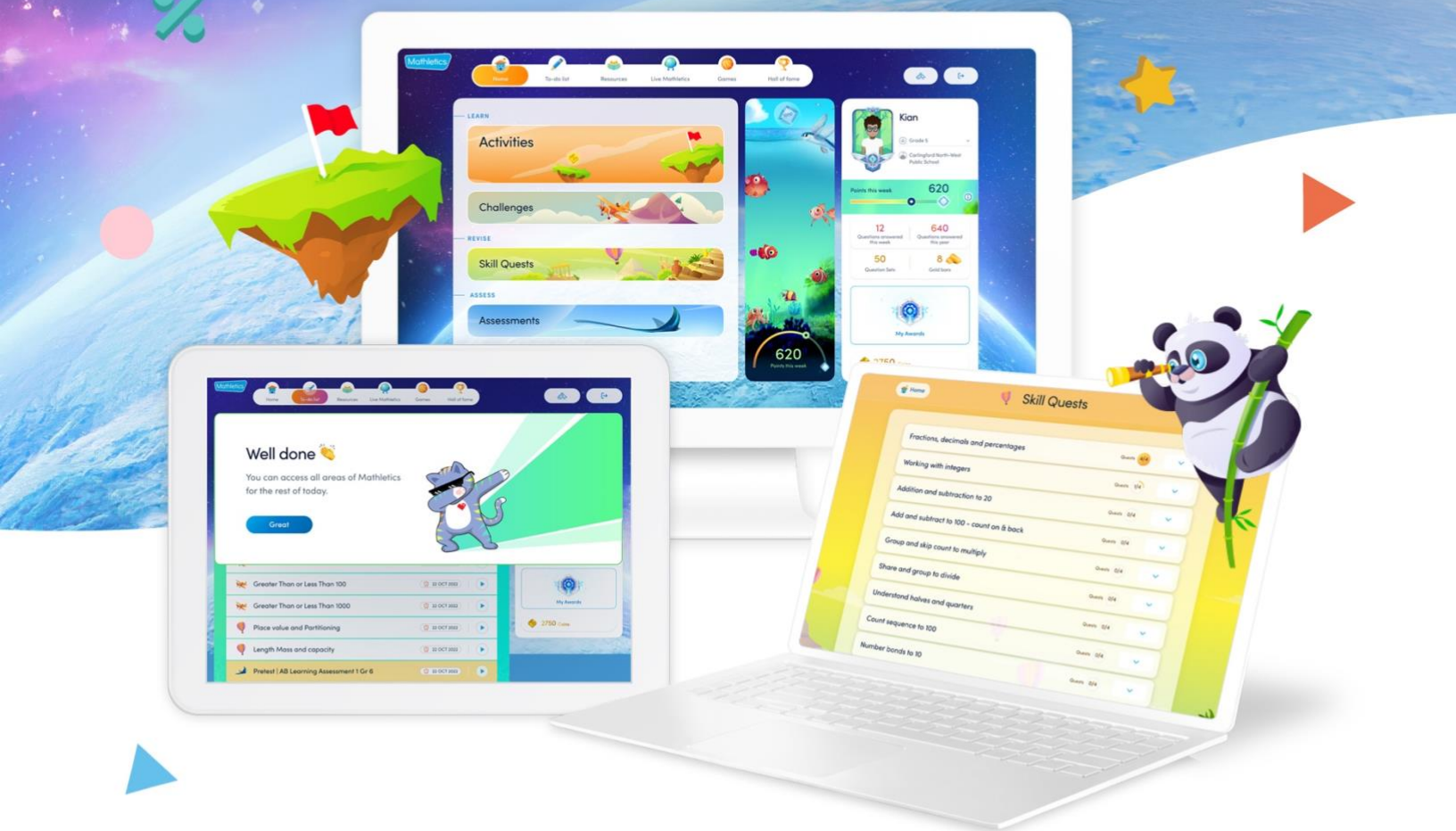
Mathletics

Indiana Academic Standards

Activities (Courses) and Skill Quests



Grades 3-6

August, 2025

Mathletics

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Indiana Mathematics Standards

Activities (Courses)

August 2025

Grade 3

1. Number Sense

Students represent and round whole numbers up to 10,000. Students model, compare, and generate simple equivalent unit and non-unit fractions.

