

Middle School Math Course 1 / LV 6

This course covers the topics shown below, **new topics** have been highlighted.
Students navigate learning paths based on their level of readiness.
Institutional users may customize the scope and sequence to meet curricular needs.

Curriculum (370 topics + 562 additional topics)

- Whole Numbers (84 topics)
 - Addition and Subtraction (19 topics)
 - Adding 2-digit numbers without regrouping
 - Adding a 2-digit number and a 1-digit number with regrouping
 - Adding 2-digit numbers with regrouping a ten
 - Adding multiples of 10 and 100
 - Adding 2-digit numbers with regrouping a hundred
 - Adding 3 or 4 numbers with two-digits with regrouping
 - Adding 3-digit numbers with regrouping
 - Adding 3 numbers with two, three, and four-digits
 - Subtraction of 2-digit numbers without regrouping
 - Subtracting multiples of 10 and 100
 - Subtraction involving 3-digit numbers without regrouping
 - Subtraction of 2-digit numbers with regrouping
 - Subtraction with multiple regrouping steps involving 3-digit numbers
 - Subtraction with multiple regrouping steps involving 4-digit numbers
 - Subtraction and regrouping with zeros
 - Word problem with addition or subtraction of whole numbers
 - Describing an increasing or decreasing pattern from a table of values
 - Perimeter of a polygon
 - Perimeter of a square or a rectangle
 - Multiplication (15 topics)
 - Multiplying one-digit numbers: Problem type 2
 - Using multiplication to find the number of squares
 - Multiplying 2-digit and 1-digit numbers without regrouping
 - Introduction to multiplication with a trailing zero
 - Multiplication by 10, 100, and 1000
 - Multiplication with trailing zeros: Problem type 1
 - Multiplying 2-digit and 1-digit numbers with regrouping: Problem type 2
 - Multiplying multi-digit and 1-digit numbers with regrouping
 - Area of a rectangle on a grid
 - Area of a rectangle with two-digit by one-digit side lengths
 - Introduction to multiplication of large numbers
 - Multiplication of large numbers
 - Multiplication with trailing zeros: Problem type 2
 - Multiples: Problem type 1
 - Multiples: Problem type 2
 - Division (15 topics)
 - Division facts: Problem type 2
 - Division of whole numbers given in fractional form
 - Division without regrouping
 - Division with regrouping: 1-digit divisor, 2-digit dividend
 - Quotient with remainder: 1-digit divisor, 2-digit dividend
 - Whole number division: 2-digit by 2-digit, no remainder
 - Word problem with multiplication or division of whole numbers
 - Word problem with multiplication and addition or subtraction of whole numbers
 - Word problem on unit rates associated with ratios of whole numbers: Whole number answers
 - Division with trailing zeros: Problem type 1
 - Division with regrouping: 1-digit divisor, 3-digit or 4-digit dividend
 - Quotient with remainder: 1-digit divisor, 3-digit or 4-digit dividend
 - Division with trailing zeros: Problem type 2
 - Whole number division: 3-digit by 2-digit, no remainder
 - Division with no remainder and a two-digit divisor: Problem type 2
 - Ordering and Estimation (7 topics)
 - Introduction to inequalities
 - Ordering large numbers
 - Rounding to tens or hundreds
 - Rounding to hundreds or thousands

- Estimating a sum of whole numbers: Problem type 2
 - Estimating a difference of whole numbers: Problem type 2
 - Estimating a product
- Exponents and Order of Operations (7 topics)
 - Writing expressions using exponents
 - Introduction to exponents
 - Power of 10: Positive exponent
 - Introduction to parentheses
 - Introduction to order of operations
 - Order of operations with whole numbers
 - Order of operations with whole numbers and exponents: Basic
- Prime Numbers, Factors, and Multiples (6 topics)
 - Factors
 - Prime numbers
 - Prime factorization
 - Greatest common factor of 2 numbers
 - Least common multiple of 2 numbers
 - Word problem involving the least common multiple of 2 numbers
- Evaluating and Writing Expressions (8 topics)
 - Evaluating an algebraic expression: Whole number addition or subtraction
 - Evaluating an algebraic expression: Whole number multiplication or division
 - Evaluating an algebraic expression: Whole numbers with two operations
 - Evaluating a formula
 - Evaluating an algebraic expression: Whole numbers with one operation and an exponent
 - Writing a one-step expression for a real-world situation
 - Translating a phrase into a one-step expression
 - Translating a phrase into a two-step expression
- Introduction to One-Step Equations (7 topics)
 - Identifying solutions to a one-step linear equation: Problem type 1
 - Identifying solutions to a one-step linear equation: Problem type 2
 - Additive property of equality with whole numbers
 - Introduction to solving an equation with multiplication or division
 - Writing an equation and solving a multiplicative comparison word problem
 - Multiplicative property of equality with whole numbers
 - Translating a sentence into a one-step equation
- Decimals (41 topics)
 - Place Value and Ordering (5 topics)
 - Decimal place value: Tenths and hundredths
 - Reading decimal position on a number line: Tenths
 - Reading decimal position on a number line: Hundredths
 - Introduction to ordering decimals
 - Ordering decimals
 - Relating Fractions and Decimals (5 topics)
 - Introduction to non-unit fractions
 - Writing a decimal and a fraction for a shaded region
 - Converting a fraction with a denominator of 10 or 100 to a decimal
 - Converting a decimal to a proper fraction without simplifying: Basic
 - Converting a decimal to a proper fraction without simplifying: Advanced
 - Addition and Subtraction (12 topics)
 - Addition of decimals: Vertically aligned
 - Decimal addition with 2 numbers
 - Decimal addition with 3 numbers
 - Subtraction of aligned decimals
 - Decimal subtraction: Basic
 - Decimal subtraction: Advanced
 - Rounding decimals
 - Estimating a decimal sum or difference
 - Addition with money
 - Subtraction with money
 - Word problem with addition or subtraction of 2 decimals
 - Word problem with subtraction of a whole number and a decimal: Regrouping with zeros
 - Multiplication (11 topics)
 - Multiplication of a decimal by a power of ten
 - Multiplying a decimal less than 1 by a whole number
 - Multiplying a decimal by a whole number

