data represented in a histogram; and	Statistics and Probability	Bar Graphs and Histograms
7.9c	The student, given data in a practical situation, will compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs.	This standard is not addressed.	This standard is not addressed.

Mathematics Standards of Learning		Imagine Math	
Grade 7		*Unit*	*Lesson*
Patterns, Functions, and Algebra			
7.10a	The student will determine the slope, m, as rate of change in a proportional relationship between two quantities and write an equation in the form y = mx to represent the relationship;	This standard is not addressed.	This standard is not addressed.
7.10b	The student will graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in y = mx form where m represents the slope as rate of change;	This standard is not addressed.	This standard is not addressed.
7.10c	The student will determine the y-intercept, b, in an additive relationship between two quantities and write an equation in the form y = x + b to represent the relationship;	This standard is not addressed.	This standard is not addressed.
7.10d	The student will graph a line representing an additive relationship between two quantities given the y-intercept and an ordered pair, or given the equation in the form y = x + b, where b represents the y-intercept; and	This standard is not addressed.	This standard is not addressed.
7.10e	The student will make connections between and among representations of a proportional or additive relationship between two quantities using verbal descriptions, tables, equations, and graphs.	Building Functions	Direct Variation
		Expressions and Equations	Interpreting Slope Solving Word Problems with Algebra
		Ratios and Proportional Relationships	Interpreting Points on Graphs of Proportional Relationships Proportion Concepts Proportional Relationships in Tables and Equations
7.11	The student will evaluate algebraic expressions for given replacement values of the variables.	Expressions and Equations	Combining Like Terms Evaluating Expressions with Two Operations

Mathematics Standards of Learning		Imagine Math	
Grade 7		*Unit*	*Lesson*
7.12	The student will solve two-step linear equations in one variable, including practical problems that require the solution of a two-step linear equation in one variable.	Expressions and Equations	Solving and Modeling Two-Step Problems Solving Equations with the Distributive Property Solving Equations with the Distributive Property in Context Solving Two-Step Equations Solving Word Problems with Algebra
		Ratios and Proportional Relationships	Distance, Rate, and Time
7.13	The student will solve one- and two-step linear inequalities in one variable, including practical problems, involving addition, subtraction, multiplication, and division, and graph the solution on a number line.	Expressions and Equations	Concept of Inequalities II Modeling, Evaluating, and Graphing Two-Step Inequalities in One Variable
		Reasoning with Equations and Inequalities	Solving Linear Inequalities in One Variable

Grade 8

Virginia Mathematics
Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Grade 8		*Unit*	*Lesson*
Number and Number Sense			
8.1	The student will compare and order real numbers.	The Number System	Classifying and Ordering Real Numbers
8.2	The student will describe the relationships between the subsets of the real number system.	The Number System	Classifying and Ordering Real Numbers
8.3a	The student will estimate and determine the two consecutive integers between which a square root lies; and	Expressions and Equations	Understanding Square and Cube Roots
		The Number System	Approximating Values of Irrational Numbers
8.3b	The student will determine both the positive and negative square roots of a given perfect square.	This standard is not addressed.	This standard is not addressed.
Computation and Estimation			
8.4	The student will solve practical problems involving consumer applications.	Ratios and Proportional Relationships	Concept of Ratios and Rates Converting Units of Measure I Converting Units of Measure II Identifying Unit Rates Percent and Percent Change Percent and Percent Error Proportions in Scale Drawings Simple Interest Solving Problems with Unit Rates Using Proportions to Solve Problems Using Ratios to Solve Problems
Measurement and Geometry			
8.5	The student will use the relationships among pairs of angles that are vertical angles, adjacent angles, supplementary angles, and complementary angles to determine the measure of unknown angles.	Geometry	Angle Pairs Parallel Lines and Transversals