3.NS.1 Read and write whole numbers up to 10,000. Use words, models, standard form, and expanded form to represent and show equivalent forms of whole numbers up to 10,000.	
Course Topics	**Activities**
Teacher directed	

3.NS.2 Model unit fractions as the quantity formed by 1 part when a whole is partitioned into equal parts; model non-unit fractions as the quantity formed by iterations of unit fractions. [In grade 3, limit denominators of fractions to 2, 3, 4, 6, 8.]	
Course Topics	**Activities**
NS—Numbers (fractions)	Partition into Equal Parts
	Make Fair Shares
	Model Fractions

3.NS.3 Model a non-unit fraction on a number line by marking equal lengths from 0, identifying each part as a unit fraction and locating the non-unit fraction as the endpoint on the number line.	
Course Topics	**Activities**
NS—Numbers (fractions)	Equivalent Fractions on a Number Line 1
	Equivalent Fractions on a Number Line 2

3.NS.4 Use fraction models to represent two simple equivalent fractions with attention to how the number and size of the parts differ even though the quantities are the same. Use this principle to generate simple equivalent fractions (e.g., 1/2 = 2/4, 4/6 = 2/3).	
Course Topics	**Activities**
NS—Numbers (fractions)	Equivalent Fraction Wall 1
	Equivalent Fraction Wall 2
	Selecting Equivalent Fractions

3.NS.5 Compare two fractions with the same numerator or the same denominator by reasoning about their size based on the same whole. Record the results of comparisons with the symbols > , = , or < , and justify the conclusions (e.g., by using a visual fraction model).	
Course Topics	**Activities**
NS—Numbers (fractions)	Compare Fractions 1a

3.NS.6 Use place value understanding to round two- and three-digit whole numbers to the nearest 10 or 100.	
Course Topics	**Activities**
NS—Numbers (fractions)	Nearest Ten?
	Nearest Hundred?
	Place Value 2

2. Computation and Algebraic Thinking

Students use modeling and conceptual strategies to multiply and divide numbers within 100 in real-world situations. Students apply concepts and strategies of addition and subtraction to solve real-world problems and investigate number patterns through the application of concepts of multiplication and more complex concepts of addition within 100.

3.CA.1 Fluently add and subtract multi-digit whole numbers using strategies and algorithms based on place value, properties of operations, and relationships between addition and subtraction.	
Course Topics	**Activities**
CA—Addition & subtraction	Strategies for Column Addition
	Add 3-Digit Numbers
	Add 3-Digit Numbers: Regroup
	Add Multi-Digit Numbers 1
	Add Three 1-Digit Numbers

3.CA.2 Solve real-world problems involving addition and subtraction of multi-digit whole numbers (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).	
Course Topics	**Activities**
CA—Addition & subtraction	Problems: Add and Subtract
	Adding to 10 Word Problems
	Bar Model Problems 1
	Bar Model Problems 2
	Add and Subtract Problems

3.CA.3 Model the concept of multiplication of whole numbers using equal-sized groups, arrays, area models, and equal intervals on a number line. Model the properties of 0 and 1 in multiplication using objects or drawings.	
Course Topics	**Activities**
CA—Multiplication	Groups of Two
	Groups of Three
	Groups of Four
	Groups of Five
	Groups of Six

	Groups of Seven
	Groups of Eight
	Groups of Nine
	Groups of Ten
	Multiplication Arrays
	Arrays 1
	Model Multiplication to 5 × 5
	Multiplication Grids
	Multiplication Turn-Abouts

3.CA.4 Model the concept of division of whole numbers with the following models: partitioning, sharing, and an inverse of multiplication. Model the properties of 0 and 1 in division using objects or drawings.	
Course Topics	**Activities**
CA—Division	Dividing by Three
	Dividing by Four
	Dividing by Five
	Dividing by Six
	Dividing by Seven
	Dividing by Eight
	Dividing by Nine
	Dividing Tens
	Divide Into Equal Groups
	Frog Jump Division

3.CA.5 Multiply and divide within 100 using strategies such as the relationship between multiplication and division (e.g., knowing that 8 x 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations.	
Course Topics	**Activities**
Teacher directed	

3.CA.6 Demonstrate fluency with mastery of multiplication facts and corresponding division facts of 0 to 10.	
Course Topics	**Activities**
CA—Division	Times Tables
	Division Facts to Twelve

3.CA.7 Solve real-world problems involving whole number multiplication and division within 100 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).	
Course Topics	**Activities**
CA—Multiplication	Frog Jump Multiplication

3.CA.8 Create, extend, and give an appropriate rule for number patterns within 100 (including patterns in the addition table or multiplication table).	
Course Topics	**Activities**
CA—Patterns	Increasing Patterns
	Patterns - Increasing
	Patterns – Decreasing

3. Geometry

Students continue to investigate and classify more complex two-dimensional shapes based on their attributes.