- Multiplying decimals less than 1: Problem type 1
- Decimal multiplication: Problem type 1
- Decimal multiplication: Problem type 2
- Multiplication of a decimal by a power of 0.1
- Estimating a product of decimals
- Word problem with multiplication of a decimal and a whole number
- Word problem with multiple decimal operations: Problem type 1
- Word problem with multiplication of two decimals
- Division (8 topics)
 - Division of a decimal by a power of ten
 - Whole number division with decimal answers
 - Division of a decimal by a whole number
 - Division of a decimal by a 1-digit decimal: Problem type 1
 - Division of a decimal by a 2-digit decimal
 - Word problem with division of a decimal and a whole number
 - Word problem with multiple decimal operations: Problem type 2
 - Word problem with division of two decimals
- Fractions (56 topics)
 - Equivalent Fractions (7 topics)
 - Understanding equivalent fractions: Problem type 1
 - Conversions involving division in fractional form and whole numbers
 - Introduction to finding equivalent fractions: Multiplying
 - Introduction to finding equivalent fractions: Dividing
 - Equivalent fractions
 - Introduction to simplifying a fraction
 - Simplifying a fraction
 - Plotting and Ordering Fractions (4 topics)
 - Position of fractions on a number line
 - Plotting fractions using a number line
 - Comparing fractions with the same denominator
 - Comparing fractions by finding a common denominator
 - Mixed Numbers and Improper Fractions (4 topics)
 - Writing an improper fraction as a mixed number
 - Writing a mixed number as an improper fraction
 - Position of mixed numbers on a number line
 - Plotting mixed numbers on a number line
 - Converting Between Fractions and Decimals (5 topics)
 - Converting a proper fraction with a denominator of 2, 4, or 5 to a decimal
 - Converting a fraction to a terminating decimal: Basic
 - Converting a decimal to a proper fraction in simplest form: Basic
 - Converting a decimal to a proper fraction in simplest form: Advanced
 - Ordering fractions and decimals
 - Addition and Subtraction with Fractions (8 topics)
 - Addition or subtraction of fractions with the same denominator
 - Addition or subtraction of fractions with the same denominator and simplification
 - Word problem involving addition or subtraction of fractions with the same denominator
 - Finding the LCD of two fractions
 - Writing unit fractions with a common denominator to add or subtract
 - Writing fractions with a common denominator to add or subtract
 - Addition or subtraction of fractions with different denominators
 - Word problem involving addition or subtraction of fractions with different denominators
 - Multiplication with Fractions (9 topics)
 - Product of a unit fraction and a whole number
 - Product of a fraction and a whole number: Problem type 1
 - Product of a fraction and a whole number: Problem type 2
 - Word problem involving multiplying a fraction and a whole number
 - Introduction to fraction multiplication
 - Fraction multiplication
 - Modeling multiplication of proper fractions
 - Word problem involving fractions and multiplication
 - Determining if a quantity is increased or decreased when multiplied by a fraction
 - Division with Fractions (8 topics)
 - The reciprocal of a number
 - Division involving a whole number and a unit fraction
 - Using a model to solve a word problem involving division by a unit fraction

- Division involving a whole number and a fraction
- Fraction division
- Fact families for multiplication and division of fractions
- Modeling division of a whole number by a fraction
- Word problem involving fractions and division
- Multiplication and Division with Mixed Numbers (7 topics)
 - Multiplying mixed numbers: Problem type 1
 - Multiplying mixed numbers: Problem type 2
 - Multiplying a mixed number and a whole number: Problem type 1
 - Multiplying a mixed number and a whole number: Problem type 2
 - Division with a mixed number and a whole number
 - Mixed number division
 - Word problem involving multiplication or division with mixed numbers
- Exponents and Order of Operations (4 topics)
 - Exponents and fractions
 - Order of operations with fractions: Problem type 1
 - Order of operations with fractions: Problem type 2
 - Order of operations with fractions: Problem type 3
- Ratios, Proportions, and Measurement (36 topics)
 - Ratios and Unit Rates (18 topics)
 - Writing ratios using different notations
 - Writing ratios for real-world situations
 - Using a tape diagram to model ratios
 - Writing a ratio and finding a quantity in an equivalent ratio in context
 - Identifying statements that describe a ratio
 - Simplifying a ratio of whole numbers: Problem type 1
 - Using a tape diagram to solve a problem involving ratios
 - Using tables to compare ratios
 - Finding missing values in a table of equivalent ratios
 - Using a table of equivalent ratios to find a missing quantity in a ratio
 - Finding a unit price
 - Computing unit prices to find the better buy
 - Word problem on unit rates associated with ratios of whole numbers: Decimal answers
 - Using a tape diagram to solve a problem on unit rates: Problem type 1
 - Solving a word problem on proportions using a unit rate
 - Writing and using unit rates in context
 - Solving a one-step word problem using the formula $d = rt$
 - Function tables with one-step rules
 - Proportions (1 topics)
 - Writing a proportion to solve a problem involving rates
 - Similar Figures (1 topics)
 - Identifying congruent shapes on a grid
 - U.S. Customary Units of Measurement (7 topics)
 - Choosing U.S. Customary measurement units
 - Using a double number line to convert U.S. Customary units with whole numbers
 - Using a double number line to convert U.S. Customary units with decimals
 - U.S. Customary length conversion with whole number values
 - U.S. Customary volume conversion with whole number values
 - U.S. Customary weight conversions with whole number values
 - U.S. Customary unit conversion with whole number values: Two-step conversion
 - Metric Units of Measurement (4 topics)
 - Choosing metric measurement units
 - Metric distance conversion with whole number values
 - Metric distance conversion with decimal values
 - Metric mass or volume conversion with whole numbers
 - Time and Temperature (2 topics)
 - Time unit conversion with whole number values
 - Converting between temperatures in Fahrenheit and Celsius
 - Converting Between Systems and Dimensional Analysis (3 topics)
 - Writing and solving a proportion to convert between metric and U.S. Customary units
 - U.S. Customary length conversions involving dimensional analysis
 - Word problem involving U.S. Customary length conversions using dimensional analysis
- Percents (30 topics)