Mathematics Standards of Learning		Imagine Math	
Grade 8		*Unit*	*Lesson*
8.6a	The student will solve problems, including practical problems, involving volume and surface area of cones and square-based pyramids; and	Geometry	Surface Area of Cones Surface Area of Pyramids Volume of Composite Solids Volume of Pyramids and Cones
8.6b	The student will describe how changing one measured attribute of a rectangular prism affects the volume and surface area.	This standard is not addressed.	This standard is not addressed.
8.7a	The student will given a polygon, apply transformations, to include translations, reflections, and dilations, in the coordinate plane; and	Geometry	Composition of Transformations Dilations Reflections Translations
8.7b	The student will identify practical applications of transformations.	This standard is not addressed.	This standard is not addressed.
8.8	The student will construct a three-dimensional model, given the top or bottom, side, and front views.	This standard is not addressed.	This standard is not addressed.
8.9a	The student will verify the Pythagorean Theorem; and	Geometry	Understanding the Pythagorean Theorem
8.9b	The student will apply the Pythagorean Theorem.	Geometry	Pythagorean Theorem - Distance Formula Pythagorean Theorem - Hypotenuse Pythagorean Theorem - Legs Pythagorean Theorem - Mixed Problems
8.10	The student will solve area and perimeter problems, including practical problems, involving composite plane figures.	Geometry	Area of Complex Composite Figures Area of Parallelograms
Probability and Statistics			
8.11a	The student will compare and contrast the probability of independent and dependent events; and	Statistics and Probability	Compound Probability

Mathematics Standards of Learning		Imagine Math	
Grade 8		*Unit*	*Lesson*
8.11b	The student will determine probabilities for independent and dependent events.	Statistics and Probability	Compound Probability Simple Probability
8.12a	The student will represent numerical data in boxplots;	Statistics and Probability	Box Plots
8.12b	The student will make observations and inferences about data represented in boxplots; and	Statistics and Probability	Box Plots Comparing Data Quartiles
8.12c	The student will compare and analyze two data sets using boxplots.	Statistics and Probability	Box Plots Comparing Data
8.13a	The student will represent data in scatterplots;	Statistics and Probability	Comparing Linear and Nonlinear Data
8.13b	The student will make observations about data represented in scatterplots; and	Geometry	Introduction to Scatter Plots
		Statistics and Probability	Comparing Linear and Nonlinear Data
8.13c	The student will use a drawing to estimate the line of best fit for data represented in a scatterplot.	Geometry	Introduction to Scatter Plots
Patterns, Functions, and Algebra			
8.14a	The student will evaluate an algebraic expression for given replacement values of the variables; and	Expressions and Equations	Evaluating Expressions and Equations with Exponents
8.14b	The student will simplify algebraic expressions in one variable.	Arithmetic with Polynomials and Rational Expressions	Simplifying, Multiplying, and Dividing Rational Expressions
8.15a	The student will determine whether a given relation is a function; and	Interpreting Functions	Function Notation II
8.15b	The student will determine the domain and range of a function.	Interpreting Functions	Function Notation II Understanding the Domain of a Function
8.16a	The student will recognize and describe the graph of a linear function with a slope that is positive, negative, or zero;	This standard is not addressed.	This standard is not addressed.

Mathematics Standards of Learning		Imagine Math	
Grade 8		*Unit*	*Lesson*
8.16b	The student will identify the slope and y-intercept of a linear function, given a table of values, a graph, or an equation in y = mx + b form;	This standard is not addressed.	This standard is not addressed.
8.16c	The student will determine the independent and dependent variable, given a practical situation modeled by a linear function;	This standard is not addressed.	This standard is not addressed.
8.16d	The student will graph a linear function given the equation in y = mx + b form; and	Creating Equations	Writing and Graphing Linear Equations in Two or More Variables
8.16e	The student will make connections between and among representations of a linear function using verbal descriptions, tables, equations, and graphs.	Functions	Interpreting Graphs of Real-World Situations Introduction to Sketching Graphs of Real-World Situations
		Interpreting Functions	Introduction to Sketching Graphs of Linear Functions from Symbolic Representations
8.17	The student will solve multistep linear equations in one variable with the variable on one or both sides of the equation, including practical problems that require the solution of a multistep linear equation in one variable.	Expressions and Equations	Analyzing Solution Sets to Linear Equations with the Variable on Both Sides Solving Equations with the Variable on Both Sides
8.18	The student will solve multistep linear inequalities in one variable with the variable on one or both sides of the inequality symbol, including practical problems, and graph the solution on a number line.	Expressions and Equations	Modeling, Evaluating, and Graphing Two-Step Inequalities in One Variable