3.G.1 Define, identify, and classify four-sided shapes such as rhombuses, rectangles, and squares as quadrilaterals. Identify and draw examples and non-examples of quadrilaterals.	
Course Topics	**Activities**
G—Attributes of shapes	Collect the Shapes 1
	Collect the Shapes 2
	Collect the Polygons

3.G.2 Identify, describe, and draw points, lines, and line segments using appropriate tools (e.g., ruler, straightedge, and technology), and use these terms when describing two-dimensional shapes.	
Course Topics	**Activities**
G—Attributes of shapes	Count Sides and Corners
	What Pair of Lines Am I?

3.G.3 Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole (i.e., 1/2, 1/3, 1/4, 1/6, 1/8).	
Course Topics	**Activities**
G—Attributes of shapes	Shade Fractions

4. Measurement

Students use appropriate tools, computation strategies, and relationships of measurement to solve real-world problems including more specific measurements of length, weight, temperature, mass, time, and money. Students investigate and model the area of rectangles and perimeter of all polygons.

3.M.1 Estimate and measure the mass of objects in grams (g) and kilograms (kg) and the volume of objects in quarts (qt), gallons (gal), and liters (l). Add, subtract, multiply, or divide to solve one-step, real-world problems involving masses or volumes that are given in the same units or obtained through investigation.	
Course Topics	**Activities**
M—Mass	Cups, Pints, Quarts, Gallons
	Grams and Kilograms Conversion
	Converting Units of Mass

3.M.2 Choose and use appropriate units and tools to estimate and measure length, weight, and temperature. Estimate and measure length to a quarter-inch, weight in pounds, and temperature in degrees Celsius and Fahrenheit.	
Course Topics	**Activities**
M—Length, weight, & temperature	Temperature (Fahrenheit)
	Measuring Length
	Measure to the Nearest Half Inch
	How Heavy?

3.M.3 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).	
Course Topics	**Activities**
M—Time	What is the Time?
	Five Minute Times
	Time Mentals
	Elapsed Time

3.M.4 Find the value of any collection of coins and bills. Write amounts less than a dollar using the ¢ symbol and write larger amounts using the $ symbol in the form of dollars and cents (e.g., $4.59). Solve real-world problems to determine whether there is enough money to make a purchase.	
Course Topics	**Activities**
M—Money	Money - Totalling (USD)
	Count Money (USD)
	How Much Money? (USD)

3.M.5 Find the area of a rectangle with whole-number side lengths by modeling with unit squares, and show that the area is the same as would be found by multiplying the side lengths. Identify and draw rectangles with the same perimeter and different areas or with the same area and different perimeters.	
Course Topics	**Activities**
M—Area & perimeter	Equal Areas
	Bigger or Smaller Shape
	Calculate Area of Shapes (inches, feet, yards)

3.M.6 Find perimeters of polygons given the side lengths or given an unknown side length.	
Course Topics	**Activities**
M—Area & perimeter	Perimeter
	Perimeter of Squares and Rectangles
	Perimeter Detectives 1

5. Data Analysis

Students collect and present data in multiple manners and solve multi-step problems with the data.

3.DA.1 Collect, organize, and graph data from observations, surveys, and experiments using scaled bar graphs and pictographs. Solve real-world problems by analyzing and interpreting the data using grade-level computation and comparison strategies.	
Course Topics	**Activities**
DA—Data collection	Making Picture Graphs: With Scale
	Pictographs
	Bar Graphs 1
	Bar Graphs 2

Grade 4

1. Number Sense

Students represent and round multi-digit numbers. Students model, compare, and generate equivalent fractions, mixed numbers, and decimal numbers to the tenths and hundredths.