- Understanding Percents (4 topics)
 - Converting a fraction with a denominator of 100 to a percentage
 - Converting a percentage to a fraction with a denominator of 100
 - Finding the percentage of a grid that is shaded
 - Representing benchmark percentages on a grid
- Percents, Decimals, and Fractions (12 topics)
 - Introduction to converting a percentage to a decimal
 - Introduction to converting a decimal to a percentage
 - Converting between percentages and decimals
 - Converting between percentages and decimals in a real-world situation
 - Converting a percentage to a fraction in simplest form
 - Converting a fraction to a percentage: Denominator of 4, 5, or 10
 - Finding benchmark fractions and percentages for a figure
 - Comparing fractions, decimals, and percentages using a number line
 - Converting a fraction to a percentage: Denominator of 20, 25, or 50
 - Converting a fraction to a percentage in a real-world situation
 - Using a double number line to find a percentage
 - Writing a ratio as a percentage without a calculator
- Percent of a Number (8 topics)
 - Finding a percentage of a whole number
 - Finding a percentage of a whole number without a calculator: Basic
 - Using a double number line to find the part or the whole in a percentage problem
 - Finding a percentage of a total amount: Real-world situations
 - Writing a proportion to solve a multi-step problem involving percentages
 - Finding a percentage of a total amount without a calculator: Sales tax, commission, discount
 - Estimating a tip without a calculator
 - Finding a percentage of a total amount in a circle graph
- Percent Equations (3 topics)
 - Applying the percent equation: Problem type 1
 - Finding the total amount given the percentage of a partial amount
 - Interpreting a circle graph or pie chart
- Percent Increase and Decrease (3 topics)
 - Finding the sale price given the original price and percent discount
 - Finding the sale price without a calculator given the original price and percent discount
 - Finding the total cost including tax or markup
- Integers and Rational Numbers (25 topics)
 - Plotting and Comparing Signed Numbers (13 topics)
 - Plotting integers on a number line
 - Plotting opposite integers on a number line
 - Plotting rational numbers on a number line
 - Ordering integers
 - Comparing integers using a number line
 - Writing a signed number for a real-world situation
 - Interpreting a table of signed numbers that relate to a real-world situation: Problem type 1
 - Interpreting a table of signed numbers that relate to a real-world situation: Problem type 2
 - Comparing signed numbers relating to a real-world situation
 - Finding opposites of integers
 - Absolute value of a number
 - Interpreting absolute values in context as distances from zero
 - Finding all numbers with a given absolute value
 - The Distributive Property (6 topics)
 - Introduction to the distributive property
 - Introduction to factoring with numbers
 - Factoring a sum or difference of whole numbers
 - Multiplying a constant and a linear monomial
 - Distributive property: Whole number coefficients
 - Factoring a linear binomial
 - Simplifying Algebraic Expressions (6 topics)
 - Introduction to properties of addition
 - Combining like terms: Whole number coefficients
 - Introduction to properties of multiplication
 - Using algebra tiles to determine if two expressions are equivalent
 - Identifying parts in an algebraic expression
 - Identifying equivalent algebraic expressions
- Equations and Inequalities (18 topics)

- One-Step Equations (6 topics)
 - Additive property of equality with decimals
 - Multiplicative property of equality with decimals
 - Multiplicative property of equality with fractions
 - Plotting the solution for a one-step equation on a number line
 - Distinguishing between expressions and equations
 - Writing and solving a one-step equation with decimals that models a real-world situation
- Applications of Equations (2 topics)
 - Solving a fraction word problem using a linear equation of the form $Ax = B$
 - Choosing stories that can be represented by given one-step equations
- Writing and Graphing Inequalities (5 topics)
 - Translating a sentence by using an inequality symbol
 - Translating a sentence into a one-step inequality
 - Introduction to identifying solutions to an inequality
 - Writing an inequality for a real-world situation
 - Graphing a linear inequality on the number line
- Solving Inequalities (3 topics)
 - Identifying solutions to a one-step linear inequality
 - Additive property of inequality with whole numbers
 - Multiplicative property of inequality with whole numbers
- Applications of Inequalities (2 topics)
 - Writing, solving, and graphing the solution to a one-step inequality that models a real-world situation
 - Solving a word problem using a one-step linear inequality
- Graphs and Functions (24 topics)
 - Ordered Pairs (12 topics)
 - Reading a point in quadrant 1
 - Plotting a point in quadrant 1
 - Reading a point in the coordinate plane
 - Plotting a point in the coordinate plane
 - Plotting a point in quadrant 1: Mixed number coordinates
 - Plotting a point in the coordinate plane: Mixed number coordinates
 - Naming the quadrant or axis of a point given its graph
 - Naming the quadrant or axis of a point given its coordinates
 - Finding distances between points that share a common coordinate given the graph
 - Finding distances between points that share a common coordinate given their coordinates
 - Plotting points that share a coordinate and using absolute value to find the distance between them
 - Drawing and identifying a polygon in the coordinate plane
 - Function Tables (2 topics)
 - Function tables with two-step rules
 - Writing a function rule given a table of ordered pairs: One-step rules
 - Graphs of Lines (2 topics)
 - Graphing a line in quadrant 1
 - Comparing two rules with forms of $y=ax$ and $y=x+a$
 - Proportional Relationships (3 topics)
 - Making a table and plotting points given a unit rate
 - Writing an equation to represent a proportional relationship
 - Writing an equation and describing a proportional relationship given a graph or table
 - Applications (5 topics)
 - Finding outputs of a one-step function that models a real-world situation: Two variable equation
 - Writing and evaluating a function that models a real-world situation: Basic
 - Graphing ordered pairs and writing an equation from a table of values in context
 - Writing an equation and drawing its graph to model a real-world situation: Basic
 - Identifying independent and dependent quantities from tables and graphs
- Transformations (6 topics)
 - Reflections (6 topics)
 - Introduction to reflections
 - Reflecting a point across an axis
 - Reflecting a point across both coordinate axes
 - Reflecting a point across an axis and giving its coordinates
 - Finding the coordinates of a point reflected across an axis
 - Finding the coordinates of a point reflected across both axes