Algebra I

Virginia Mathematics
Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Algebra I		*Unit*	*Lesson*
Expressions and Operations			
A.1a	The student will represent verbal quantitative situations algebraically; and	This standard is not addressed.	This standard is not addressed.
A.1b	The student will evaluate algebraic expressions for given replacement values of the variables.	This standard is not addressed.	This standard is not addressed.
A.2a	The student will perform operations on polynomials, including applying the laws of exponents to perform operations on expressions;	Arithmetic with Polynomials and Rational Expressions	Adding and Subtracting Polynomials Multiplying Polynomials
		Expressions and Equations	Applying Properties of Integer Exponents Understanding Properties of Integer Exponents
A.2b	The student will perform operations on polynomials, including adding, subtracting, multiplying, and dividing polynomials; and	Arithmetic with Polynomials and Rational Expressions	Adding and Subtracting Polynomials Multiplying Polynomials
A.2c	The student will perform operations on polynomials, including factoring completely first- and second-degree binomials and trinomials in one variable.	Expressions and Equations	Common Factors in Polynomials
		Seeing Structure in Expressions	Factoring Expressions Factoring Polynomials
		The Real Number System	Using Rational Exponents to Rewrite Expressions
A.3a	The student will simplify square roots of whole numbers and monomial algebraic expressions;	Expressions and Equations	Solving Rational and Radical Equations I Understanding Square and Cube Roots
A.3b	The student will simplify cube roots of integers; and	Expressions and Equations	Understanding Square and Cube Roots
A.3c	The student will simplify numerical expressions containing square or cube roots.	Expressions and Equations	Understanding Square and Cube Roots
Equations and Inequalities			
A.4a	The student will solve multistep linear equations in one variable algebraically;	Creating Equations	Writing and Solving Linear Equations in One Variable

Mathematics Standards of Learning		Imagine Math	
Algebra I		*Unit*	*Lesson*
A.4b	The student will solve quadratic equations in one variable algebraically;	Reasoning with Equations and Inequalities	Complex Numbers and Complex Solutions Problem Solving with Quadratic Functions Solving Quadratics - Completing the Square Using the Quadratic Formula
A.4c	The student will solve literal equations for a specified variable;	Creating Equations	Solving Literal Equations
A.4d	The student will solve systems of two linear equations in two variables algebraically and graphically; and	Reasoning with Equations and Inequalities	Solving Linear Equations Graphically Solving Systems of Linear Equations
A.4e	The student will solve practical problems involving equations and systems of equations.	Creating Equations	Writing and Solving Linear Equations in One Variable
A.5a	The student will solve multistep linear inequalities in one variable algebraically and represent the solution graphically;	Reasoning with Equations and Inequalities	Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations
A.5b	The student will represent the solution of linear inequalities in two variables graphically;	Reasoning with Equations and Inequalities	Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations
A.5c	The student will solve practical problems involving inequalities; and	Reasoning with Equations and Inequalities	Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations
A.5d	The student will represent the solution to a system of inequalities graphically.	Reasoning with Equations and Inequalities	Graphing Linear Inequalities and Systems of Linear Inequalities in Real-World Situations
A.6a	The student will determine the slope of a line when given an equation of the line, the graph of the line, or two points on the line;	Expressions and Equations	Slope
A.6b	The student will write the equation of a line when given the graph of the line, two points on the line, or the slope and a point on the line; and	Creating Equations	Writing and Graphing Linear Equations in Two or More Variables
		Functions	Point-Slope Form Slope-Intercept Form
A.6c	The student will graph linear equations in two variables.	Creating Equations	Writing and Graphing Linear Equations in Two or More Variables