4.NS.1 Read and write whole numbers up to 1,000,000. Use words, models, standard form, and expanded form to represent and show equivalent forms of whole numbers up to 1,000,000.	
Course Topics	**Activities**
NS—Numbers (up to 1,000,000)	Numbers from Words to Digits 1
	Expanded Notation
	Expanding Numbers
	Numbers in Words

4.NS.2 Model mixed numbers and improper fractions using visual fraction models such as number lines and area models. Use a visual fraction model to show the equivalency between whole numbers and whole numbers as fractions.	
Course Topics	**Activities**
NS—Numbers (fractions)	Equivalent Fraction Wall 1
	What Mixed Number Is Shaded?
	Counting with Fractions on a Number Line
	Mixed and Improper Fractions on a Number Line
	Identifying Fractions on a Number Line

4.NS.3 Use fraction models to represent two equivalent fractions with attention to how the number and size of the parts differ even though the fractions themselves are the same size. Use this principle to generate equivalent fractions. [In grade 4, limit denominators of fractions to 2, 3, 4, 5, 6, 8, 10, 25, 100.]	
Course Topics	**Activities**
NS—Numbers (fractions)	Selecting Equivalent Fractions

4.NS.4 Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators, or by comparing to a benchmark, such as 0, 1/2, and 1). Explain why comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols > , = , or < , and justify the conclusions (e.g., by using a visual fraction model).	
Course Topics	**Activities**
NS—Numbers (fractions)	Compare Fractions 1b

4.NS.5 Write tenths and hundredths in decimal and fraction notations. Use words, models, standard form, and expanded form to represent decimal numbers to hundredths. Mentally calculate fraction and decimal equivalents for halves and fourths (e.g., 1/2 = 0.5 = 0.50, 7/4 = 1 3/4 = 1.75).	
Course Topics	**Activities**
NS—Numbers (decimals)	Place Value 1 (×10 and ÷10)
	Place Value 2 (×10 and ÷10)

4.NS.6 Compare two decimals to hundredths by reasoning about their size based on the same whole. Record the results of comparisons with the symbols > , = , or < , and justify the conclusions (e.g., by using a visual model).	
Course Topics	**Activities**
NS—Numbers (decimals)	Comparing Decimals 1
	Decimal Order 1

4.NS.7 Use place value understanding to round multi-digit whole numbers to any given place value.	
Course Topics	**Activities**
Teacher directed	

2. Computation and Algebraic Thinking

Students solve real-world problems using place value strategies and properties of multiplication and division with limitations. Students compose (addition) and decompose (subtraction) non-unit fractions and mixed numbers using models and strategies, applying these concepts to real-world situations. Students investigate the relationship between two given sets of numbers and generate number patterns based upon given rules.

4.CA.1 Multiply a whole number of up to four digits by a one-digit whole number and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Describe the strategy and explain the reasoning.	
Course Topics	**Activities**
CA—Multiplication & division	Multiply Multiples of 10
	Multiply 2 Digits Area Model
	Multiply: 1-Digit Number
	Double and Halve to Multiply

4.CA.2 Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning.	
Course Topics	**Activities**
CA—Multiplication & division	Dividing by 10, 100, 1000

	Remainders by Arrays
	Remainders by Tables
	Estimate Quotients
	Divide: 1-Digit Divisor 1
	Divide: 1-Digit Divisor 2

4.CA.3

Show how the order in which two numbers are multiplied (commutative property) and how numbers are grouped in multiplication (associative property) will not change the product. Use these properties to show that numbers can be multiplied in any order. Investigate and apply the distributive property.

Course Topics	Activities
CA—Multiplication & division	Multiplication Properties

4.CA.4

Investigate the mathematical relationship between factors and multiples for whole numbers from 1-100, including the set of factors and multiples for given numbers. Identify sets of factors and multiples for any given whole number up to 100.

Course Topics	Activities
CA—Multiplication & division	Multiples of
	Factors
	Find the Factor

4.CA.5

Solve real-world problems with whole numbers involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem), distinguishing multiplicative comparison from additive comparison. [In grade 4, division problems should not include a remainder.]

Course Topics	Activities
CA—Multiplication & division	Multiply and Divide Problems 1
	Problems: Multiply and Divide

4.CA.6

Add and subtract fractions with common denominators using visual fraction models. Decompose non-unit fractions to represent them as iterations of unit fractions.

Course Topics	Activities
CA—Add & subtract fractions	Add Subtract Fractions 1
	Add Like Fractions
	Subtract Like Fractions
	Common Denominator

4.CA.7

Add and subtract mixed numbers with common denominators (e.g., by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction).

Course Topics	Activities
CA—Add & subtract fractions	Add Like Mixed Numbers

4.CA.8 Solve real-world problems involving addition and subtraction of fractions referring to the same whole and having common denominators (e.g., by using visual fraction models and equations to represent the problem).	
Course Topics	**Activities**
Teacher directed	

4.CA.9 Describe the relationship between two terms and use it to find a second number when a first number is given. Generate a number pattern that follows a given rule.	
Course Topics	**Activities**
CA—Add & subtract fractions	Find the Missing Number 1

3. Geometry

Students utilize appropriate tools to identify, describe, and draw parallelograms, rhombuses, and trapezoids in addition to classifying two-dimensional shapes.