- Perimeter, Area, and Volume (24 topics)
 - Area of Rectangles (4 topics)
 - Area of a rectangle with fractional side lengths
 - Word problem involving the area of a rectangle: Problem type 2
 - Writing algebraic expressions for the area of a figure
 - Finding the perimeter or area of a rectangle in the coordinate plane
 - Area of Parallelograms, Triangles, and Trapezoids (6 topics)
 - Area of a parallelogram
 - Finding the area of a right triangle on a grid
 - Area of a triangle
 - Solving a word problem involving area using a one-step linear inequality: Area and lengths
 - Finding the area of a trapezoid on a grid by using triangles and rectangles
 - Area of a trapezoid
 - Area of Composite Figures (2 topics)
 - Introduction to area of a piecewise rectangular figure
 - Word problem on finding the area of a piecewise rectangular figure
 - Three-Dimensional Figures (2 topics)
 - Classifying solids
 - Nets of solids
 - Volume of Rectangular Prisms (5 topics)
 - Volume of a rectangular prism
 - Volume of a solid made of cubes with unit fraction edge lengths
 - Volume of a rectangular prism with fractional edge lengths
 - Solving problems involving the volume of a rectangular prism in context
 - Word problem involving the volume of a rectangular prism
 - Surface Area (5 topics)
 - Surface area of a cube or a rectangular prism
 - Using a net to find the surface area of a rectangular prism
 - Word problem involving the surface area of a rectangular prism
 - Surface area of a triangular prism
 - Using a net to find the surface area of a triangular prism
- Data Analysis and Probability (26 topics)
 - Collecting Data (2 topics)
 - Identifying statistical questions
 - Choosing an appropriate method for gathering data: Problem type 1
 - Graphs of Data (6 topics)
 - Constructing a line plot
 - Constructing a bar graph for non-numerical data
 - Interpreting a bar graph
 - Constructing a frequency distribution and a histogram
 - Interpreting a histogram
 - Interpreting a stem-and-leaf plot
 - Mean, Median, and Mode (7 topics)
 - Mean of a data set
 - Finding the mean of a symmetric distribution
 - Finding sample size and comparing samples for estimating the mean
 - Mean and median of a data set
 - How changing a value affects the mean and median
 - Mode of a data set
 - Choosing the best measure to describe data
 - Measures of Variation (11 topics)
 - Range of a data set
 - Finding the mode and range from a line plot
 - How changing a value affects the range and IQR
 - Identifying peaks, symmetry, gaps, and clusters in a line plot
 - Identifying the center, spread, and shape of a data set
 - Comparing measures of center and variation
 - Five-number summary and interquartile range
 - Interpreting a box-and-whisker plot
 - Interpreting a box-and-whisker plot: Problem type 2
 - Constructing a box-and-whisker plot
 - Finding outliers in a data set

- Other Topics Available(*) (562 additional topics)
 - Whole Numbers (48 topics)
 - Whole number place value: Problem type 1
 - Whole number place value: Problem type 2
 - Comparing place values of digits in a whole number: Problem type 1
 - Numeral translation: Problem type 1
 - Numeral translation: Problem type 2
 - Expanded form: 2 and 3-digit numbers
 - Expanded form: 4 and 5-digit numbers
 - Expanded form with zeros
 - One-digit addition with regrouping
 - Addition of 3 or 4 one-digit numbers
 - Subtracting a 1-digit number from a 2-digit number
 - Fact families for addition and subtraction
 - Perimeter of a rectangle on a grid
 - Multiplication as repeated addition
 - Understanding multiplication of a one-digit number with a larger number
 - Area of a rectangle with one-digit side lengths
 - Introduction to multiplication using an area model
 - Multiplying a multi-digit and a 1-digit number using an area model
 - Fact families for multiplication and division
 - Division involving zero
 - Writing a division sentence for equal groups
 - Writing a division sentence for equal groups and a remainder
 - Division involving quotients with intermediate zeros: Problem type 1
 - Division involving quotients with intermediate zeros: Problem type 2
 - Division with remainder involving quotients with intermediate zeros: Problem type 1
 - Division with remainder involving quotients with intermediate zeros: Problem type 2
 - Division with remainder and a two-digit divisor: Problem type 1
 - Division with remainder and a two-digit divisor: Problem type 2
 - Word problem on quotient and remainder
 - Word problem with division of whole numbers and rounding: Problem type 1
 - Word problem with division of whole numbers and rounding: Problem type 2
 - Comparing a numerical expression with a number
 - Rounding to thousands, ten thousands, or hundred thousands
 - Estimating a sum of whole numbers: Problem type 1
 - Estimating a difference of whole numbers: Problem type 1
 - Estimating a quotient
 - Comparing numerical expressions with parentheses
 - Order of operations with whole numbers and grouping symbols
 - Order of operations with whole numbers and exponents: Advanced
 - Even and odd numbers
 - Divisibility rules for 2, 5, and 10
 - Divisibility rules for 3 and 9
 - Prime factorization: Exponent notation
 - Greatest common factor of 3 numbers
 - Least common multiple of 3 numbers
 - Word problem with common multiples
 - Evaluating an algebraic expression: Whole number operations and exponents
 - [Distinguishing between expressions and equations given verbal descriptions](#) NEW
 - Decimals (20 topics)
 - Decimal place value: Hundreds to ten thousandths
 - Writing a decimal number less than 1 given its name
 - Writing a decimal number greater than 1 given its name
 - Writing a decimal number given its name: Advanced
 - Understanding decimal position on a number line using zoom: Hundredths
 - Understanding decimal position on a number line using zoom: Thousandths
 - Converting a fraction with a denominator of 100 or 1000 to a decimal
 - Decimal addition and subtraction with 3 or more numbers
 - Word problem with addition of 3 or 4 decimals and whole numbers
 - Multiplying decimals less than 1: Problem type 2
 - Division of a decimal by a power of 0.1
 - Decimal division with rounding
 - Average of two numbers
 - Squaring decimal bases: Products greater than 0.1
 - Exponents and decimals: Products less than 0.1
 - Order of operations with decimals: Problem type 1
 - Order of operations with decimals: Problem type 2
 - Order of operations with decimals: Problem type 3
 - Introduction to scientific notation with positive exponents
 - Scientific notation with a positive exponent