Mathematics Standards of Learning		Imagine Math	
Algebra I		*Unit*	*Lesson*
Functions			
A.7a	The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including determining whether a relation is a function;	Interpreting Functions	Function Notation II
A.7b	The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including domain and range;	Interpreting Functions	Function Notation II Sketching Graphs of Quadratic Functions in Context Understanding the Domain of a Function
A.7c	The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including zeros;	Interpreting Functions	Rewriting Quadratics to Reveal Their Structure Sketching Graphs of Quadratic Functions in Context
		Seeing Structure in Expressions	Factoring Quadratic Expressions
A.7d	The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including intercepts;	Interpreting Functions	Sketching Graphs of Quadratic Functions in Context
A.7e	The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including values of a function for elements in its domain; and	Interpreting Functions	Understanding the Domain of a Function
A.7f	The student will investigate and analyze linear and quadratic function families and their characteristics both algebraically and graphically, including connections between and among multiple representations of functions using verbal descriptions, tables, equations, and graphs.	Building Functions	Writing Quadratic Functions from a Context
		Creating Equations	Modeling Quadratic Relationships with Equations, Inequalities, and Graphs Writing and Graphing Linear Equations in Two or More Variables
		Interpreting Functions	Function Notation I Sketching Graphs of Quadratic Functions in Context
		Statistics and Probability	Standard Deviation

Mathematics Standards of Learning		Imagine Math	
Algebra I		*Unit*	*Lesson*
Statistics			
A.8	The student, given a data set or practical situation, will analyze a relation to determine whether a direct or inverse variation exists, and represent a direct variation algebraically and graphically and an inverse variation algebraically.	Building Functions	Direct Variation
A.9	The student will collect and analyze data, determine the equation of the curve of best fit in order to make predictions, and solve practical problems, using mathematical models of linear and quadratic functions.	Interpreting Categorical and Quantitative Data	Fitting Functions to Data

Geometry

Virginia Mathematics
Standards of Learning

Mathematics Standards of Learning		Imagine Math	
Geometry		*Unit*	*Lesson*
Reasoning, Lines, and Transformations			
G.1a	The student will use deductive reasoning to construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include identifying the converse, inverse, and contrapositive of a conditional statement;	This standard is not addressed.	This standard is not addressed.
G.1b	The student will use deductive reasoning to construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include translating a short verbal argument into symbolic form; and	This standard is not addressed.	This standard is not addressed.
G.1c	The student will use deductive reasoning to construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include determining the validity of a logical argument.	This standard is not addressed.	This standard is not addressed.
G.2a	The student will use the relationships between angles formed by two lines intersected by a transversal to prove two or more lines are parallel; and	This standard is not addressed.	This standard is not addressed.
G.2b	The student will use the relationships between angles formed by two lines intersected by a transversal to solve problems, including practical problems, involving angles formed when parallel lines are intersected by a transversal.	Congruence	Proving Theorems About Lines and Angles
		Geometry	Parallel Lines and Transversals
G.3a	The student will solve problems involving symmetry and transformation. This will include investigating and using formulas for determining distance, midpoint, and slope;	Creating Equations	Exploring Slopes of Parallel and Perpendicular Lines
G.3b	The student will solve problems involving symmetry and transformation. This will include applying slope to verify and determine whether lines are parallel or perpendicular;	Expressing Geometric Properties with Equations	Coordinates of Parallel and Perpendicular Lines Problem Solving with Coordinates of Parallel and Perpendicular Lines

Mathematics Standards of Learning		Imagine Math	
Geometry		*Unit*	*Lesson*
G.3c	The student will solve problems involving symmetry and transformation. This will include investigating symmetry and determining whether a figure is symmetric with respect to a line or a point; and	Congruence	Rotational and Reflectional Symmetry
G.3d	The student will solve problems involving symmetry and transformation. This will include determining whether a figure has been translated, reflected, rotated, or dilated, using coordinate methods.	Congruence	Defining Transformations Rigid Motion and Congruence
		Geometry	Rotations
G.4a	The student will construct and justify the constructions of a line segment congruent to a given line segment;	Congruence	Constructing Angles and Special Line Segments
G.4b	The student will construct and justify the constructions of the perpendicular bisector of a line segment;	Congruence	Constructing Angles and Special Line Segments
G.4c	The student will construct and justify the constructions of a perpendicular to a given line from a point not on the line;	This standard is not addressed.	This standard is not addressed.
G.4d	The student will construct and justify the constructions of a perpendicular to a given line at a given point on the line;	This standard is not addressed.	This standard is not addressed.
G.4e	The student will construct and justify the constructions of the bisector of a given angle,	Congruence	Constructing Angles and Special Line Segments
G.4f	The student will construct and justify the constructions of an angle congruent to a given angle;	Congruence	Constructing Angles and Special Line Segments
G.4g	The student will construct and justify the constructions of a line parallel to a given line through a point not on the line; and	Congruence	Constructing Angles and Special Line Segments
G.4h	The student will construct and justify the constructions of an equilateral triangle, a square, and a regular hexagon inscribed in a circle.	Congruence	Constructing Inscribed Figures