4.G.1 Identify, describe, and draw parallelograms, rhombuses, and trapezoids using appropriate tools (e.g., ruler, straightedge, and technology).	
Course Topics	**Activities**
G—Angles	Right Angle Relation

4.G.2 Identify, describe, and draw rays, angles (right, acute, obtuse), and perpendicular and parallel lines using appropriate tools (e.g., ruler, straightedge, and technology). Identify these in two-dimensional figures.	
Course Topics	**Activities**
G—Angles	Labelling Angles
	What Pair of Lines Am I?

4.G.3 Classify triangles and quadrilaterals based on the presence or absence of parallel or perpendicular lines, or right, acute, or obtuse angles.	
Course Topics	**Activities**
G—Angles	Triangles: Acute, Right, Obtuse
	Classifying Angles

4. Measurement

Students solve real-world problems involving distance, intervals of time, volumes, masses of objects, and money by applying computation strategies, precise measurement skills, and relationships between systems of measurement. Students continue to apply the concept of area and perimeter to complex shapes to identify solutions.

4.M.1 Measure length to the nearest quarter-inch, eighth-inch, and millimeter.	
Course Topics	**Activities**
M—Length & Conversion	Inches, Feet, Yards

4.M.2 Within given measurement systems, convert larger units to smaller units, including km, m, cm; kg, g; lb, oz; l, ml; hr, min, sec., and use these conversions to solve real-world problems.	
Course Topics	**Activities**
M—Length & Conversion	Customary Units of Length
	Customary Units of Capacity
	Meters and Kilometers
	Grams and Kilograms Conversion
	Converting Units of Mass
	Time Conversions: Whole Numbers 1

4.M.3 Use the four operations to solve real-world problems involving distances, intervals of time, volumes, masses of objects, and money. Include addition and subtraction problems involving simple fractions and problems that require expressing measurements given in a larger unit in terms of a smaller unit.	
Course Topics	**Activities**
M—Real-world problems	Customary Units of Weight 1
	Customary Units of Weight 2
	Mass Word Problems

4.M.4 Apply the area and perimeter formulas for rectangles to solve real-world and other mathematical problems. Investigate the area of complex shapes composed of rectangles by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts; apply this technique to solve real-world problems and other mathematical problems.	
Course Topics	**Activities**
M—Perimeter	Perimeter: Squares and Rectangles
	Perimeter Detectives 1

5. Data Analysis

Students collect and ask questions of the data.

4.DA.1 Formulate questions that can be addressed with data. Collect, organize, and graph data from observations, surveys, and experiments using line plots with whole number intervals, single- and scaled bar graphs, and frequency tables. Solve real-world problems by analyzing and interpreting the data using grade-level computation and comparison strategies.	
Course Topics	**Activities**
Teacher directed	

4.DA.2 Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using data displayed in line plots.	
Course Topics	**Activities**
DA—Data collection	Line Plots

Grade 5

1. Number Sense

Students explore place value through representing powers of 10 as exponents, modeling percents as parts of 100, and comparing and ordering fractions, mixed numbers, and decimals to the thousandth.

5.NS.1 Use a number line to compare and order fractions, mixed numbers, and decimals to thousandths. Write the results using > , = , and < symbols.	
Course Topics	**Activities**
NS—Fractions	Decimal Order 1
	Decimal Order 2
	Comparing Decimals 2
	Comparing Decimals 1
	Decimals on the Number Line
	Compare Fractions 1a
	Compare Fractions 1b

5.NS.2 Explain different interpretations of fractions, including as parts of a whole, parts of a set, and division of whole numbers by whole numbers.	
Course Topics	**Activities**
NS—Fractions	Partition into Equal Parts
	Part-Whole Rods 1
	Part-Whole Rods 2

5.NS.3 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.	
Course Topics	**Activities**
NS—Powers of 10	Place Value 2 (×10 and ÷10)
	Multiplying by 10, 100, 1000
	Dividing by 10, 100, 1000
	Multiply Decimals and Powers of 10

5.NS.4 Model percents as parts of 100 using pictures or diagrams and identify the equivalent fraction.	
Course Topics	**Activities**
NS—Percents	Percent of a Number (Mental)
	Percents to Fractions
	Common Fractions as Percentages

2. Computation and Algebraic Thinking

Students apply concepts and strategies of multiplication and division to solve real-world problems. Students add and subtract unlike fractions and use visual fraction models to multiply and divide fractions and whole numbers. Students apply conceptual models and strategies to all operations with decimals to solve real-world problems and represent real-world situations within the first quadrant of the coordinate plane.