■ Fractions (35 topics)

- Understanding equivalent fractions: Problem type 2
- Modeling and writing equivalent fractions
- Comparing fractions with the same numerator
- Writing a mixed number and an improper fraction for a shaded region
- Converting a mixed number with a denominator of 2, 4, or 5 to a decimal
- Converting a fraction to a terminating decimal: Advanced
- Converting a fraction to a repeating decimal: Basic
- Converting a fraction to a repeating decimal: Advanced
- Using a calculator to convert a fraction to a rounded decimal
- Converting a mixed number to a terminating decimal: Basic
- Converting a mixed number to a terminating decimal: Advanced
- Converting a fraction or mixed number to a rounded decimal
- Converting a decimal to a mixed number and an improper fraction without simplifying
- Converting a decimal to a mixed number and an improper fraction in simplest form: Basic
- Converting a decimal to a mixed number and an improper fraction in simplest form: Advanced
- Decomposing a fraction into a sum of fractions with the same denominator
- Addition and subtraction of 3 fractions with different denominators
- Fractional part of a circle
- Addition or subtraction of mixed numbers with the same denominator
- Addition of mixed numbers with the same denominator and renaming: Problem type 1
- Addition of mixed numbers with the same denominator and renaming: Problem type 2
- Subtraction of mixed numbers with the same denominator and renaming: Problem type 1
- Subtraction of mixed numbers with the same denominator and renaming: Problem type 2
- Addition or subtraction of mixed numbers with different denominators without renaming
- Addition of mixed numbers with different denominators and renaming
- Subtraction of mixed numbers with different denominators and renaming
- Addition and subtraction of 3 mixed numbers with different denominators
- Word problem involving addition or subtraction of mixed numbers with different denominators
- Multiplication of 3 fractions
- Multi-step word problem involving fractions and multiplication
- Finding the product to determine whether a quantity is increased or decreased when multiplied by a fraction NEW
- Understanding the relationship between dividing by a fraction and multiplying by its reciprocal NEW
- Complex fraction without variables: Problem type 1
- Addition or subtraction with a decimal and a mixed number
- Multiplication with a decimal and a fraction

■ Ratios, Proportions, and Measurement (54 topics)

- Simplifying a ratio of decimals
- Finding missing values in a table of equivalent ratios: Given a part-to-part ratio
- Finding missing values in a table of equivalent ratios: Given a part-to-whole ratio NEW
- Using a tape diagram to solve a problem on unit rates: Problem type 2
- Solving a proportion of the form $x/a=b/c$: Basic
- Solving a proportion of the form $x/a = b/c$
- Word problem on proportions: Problem type 1
- Word problem on proportions: Problem type 2
- Word problem with powers of ten
- Identifying similar or congruent shapes on a grid
- Finding a missing side length given two similar triangles
- Relationships about ratios within and between similar triangles
- Similar polygons
- Similar right triangles
- Indirect measurement
- Finding lengths using scale models
- Finding a scale factor: Same units
- Using a scale drawing to find actual area
- Reproducing a scale drawing at a different scale
- Choosing a measuring tool
- Measuring length to the nearest inch
- Measuring length to the nearest quarter or half inch
- Writing and solving a proportion to convert U.S. Customary units of length NEW
- Conversions involving measurements in feet and inches
- Adding measurements in feet and inches
- U.S. Customary length conversions involving rounding decimals
- Word problem involving a U.S. Customary length conversion
- U.S. Customary unit conversion with mixed number values: One-step conversion
- U.S. Customary unit conversion with mixed number values: Two-step conversion
- U.S. Customary area unit conversion with whole number values
- Word problem on area involving conversions of U.S. Customary units: Problem type 1
- Unit conversions involving acres and hectares
- Measuring length to the nearest centimeter
- Measuring length to the nearest millimeter
- Finding a rate given a pictorial representation of a real-world situation
- Writing and solving a proportion to convert metric units of length NEW

- Metric conversion with decimal values: Two-step problem
 - Metric area unit conversion with decimal values
 - Word problem involving adding or subtracting time within the hour
 - Introduction to adding time
 - Adding time
 - Word problem on elapsed time within the hour
 - Word problem on elapsed time less than one hour
 - Word problem on elapsed time more than one hour
 - Word problem on elapsed times crossing a.m. and p.m.
 - Reading a positive temperature from a thermometer
 - Simplifying a ratio of whole numbers: Problem type 2
 - Solving a word problem involving rates and time conversion
 - Converting between metric and U.S. Customary unit systems
 - Converting between metric and U.S. Customary unit systems using dimensional analysis: U.S. Customary to metric
 - [Converting between metric and U.S. Customary unit systems using dimensional analysis: Metric to U.S. Customary](#) NEW
 - Converting between compound units: Basic
 - Word problem involving a conversion between U.S. Customary units of weight and metric units of mass
 - Converting between compound units: Advanced
- Percents (33 topics)
- Converting a mixed number percentage to a decimal
 - Converting a decimal percentage to a fraction
 - Using a calculator to convert a fraction to a rounded percentage
 - Writing a ratio as a percentage
 - Finding the rate of a tax or commission
 - Making a reasonable inference based on proportion statistics
 - Finding a percentage of a whole number without a calculator: Advanced
 - Making part-to-part and equivalence comparisons given a circle graph
 - Applying the percent equation: Problem type 2
 - Computations from a circle graph
 - Finding the multiplier to give a final amount after a percentage increase or decrease
 - Finding the final amount given the original amount and a percentage increase or decrease
 - Combined effect of more than one markup or discount
 - Finding the original amount given the result of a percentage increase or decrease
 - Finding the original price given the sale price and percent discount
 - Finding the percentage increase or decrease: Basic
 - Finding the percentage increase or decrease: Advanced
 - Comparing discounts
 - Calculations involving paying for college
 - Computing percentages for categories of a budget
 - Comparing annual salaries of different occupations
 - Hourly gross pay with overtime
 - Gross pay with commission and salary
 - Calculations involving purchases with debit and credit cards
 - [Deciding when it is applicable to pay with cash or credit and examining the advantages and disadvantages of different payment methods](#) NEW
 - Comparing costs of checking accounts
 - Balancing a check register
 - Reading a credit report
 - [Determining the value of credit reports to borrowers and lenders](#) NEW
 - Understanding the impact of a credit score
 - Finding simple interest without a calculator
 - Finding the interest and future value of a simple interest loan or investment
 - Finding the principal, rate, or time of a simple interest loan or investment
- Integers and Rational Numbers (71 topics)
- Reading the temperature from a thermometer
 - Using a number line to compare signed numbers in context
 - Using integer chips to add integers
 - Using a number line to add integers
 - Integer addition: Problem type 1
 - Integer addition: Problem type 2
 - Identifying a sum as a point located a given distance from another point
 - Identifying relative change when combining two quantities
 - Using integer chips to subtract integers
 - Using a number line to subtract integers
 - Understanding that subtracting an integer is the same as adding its additive inverse
 - Integer subtraction: Problem type 1
 - Integer subtraction: Problem type 2
 - Integer subtraction: Problem type 3
 - Addition and subtraction with 3 integers
 - Addition and subtraction with 4 or 5 integers
 - Word problem with addition or subtraction of integers