Mathematics Standards of Learning		Imagine Math	
Geometry		*Unit*	*Lesson*
Triangles			
G.5a	The student, given information concerning the lengths of sides and/or measures of angles in triangles, will solve problems, including practical problems. This will include ordering the sides by length, given angle measures;	This standard is not addressed.	This standard is not addressed.
G.5b	The student, given information concerning the lengths of sides and/or measures of angles in triangles, will solve problems, including practical problems. This will include ordering the angles by degree measure, given side lengths;	This standard is not addressed.	This standard is not addressed.
G.5c	The student, given information concerning the lengths of sides and/or measures of angles in triangles, will solve problems, including practical problems. This will include determining whether a triangle exists; and	Geometry	Using Line Segments and Angles to Make Triangles
G.5d	The student, given information concerning the lengths of sides and/or measures of angles in triangles, will solve problems, including practical problems. This will include determining the range in which the length of the third side must lie.	Geometry	Using Line Segments and Angles to Make Triangles
G.6	The student, given information in the form of a figure or statement, will prove two triangles are congruent.	Congruence	Proving Theorems About Congruent Triangles Rigid Motion and Congruence What Is Proof?
		Similarity, Right Triangles, and Trigonometry	Problem Solving with Congruent Triangles
G.7	The student, given information in the form of a figure or statement, will prove two triangles are similar.	Similarity, Right Triangles, and Trigonometry	Proving Theorems About Similar Triangles Transformations and Similarity

Mathematics Standards of Learning		Imagine Math	
Geometry		*Unit*	*Lesson*
G.8a	The student will solve problems, including practical problems, involving right triangles. This will include applying the Pythagorean Theorem and its converse;	Geometry	Pythagorean Theorem - Distance Formula Pythagorean Theorem - Hypotenuse Pythagorean Theorem - Legs Pythagorean Theorem - Mixed Problems
G.8b	The student will solve problems, including practical problems, involving right triangles. This will include applying properties of special right triangles; and	This standard is not addressed.	This standard is not addressed.
G.8c	The student will solve problems, including practical problems, involving right triangles. This will include applying trigonometric ratios.	Similarity, Right Triangles, and Trigonometry	Problem Solving with Similarity and Trigonometric Ratios Similarity and Trigonometric Ratios Sine and Cosine of Complementary Angles
Polygons and Circles			
G.9	The student will verify and use properties of quadrilaterals to solve problems, including practical problems.	Congruence	Proving Theorems About Parallelograms
G.10a	The student will solve problems, including practical problems, involving angles of convex polygons. This will include determining the sum of the interior and/or exterior angles;	Geometry	Angles in a Polygon
G.10b	The student will solve problems, including practical problems, involving angles of convex polygons. This will include determining the measure of an interior and/or exterior angle; and	Geometry	Angles in a Polygon
G.10c	The student will solve problems, including practical problems, involving angles of convex polygons. This will include determining the number of sides of a regular polygon.	Geometry	Angles in a Polygon

Mathematics Standards of Learning		Imagine Math	
Geometry		*Unit*	*Lesson*
G.11a	The student will solve problems, including practical problems, by applying properties of circles. This will include determining angle measures formed by intersecting chords, secants, and/or tangents;	Circles	Tangents, Chords, Radii, and Angles in Circles
G.11b	The student will solve problems, including practical problems, by applying properties of circles. This will include determining lengths of segments formed by intersecting chords, secants, and/or tangents;	Circles	Tangents, Chords, Radii, and Angles in Circles
G.11c	The student will solve problems, including practical problems, by applying properties of circles. This will include determining arc length; and	Circles	Radians and Area of Sectors
G.11d	The student will solve problems, including practical problems, by applying properties of circles. This will include determining area of a sector.	Circles	Radians and Area of Sectors
G.12	The student will solve problems involving equations of circles.	Expressing Geometric Properties with Equations	Equation of a Circle
Three-Dimensional Figures			
G.13	The student will use surface area and volume of three-dimensional objects to solve practical problems.	Geometry	Surface Area of Composite Solids Surface Area of Spheres Volume of Cylinders Volume of Pyramids and Cones Volume of Spheres
		Modeling with Geometry	Using Geometric Relationships to Solve Design Problems
G.14a	The student will apply the concepts of similarity to two- or three-dimensional geometric figures. This will include comparing ratios between lengths, perimeters, areas, and volumes of similar figures;	Similarity, Right Triangles, and Trigonometry	Problem Solving with Transformations and Similarity