5.CA.1 Find whole-number quotients and remainders with up to four-digit dividends and two-digit divisors using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Describe the strategy and explain the reasoning used.	
Course Topics	**Activities**
CA—Multiplication & division	Divide: 2-Digit Divisor, Remainder
	Mental Methods Division

5.CA.2 Solve real-world problems involving multiplication and division of whole numbers (e.g., by using equations to represent the problem). In division problems that involve a remainder, explain how the remainder affects the solution to the problem.	
Course Topics	**Activities**
CA—Multiplication & division	Multiply and Divide Problems 1

5.CA.3 Add and subtract fractions and mixed numbers with unlike denominators using strategies or the standard algorithm.	
Course Topics	**Activities**
CA—Fractions	Add Unlike Fractions
	Subtract Unlike Fractions
	Subtract Unlike Mixed Numbers

5.CA.4 Solve real-world problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators (e.g., by using visual fraction models and equations to represent the problem). Use benchmark fractions and number sense of fractions to estimate mentally and assess whether the answer is reasonable.	
Course Topics	**Activities**
CA—Fractions	No Common Denominator
	Add Unlike Mixed Numbers

5.CA.5 Use visual fraction models to multiply a fraction by a fraction or a whole number.	
Course Topics	**Activities**
CA—Fractions	Model Fractions to Multiply
	Multiply Fraction by Whole Number
	Multiply: Whole Number and Fraction
	Multiply Fraction by Fraction

5.CA.6 Use visual fraction models and numbers to divide a fraction by a fraction or a whole number.	
Course Topics	**Activities**
CA—Fractions	Fraction Wall Labelling 2
	Divide Fractions Visual Model

5.CA.7 Solve real-world problems involving multiplication of fractions, including mixed numbers (e.g., by using visual fraction models and equations to represent the problem).	
Course Topics	**Activities**
CA—Fractions	Multiply Two Fractions 1
	Divide Fractions by Fractions 1
	Divide by a Unit Fraction

5.CA.8 Solve real-world problems involving division of fractions and mixed numbers (e.g., by using visual fraction models and equations to represent the problem).	
Course Topics	**Activities**
Teacher directed	

5.CA.9 Add, subtract, multiply, and divide decimals to hundredths, using models or drawings and strategies based on place value or the properties of operations. Describe the strategy and explain the reasoning.	
Course Topics	**Activities**
CA—Decimals	Add Decimals 1
	Subtract Decimals 1
	Multiply Decimal by Whole Number
	Divide Decimal by Whole Number

5.CA.10 Solve real-world problems involving addition, subtraction, multiplication, and division with decimals to hundredths including problems that involve money in decimal notation (e.g., by using equations, models or drawings, and strategies based on place value or properties of operations to represent the problem).	
Course Topics	**Activities**
CA—Decimals	Money Problems: Four Operations

5.CA.11 Represent real-world problems and equations by graphing ordered pairs in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation.	
Course Topics	**Activities**
CA—Graphing	Coordinate Graphs: 1st Quadrant

3. Geometry

Students use appropriate tools to investigate attributes of triangles and circles.

5.G.1 Identify, describe, and draw triangles (right, acute, obtuse) and circles using appropriate tools (e.g., ruler or straightedge, compass, and technology). Define and model the relationship between radius and diameter.	
Course Topics	**Activities**
G- Geometry	Identify Parts of Circles 1
	Triangles: Acute, Right, Obtuse
	Identify Parts of Circles 2

4. Measurement

Students investigate the volume of rectangular prisms and solve real-world problems through the development and application of area formulas for rectangles, triangles, parallelograms, and trapezoids. Students investigate and convert measurements within the customary and metric measurement systems.