- Operations with absolute value: Problem type 1
- Operations with absolute value: Problem type 2
- Computing the distance between two integers on a number line
- Computing and understanding distances between integers on a number line
- Finding the distance between two rational numbers on a number line in context
- Finding a point on a number line given the length of a segment and another point
- Establishing rules for multiplying integers: Product of a positive and negative number
- Establishing rules for multiplying integers: Product of two negative numbers NEW
- Integer multiplication and division
- Multiplication of 3 or 4 integers
- Word problem with multiplication or division of integers
- Exponents and integers: Problem type 1
- Order of operations with integers
- Order of operations with integers and exponents
- Evaluating expressions with exponents of zero
- Power of 10: Negative exponent
- Introduction to scientific notation with negative exponents
- Scientific notation with a negative exponent
- Converting between scientific notation and standard form in a real-world situation
- Signed decimal addition and subtraction
- Signed decimal addition and subtraction with 3 numbers
- Signed fraction addition or subtraction: Basic
- Signed fraction subtraction involving double negation
- Signed fraction addition or subtraction: Advanced
- Addition and subtraction of 3 fractions involving signs
- Computing distances between decimals on a number line
- Signed decimal multiplication
- Signed decimal division
- Identifying equivalent signed fractions
- Signed fraction multiplication: Basic
- Signed fraction multiplication: Advanced
- Signed fraction division
- Evaluating a linear expression: Integer multiplication with addition or subtraction
- Evaluating a quadratic expression: Integers
- Evaluating a linear expression: Signed decimal addition and subtraction
- Evaluating a linear expression: Signed decimal multiplication with addition or subtraction
- Evaluating a linear expression: Signed fraction multiplication with addition or subtraction
- Identifying numbers as integers or non-integers
- Identifying rational decimal numbers
- Interpreting a Venn diagram of 2 sets
- Interpreting a Venn diagram of 3 sets
- Constructing a Venn diagram to classify rational numbers
- Constructing a Venn diagram to describe relationships between sets of rational numbers
- Understanding the distributive property
- Distributive property: Fractional coefficients
- Identifying like terms
- Using a number line to add opposite fractions and describing the result
- Properties of addition
- Properties of real numbers
- Combining like terms: Integer coefficients
- Combining like terms: Decimal coefficients
- Combining like terms: Fractional coefficients
- Using distribution and combining like terms to simplify: Univariate
- Identifying properties used to simplify an algebraic expression
- Equations and Inequalities (32 topics)
 - Additive property of equality with fractions and mixed numbers
 - Additive property of equality with integers
 - Additive property of equality with signed fractions
 - Multiplicative property of equality with whole numbers: Fractional answers
 - Multiplicative property of equality with integers
 - Multiplicative property of equality with signed fractions
 - Identifying solutions to a linear equation in one variable: Two-step equations
 - Using two steps to solve an equation with whole numbers
 - Additive property of equality with a negative coefficient
 - Solving a two-step equation with integers
 - Plotting the solution for a two-step equation on a number line
 - Introduction to solving an equation with parentheses
 - Solving a multi-step equation given in fractional form
 - Introduction to using substitution to solve a linear equation
 - Introduction to solving a rational equation
 - Introduction to solving an equation with variables on the same side
 - Solving a linear equation with several occurrences of the variable: Variables on the same side
 - Introduction to solving a linear equation with a variable on each side