Mathematics Standards of Learning		Imagine Math	
Geometry		*Unit*	*Lesson*
G.14b	The student will apply the concepts of similarity to two- or three-dimensional geometric figures. This will include determining how changes in one or more dimensions of a figure affect area and/or volume of the figure;	This standard is not addressed.	This standard is not addressed.
G.14c	The student will apply the concepts of similarity to two- or three-dimensional geometric figures. This will include determining how changes in area and/or volume of a figure affect one or more dimensions of the figure; and	This standard is not addressed.	This standard is not addressed.
G.14d	The student will apply the concepts of similarity to two- or three-dimensional geometric figures. This will include solving problems, including practical problems, about similar geometric figures.	This standard is not addressed.	This standard is not addressed.

Percent Correlation

Virginia Mathematics
Standards of Learning

Percent Correlation to Virginia Mathematics Standards of Learning

Grade 3
62% Coverage in Imagine Math

Standards not addressed:	
3.6c	The student will make change from $5.00 or less.
3.7a	The student will estimate and use U.S. Customary and metric units to measure length to the nearest 1/2 inch, inch, foot, yard, centimeter, and meter; and
3.7b	The student will estimate and use U.S. Customary and metric units to measure liquid volume in cups, pints, quarts, gallons, and liters.
3.9a	The student will tell time to the nearest minute, using analog and digital clocks;
3.9b	The student will solve practical problems related to elapsed time in one-hour increments within a 12-hour period; and
3.9c	The student will identify equivalent periods of time and solve practical problems related to equivalent periods of time.
3.10	The student will read temperature to the nearest degree.
3.12a	The student will define polygon;
3.12b	The student will identify and name polygons with 10 or fewer sides; and
3.12c	The student will combine and subdivide polygons with three or four sides and name the resulting polygon(s).
3.13	The student will identify and describe congruent and noncongruent figures.
3.14	The student will investigate and describe the concept of probability as a measurement of chance and list possible outcomes for a single event.
3.15a	The student will collect, organize, and represent data in pictographs or bar graphs; and

Grade 4 78% Coverage in Imagine Math	
Standards not addressed:	
4.3b	The student will round decimals to the nearest whole number;
4.8a	The student will estimate and measure length and describe the result in U.S. Customary and metric units;
4.8b	The student will estimate and measure weight/mass and describe the result in U.S. Customary and metric units;
4.8d	The student will solve practical problems that involve length, weight/mass, and liquid volume in U.S. Customary units.
4.10b	The student will identify and describe intersecting, parallel, and perpendicular lines.
4.14a	The student will collect, organize, and represent data in bar graphs and line graphs;
4.14b	The student will interpret data represented in bar graphs and line graphs; and
4.14c	The student will compare two different representations of the same data (e.g., a set of data displayed on a chart and a bar graph, a chart and a line graph, or a pictograph and a bar graph).
Grade 5 74% Coverage in Imagine Math	
Standards not addressed:	
5.9b	The student will solve practical problems involving length, mass, and liquid volume using metric units.
5.10	The student will identify and describe the diameter, radius, chord, and circumference of a circle.
5.13b	The student will investigate the sum of the interior angles in a triangle and determine an unknown angle measure.
5.14a	The student will recognize and apply transformations, such as translation, reflection, and rotation; and
5.14b	The student will investigate and describe the results of combining and subdividing polygons.
5.16c	The student, given a practical problem, will compare data represented in a line plot with the same data represented in a stem-and-leaf plot.
5.19a	The student will investigate and describe the concept of variable;
5.19c	The student will use an expression with a variable to represent a given verbal expression involving one operation; and
5.19d	The student will create a problem situation based on a given equation, using a single variable and one operation.