5.M.1 Convert among different-sized standard measurement units within a given measurement system and use these conversions in solving multi-step, real-world problems.	
Course Topics	**Activities**
M—Conversions	Converting Units of Length
	Customary Units of Length
	Meters and Kilometers
	Customary Units of Weight 1
	Customary Units of Weight 2
	Milliliters and Liters
	Customary Units of Capacity
	Converting Units of Mass

5.M.2 Find the area of a rectangle with fractional side lengths by modeling with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.	
Course Topics	**Activities**
M—Area	Area: Squares and Rectangles
	Area of Shapes
	Calculate Area of Shapes (inches, feet, yards)

5.M.3 Develop and use formulas for the area of triangles, parallelograms, and trapezoids. Solve real-world and other mathematical problems that involve perimeter and area of triangles, parallelograms, and trapezoids, using appropriate units for measures.	
Course Topics	**Activities**
M—Area	Area of Squares and Rectangles
	Area: Compound Figures

5.M.4 Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes, and show that the volume is the same as would be found by multiplying the edge lengths or multiplying the height by the area of the base.	
Course Topics	**Activities**
M—Volume	Volume of Solids and Prisms - 1cm³ blocks
	How many Blocks?

5.M.5 Apply the formulas V = l × w × h and V = B × h for right rectangular prisms to find volumes of right rectangular prisms with whole-number edge lengths to solve real-world problems and other mathematical problems	
Course Topics	**Activities**
M—Volume	Volume of Rectangular Prisms 1
	Volume: Rectangular Prisms 2

5. Data Analysis

Students create questions appropriate to the data and answer the questions using multiple representations.

5.DA.1 Formulate questions that can be addressed with categorical and numerical data and make predictions about the data. Collect, organize, and graph data from observations, surveys, and experiments using line plots with fractional intervals, histograms, or other graphical representations that appropriately represent the data set.	
Course Topics	**Activities**
DA—Data collection	Dot Plots
	Histograms
	Histograms for Grouped Data

5.DA.2 Calculate measures of central tendency (mean, median, and mode) to describe a data set. Analyze data sets to determine which measure of central tendency appropriately describes the distribution of data.	
Course Topics	**Activities**
DA—Data collection	The Mean
	Mean from Frequency Table
	The Median
	Median from Frequency Table
	Median and Cumulative Frequency
	Mode
	Mode from Frequency Table

Grade 6

1 Number Sense

Students begin to apply negative integers within real-world contexts and use number lines to model opposite signed numbers as located on opposite sides of zero.

6.NS.1 Use positive and negative numbers to represent and compare quantities in real-world contexts, explaining the meaning of 0 in each situation.	
Course Topics	**Activities**
Teacher directed	

6.NS.2 Explain how opposite signs of numbers indicate locations on opposite sides of 0 on the number line; identify the opposite of the opposite of a number.	
Course Topics	**Activities**
NS - Integers	Absolute Value

6.NS.3 Compare and order rational numbers and plot them on a number line. Write, interpret, and explain statements of order for rational numbers in real-world contexts.	
Course Topics	**Activities**
NS - Integers	Integers on a Number Line
	Ordering Integers (Number Line)
	Comparing Integers

6.NS.4 Solve real-world problems with positive fractions and decimals by using one or two operations.	
Course Topics	**Activities**
NS - Rational numbers	Mixed Numerals
	Subtract Mixed Numbers: Renaming
	Multiplying Fractions
	Divide Fractions by Fractions 1
	Fraction Word Problems
	More Fraction Problems
	Add Decimals 2
	Subtract Decimals 2
	Adding and Subtracting Decimals
	Multiply Decimal by Whole Number
	Multiply Decimal by Decimal
	Divide Decimal by Whole Number
	Divide Decimal by Decimal

2. Ratios and Proportional Reasoning

Students use ratios and reasoning to compare two quantities and understand unit rate. Students use ratios and unit rates to model and solve real-world problems.

6.RP.1 Convert between any two representations (fractions, decimals, percents) of positive rational numbers without the use of a calculator.	
Course Topics	**Activities**
RP- Conversions	Fractions to Decimals
	Fractions to Decimals 2
	Decimals to Fractions 1
	Common Fractions as Percentages
	Percents to Fractions
	Mixed numerals to Percentages greater than 100%
	Percentages greater than 100% to Mixed Numerals
	Decimals to percentages
	Percentages to Decimals
	Mixed decimal, percentage and fraction conversions

6.RP.2 Understand the concept of a unit rate and use terms related to rate in the context of a ratio relationship.	
Course Topics	**Activities**
RP - Rates & ratio	Rates
	Unitary Method
	Rate Word Problems
	Ratio
	Word Problems: Ratio

6.RP.3 Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane.	
Course Topics	**Activities**
RP - Coordinate plane	Table of Values
	Number Plane
	Coordinate Graphs
	Direct Linear Variation

6.RP.4 Solve real-world and other mathematical problems involving rates and ratios using models and strategies such as reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations.	
Course Topics	**Activities**
RP - Rates & ratio	Rate Word Problems
	Word Problems: Ratio

6.RP.5 Use variables to represent two quantities in a proportional relationship in a real-world problem; write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.	
Course Topics	**Activities**
RP - Coordinate plane	Direct Linear Variation
	Conversion Graphs

3. Algebra and Functions

Students evaluate algebraic expressions, write algebraic expressions to represent quantities in context, and create equivalent algebraic expressions.