- Translating a sentence into a multi-step equation
- Writing an equation of the form $Ax + B = C$ to solve a word problem
- Comparing arithmetic and algebraic solutions to a word problem
- Choosing stories that can be represented by given two-step equations
- Solving a word problem with two unknowns using a linear equation
- Solving for a variable in terms of other variables using addition or subtraction: Basic
- Solving for a variable in terms of other variables using multiplication or division: Basic
- Writing an inequality given a graph on the number line
- Graphing a compound inequality on the number line
- Additive property of inequality with integers
- Multiplicative property of inequality with integers
- Solving a two-step linear inequality with whole numbers
- Translating a sentence into a multi-step inequality
- Solving a word problem using a two-step linear inequality
- **Graphs and Functions (46 topics)**
 - Naming the quadrant or axis of a point given the signs of its coordinates
 - Graphing whole number functions
 - Table for a linear equation
 - Table for a linear function
 - Writing a function rule given a table of ordered pairs: Two-step rules
 - Identifying solutions to a linear equation in two variables
 - Finding a solution to a linear equation in two variables
 - Graphing a linear equation of the form $y = mx$
 - Graphing a line given its equation in slope-intercept form: Integer slope
 - Graphing a line given its equation in slope-intercept form: Fractional slope
 - Graphing a vertical or horizontal line
 - Finding x- and y-intercepts given the graph of a line on a grid
 - Interpreting a line graph
 - Identifying proportional relationships in equations NEW
 - Identifying proportional relationships in tables by calculating unit rates: Whole numbers NEW
 - Identifying proportional relationships in tables by calculating unit rates: Fractions NEW
 - Determining whether a relationship is proportional given a real-world situation NEW
 - Identifying proportional relationships in graphs: Basic NEW
 - Identifying proportional relationships in graphs: Advanced NEW
 - Graphing a relationship given a real-world situation to determine if the relationship is proportional NEW
 - Finding outputs and rate of increase given the graph of a line that models a real-world situation NEW
 - Comparing proportional relationships given in different forms NEW
 - Finding slope given the graph of a line in quadrant 1 that models a real-world situation
 - Classifying slopes given graphs of lines
 - Finding slope given the graph of a line on a grid
 - Finding slope given two points on a line
 - Finding the slopes of horizontal and vertical lines
 - Finding outputs of a two-step function with decimals that models a real-world situation: Two variable equation
 - Finding inputs and outputs of a two-step function that models a real-world situation: Two variable equation
 - Writing and evaluating a function that models a real-world situation: Advanced
 - Writing an equation and drawing its graph to model a real-world situation: Advanced
 - Finding the intercepts and rate of change given a graph of a linear function
 - Identifying independent and dependent variables from equations or real-world situations
 - Finding where a function is increasing, decreasing, or constant given the graph
 - Choosing a graph to fit a narrative: Basic
 - Choosing a graph to fit a narrative: Advanced
 - Interpreting the graphs of two functions
 - Finding the next terms of an arithmetic sequence with whole numbers
 - Finding the next terms of an arithmetic sequence with integers
 - Identifying arithmetic sequences and finding the common difference
 - Finding a specified term of an arithmetic sequence given the first terms
 - Finding the next terms of a geometric sequence with whole numbers
 - Finding the next terms of a geometric sequence with signed numbers
 - Identifying arithmetic and geometric sequences
 - Identifying geometric sequences and finding the common ratio
 - Finding patterns in shapes
- **Lines, Angles, and Polygons (53 topics)**
 - Naming segments, rays, and lines
 - Identifying parallel and perpendicular lines
 - Acute, obtuse, and right angles
 - Measuring an angle with the protractor
 - Drawing an angle with the protractor
 - Introduction to angle addition
 - Finding an angle measure in a figure with a right or straight angle
 - Finding supplementary and complementary angles
 - Identifying supplementary and vertical angles
 - Finding angle measures given two intersecting lines

- Identifying corresponding and alternate angles
 - Finding angle measures given two parallel lines cut by a transversal
 - Constructing congruent line segments
 - Constructing an angle bisector
 - Constructing congruent angles
 - Constructing the perpendicular bisector of a line segment
 - Constructing a pair of perpendicular lines
 - Constructing a pair of parallel lines
 - Acute, obtuse, and right triangles
 - Classifying scalene, isosceles, and equilateral triangles by side lengths
 - Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
 - Finding an angle measure of a triangle given two angles
 - Finding an angle measure for a triangle with an extended side
 - Finding an angle measure given extended triangles
 - Finding an angle measure given a triangle and parallel lines
 - Identifying and naming congruent parts of congruent triangles
 - Creating triangles from given side lengths: Problem type 1
 - Creating triangles from given side lengths: Problem type 2
 - Using triangle inequality to determine if side lengths form a triangle
 - Determining if a triangle is possible based on given angle measures
 - Drawing triangles with given conditions: Angle measures
 - Drawing triangles with given conditions: Side lengths and angle measures
 - Drawing a circle with a given radius or diameter
 - Drawing triangles with given side lengths using a compass
 - Relationship between angle measures and side lengths in a triangle
 - Relationship between angle measures and side lengths in two triangles
 - Naming polygons
 - Shared attributes among categories of quadrilaterals
 - Identifying parallelograms, rectangles, and squares
 - Properties of quadrilaterals
 - Classifying parallelograms
 - Finding the coordinates of a point to make a parallelogram
 - Sum of the angle measures of a quadrilateral
 - Finding the sum of the interior angle measures of a convex polygon given the number of sides
 - Finding the number of sides of a convex polygon given the sum of the measures of the interior angles
 - Square root of a perfect square
 - Finding all square roots of a number
 - Using a calculator to approximate a square root
 - Estimating a square root
 - Introduction to the Pythagorean Theorem
 - Pythagorean Theorem
 - Word problem involving the Pythagorean Theorem
 - Identifying side lengths that give right triangles
- Transformations (25 topics)
 - Identifying transformations
 - Introduction to translations
 - Translating a point and giving its coordinates: One step
 - Translating a point and giving its coordinates: Two steps
 - Properties of translated figures
 - Determining if figures are related by a translation
 - Translating a polygon
 - Reflecting a polygon across the x-axis or y-axis
 - Properties of reflected figures
 - Determining if figures are related by a reflection
 - Reflecting a polygon over a vertical or horizontal line
 - Finding the coordinates of a point reflected across an axis and translated
 - Drawing lines of symmetry
 - Finding an angle of rotation
 - Identifying rotational symmetry and angles of rotation
 - Identifying figures that have rotational symmetry or reflectional symmetry NEW
 - Rotating a point and giving its coordinates
 - Properties of rotated figures
 - Determining if figures are related by a rotation
 - Rotating a figure about the origin
 - Determining if figures are congruent and related by a transformation
 - Dilating a segment and giving the coordinates of its endpoints
 - The effect of dilation on side length
 - Determining if figures are related by a dilation
 - The effect of dilation on area
- Perimeter, Area, and Volume (80 topics)
 - Finding the missing length in a figure
 - Perimeter of a piecewise rectangular figure