Grade 6 87% Coverage in Imagine Math	
Standards not addressed:	
6.7a	The student will derive π (pi);
6.9	The student will determine congruence of segments, angles, and polygons.
6.10c	The student, given a practical situation, will compare circle graphs with the same data represented in bar graphs, pictographs, and line plots.
6.12b	The student will determine the unit rate of a proportional relationship and use it to find a missing value in a ratio table;
Grade 7 73% Coverage in Imagine Math	
Standards not addressed:	
7.6b	The student will determine unknown side lengths or angle measures of quadrilaterals.
7.8b	The student will investigate and describe the difference between the experimental probability and theoretical probability of an event.
7.9c	The student, given data in a practical situation, will compare histograms with the same data represented in stem-and-leaf plots, line plots, and circle graphs.
7.10a	The student will determine the slope, m, as rate of change in a proportional relationship between two quantities and write an equation in the form y = mx to represent the relationship;
7.10b	The student will graph a line representing a proportional relationship between two quantities given the slope and an ordered pair, or given the equation in y = mx form where m represents the slope as rate of change;
7.10c	The student will determine the y-intercept, b, in an additive relationship between two quantities and write an equation in the form y = x + b to represent the relationship;
7.10d	The student will graph a line representing an additive relationship between two quantities given the y-intercept and an ordered pair, or given the equation in the form y = x + b, where b represents the y-intercept; and

Grade 8 79% Coverage in Imagine Math	
Standards not addressed:	
8.3b	The student will determine both the positive and negative square roots of a given perfect square.
8.6b	The student will describe how changing one measured attribute of a rectangular prism affects the volume and surface area.
8.7b	The student will identify practical applications of transformations.
8.8	The student will construct a three-dimensional model, given the top or bottom, side, and front views.
8.16a	The student will recognize and describe the graph of a linear function with a slope that is positive, negative, or zero;
8.16b	The student will identify the slope and y-intercept of a linear function, given a table of values, a graph, or an equation in y = mx + b form;
8.16c	The student will determine the independent and dependent variable, given a practical situation modeled by a linear function;
Algebra I 93% Coverage in Imagine Math	
Standards not addressed:	
A.1a	The student will represent verbal quantitative situations algebraically; and
A.1b	The student will evaluate algebraic expressions for given replacement values of the variables.

Geometry 70% Coverage in Imagine Math	
Standards not addressed:	
G.1a	The student will use deductive reasoning to construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include identifying the converse, inverse, and contrapositive of a conditional statement;
G.1b	The student will use deductive reasoning to construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include translating a short verbal argument into symbolic form; and
G.1c	The student will use deductive reasoning to construct and judge the validity of a logical argument consisting of a set of premises and a conclusion. This will include determining the validity of a logical argument.
G.2a	The student will use the relationships between angles formed by two lines intersected by a transversal to prove two or more lines are parallel; and
G.4c	The student will construct and justify the constructions of a perpendicular to a given line from a point not on the line;
G.4d	The student will construct and justify the constructions of a perpendicular to a given line at a given point on the line;
G.5a	The student, given information concerning the lengths of sides and/or measures of angles in triangles, will solve problems, including practical problems. This will include ordering the sides by length, given angle measures;
G.5b	The student, given information concerning the lengths of sides and/or measures of angles in triangles, will solve problems, including practical problems. This will include ordering the angles by degree measure, given side lengths;
G.8b	The student will solve problems, including practical problems, involving right triangles. This will include applying properties of special right triangles; and
G.14b	The student will apply the concepts of similarity to two- or three-dimensional geometric figures. This will include determining how changes in one or more dimensions of a figure affect area and/or volume of the figure;
G.14c	The student will apply the concepts of similarity to two- or three-dimensional geometric figures. This will include determining how changes in area and/or volume of a figure affect one or more dimensions of the figure; and
G.14d	The student will apply the concepts of similarity to two- or three-dimensional geometric figures. This will include solving problems, including practical problems, about similar geometric figures.