6.AF.1 Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values.	
Course Topics	**Activities**
AF - Expressions & equations	Writing Algebraic Expressions
	Simple Substitution 1
	I am Thinking of a Number!
	Write an Equation: Word Problems
	Function Rules and Tables

6.AF.2 Demonstrate which values from a specified set, if any, make the equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true.	
Course Topics	**Activities**
Teacher directed	

6.AF.3 Solve equations of the form x + p = q, x - p = q, px = q , and x/p = q fluently for cases in which p, q and x are all nonnegative rational numbers. Represent real-world problems using equations of these forms and solve such problems.	
Course Topics	**Activities**
AF - Expressions & equations	Find the Missing Number 1
	Missing Values: Decimals
	Solve Equations: Add, Subtract 1
	Solve Equations: Multiply, Divide 1
	I am Thinking of a Number!
	Write an Equation: Word Problems

6.AF.4 Write an inequality of the form x > c, x ≥ c, x < c, or x ≤ c , where c is a rational number, to represent a constraint or condition in a real-world or other mathematical problem. Explain that inequalities have infinitely many solutions and how to represent solutions on a number line diagram.	
Course Topics	**Activities**
AF - Expressions & equations	Graphing Inequalities 2

6.AF.5 Solve real-world and other mathematical problems by graphing points with rational number coordinates on a coordinate plane. Include the use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.	
Course Topics	**Activities**
AF - Expressions & equations	Function Rules and Tables
	Reading Values from a Line
	Graphing from a Table of Values 2

4. Geometry and Measurement

Students find areas of complex shapes and find volumes of rectangular prisms.

6.GM.1 Convert between measurement systems (Customary to metric and metric to Customary) given the conversion factors, and use these conversions in solving real-world problems.	
Course Topics	**Activities**
Teacher directed	

6.GM.2 Apply the sums of interior angles of triangles and quadrilaterals to solve real-world and mathematical problems.	
Course Topics	**Activities**
GM - Interior angles	Angle Sum of a Triangle
	Quadrilaterals: Angle Sum with Equations

6.GM.3 Find the area of complex shapes composed of polygons by composing or decomposing into simple shapes; apply this technique to solve real-world and other mathematical problems.	
Course Topics	**Activities**
GM - Area	Area: Compound Figures
	Area: Composite Shapes
	Field Diagrams

6.GM.4 Find the volume of a right rectangular prism with fractional edge lengths using unit cubes of the appropriate unit fraction edge lengths (e.g., using technology or concrete materials) and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = lwh and V = Bh to find volumes of right rectangular prisms with fractional edge lengths to solve real-world and other mathematical problems.	
Course Topics	**Activities**
GM - Volume	Volume: Rectangular Prisms 2
	Volume: Cuboid 2

5. Data Analysis and Statistics

Students represent data using line plots, histograms, and box plots.

6.DS.1 Select, create, and interpret graphical representations of numerical data, including line plots, histograms, and box plots.	
Course Topics	**Activities**
DS - Data Analysis & Statistics	Line Plots
	Histograms
	Box-and-Whisker Plots 1
	Frequency Diagrams

6.DS.2 Formulate statistical questions; collect and organize the data (e.g., using technology), and display and interpret the data with graphical representations (e.g., using technology).	
Course Topics	**Activities**
Teacher directed	

6.DS.3 Summarize numerical data sets in relation to their context in multiple ways, such as: a. Report the number of observations; b. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement; c. Determine quantitative measures of center (mean and/or median) and spread (range and interquartile range); d. Describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered; and e. Relate the choice of measures of center and spread to the shape of the data distribution and the context in which the data were gathered.	
Course Topics	**Activities**
DS - Data Analysis & Statistics	Mean
	Median
	Which Measure of Central Tendency?
	Data Extremes and Range
	Calculating Interquartile Range
	Box-and-Whisker Plots 1
	Frequency Diagrams
	Skewness of Data

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