- Finding an unknown side length of a polygon given the perimeter
- Writing algebraic expressions for the perimeter of a figure
- Sides of polygons having the same perimeter
- Perimeter of a polygon involving mixed numbers and fractions
- Area of a rectangle involving mixed number and fractional side lengths
- Distinguishing between the area and perimeter of a rectangle
- Areas of rectangles with the same perimeter
- Word problem on area involving conversions of U.S. Customary units: Problem type 2
- Word problem on area involving conversions between systems
- Estimates and exact answers
- Finding side lengths of rectangles given one dimension and an area or a perimeter
- Finding side lengths of squares given an area and a perimeter
- Word problem on optimizing an area or perimeter
- Finding the area of a right triangle or its corresponding rectangle
- Finding the area of a triangle or parallelogram in the coordinate plane
- [Decomposing a trapezoid or parallelogram to find its area given a situation in context](#) NEW
- Finding the area of a composite figure on a grid
- Area of a piecewise rectangular figure
- Area between two rectangles
- Word problem involving the area between two rectangles
- Area involving rectangles and triangles
- Finding the area of a trapezoid, rhombus, or kite in the coordinate plane
- Introduction to a circle: Diameter, radius, and chord
- Circumference of a circle
- Finding the radius or the diameter of a circle given its circumference
- Informal argument for the formula of the circumference of a circle
- Circumference ratios
- Perimeter involving rectangles and circles
- Area of a circle
- Circumference and area of a circle
- Circumference and area of a circle: Exact answers in terms of π
- Distinguishing between the area and circumference of a circle
- Informal argument for the formula of the area of a circle
- Area involving rectangles and circles
- Area between two concentric circles
- Word problem involving the area between two concentric circles
- Area involving inscribed figures
- Vertices, edges, and faces of a solid
- Identifying geometric shapes that model real-world objects
- Counting the cubes in a solid made of cubes
- Side views of a solid made of cubes
- Identifying horizontal and vertical cross sections of solids
- Volume of a rectangular prism made of unit cubes
- Writing equivalent expressions for the volume of a rectangular prism
- Word problem involving the rate of filling or emptying a rectangular prism
- [Computations involving density, mass, and volume](#) NEW
- [Word problem on density involving the volume of a rectangular solid](#) NEW
- Word problem on volume involving conversions of U.S. Customary units
- Volume of a piecewise rectangular prism
- Word problem involving the volume of a piecewise rectangular prism
- Volume of a triangular prism
- Word problem involving the volume of a triangular prism
- Volume of a pyramid
- Relating the volumes of a rectangular prism and a rectangular pyramid
- Relating the volumes of a triangular prism and a triangular pyramid
- Volume of a cylinder
- Describing the formula for the volume of a cylinder
- Word problem involving the volume of a cylinder
- Word problem involving the rate of filling or emptying a cylinder
- Volume of a cone
- Volume of a cone: Exact answers in terms of π
- Relating the volumes of a cylinder and a cone
- Word problem involving the volume of a cone
- Surface area of a rectangular prism made of unit cubes
- Distinguishing between surface area and volume
- Using a net to find the lateral surface area and total surface area of a rectangular prism
- [Deriving the formula for the surface area of a rectangular prism](#) NEW
- Word problem involving U.S. Customary conversions, surface area, and cost
- Surface area of a piecewise rectangular prism made of unit cubes
- Using a net to find the lateral surface area and total surface area of a triangular prism
- [Deriving the formula for the surface area of a right triangular prism](#) NEW
- Using a net to find the lateral surface area and total surface area of a pyramid
- Surface area of a cylinder
- Surface area of a cylinder: Exact answers in terms of π

- Deriving the formula for the surface area of a cylinder NEW
- Word problem involving the surface area of a cylinder
- Lateral surface area and surface area of a cone
- Lateral surface area and surface area of a cone: Exact answers in terms of π
- Data Analysis and Probability (65 topics)
 - Classifying samples
 - Choosing an appropriate method for gathering data: Problem type 2
 - Introduction to expectation
 - Making predictions using experimental data for compound events
 - Interpreting a tally table
 - Constructing a frequency distribution for grouped data
 - Constructing a frequency distribution for non-grouped data
 - Constructing a relative frequency distribution for grouped data
 - Constructing a two-way frequency table: Basic
 - Constructing a two-way frequency table: Advanced
 - Computing a percentage from a table of values
 - Making an inference using a two-way frequency table
 - Calculating relative frequencies in a contingency table
 - Calculating relative frequencies in a contingency table: Advanced
 - Finding if a question can be answered by the data
 - Constructing a line plot with fractional values: Fourths
 - Making part-to-whole, part-to-part, and equivalence comparisons given a line plot
 - Making part-to-whole, part-to-part, and equivalence comparisons given a bar graph
 - Interpreting a double bar graph
 - Introduction to interpreting a pictograph
 - Interpreting a pictograph table
 - Constructing a stem-and-leaf plot NEW
 - Angle measure in a circle graph
 - Constructing a percent bar graph
 - Constructing a scatter plot
 - Sketching the line of best fit
 - Scatter plots and correlation
 - Using a model to find the mean
 - Understanding the mean graphically: Two bars
 - Understanding the mean graphically: Four or more bars
 - Computations involving the mean, sample size, and sum of a data set
 - Finding the value for a new score that will yield a given mean
 - Rejecting unreasonable claims based on average statistics
 - Weighted mean
 - Interpreting a percent bar graph to summarize categorical data using the mode NEW
 - Using back-to-back stem-and-leaf plots to compare data sets
 - Using box-and-whisker plots to compare data sets
 - Computing mean absolute deviation from a list of numerical values
 - Computing mean absolute deviation from a bar graph
 - Interpreting a tree diagram
 - Introduction to the counting principle
 - Counting principle
 - Counting principle with repetition allowed
 - Factorial expressions
 - Computing permutations and combinations
 - Word problem involving permutations
 - Word problem involving combinations
 - Introduction to permutations and combinations
 - Classifying likelihood
 - Determining a sample space and outcomes for an event: Experiment involving a single selection
 - Introduction to the probability of an event
 - Probability involving one die or choosing from n distinct objects
 - Probability involving choosing from objects that are not distinct
 - Understanding likelihood
 - Probabilities of an event and its complement
 - Experimental and theoretical probability
 - Finding the odds in favor and against
 - Converting between probability and odds
 - Area as probability
 - Determining a sample space and outcomes for an event: Experiment involving multiple selections
 - Outcomes and event probability
 - Experimental and theoretical probability for compound events
 - Identifying independent events given descriptions of experiments
 - Probability of independent events
 - Probability of dependent events

***Other Topics Available** By default, these topics are NOT included in the course, but can be added using the content editor in the Teacher Module.