

## RtI 8

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

Curriculum (237 topics + 98 additional topics)

- Whole Numbers (67 topics)
  - Expanded Form and Numeral Translation (5 topics)
    - Whole number place value: Problem type 1
    - Whole number place value: Problem type 2
    - Expanded form
    - Numeral translation: Problem type 1
    - Numeral translation: Problem type 2
  - Addition and Subtraction (14 topics)
    - One-digit addition with regrouping
    - Addition of 3 or 4 one-digit numbers
    - Adding a 2-digit number and a 1-digit number with regrouping
    - Adding 2-digit numbers without regrouping
    - Adding 2-digit numbers with regrouping a ten
    - Adding with regrouping a hundred
    - Addition of large numbers
    - Subtracting a 1-digit number from a 2-digit number
    - Subtraction of 2-digit numbers without regrouping
    - Subtraction of 2-digit numbers with regrouping
    - Adding or subtracting 10, 100, or 1000
    - Subtraction with multiple regrouping steps
    - Subtraction and regrouping with zeros
    - Word problem with addition or subtraction of whole numbers
  - Multiplication and Division (25 topics)
    - One-digit multiplication
    - Multiplication by 10, 100, and 1000
    - Multiplying 2-digit and 1-digit numbers without regrouping
    - Multiplying with regrouping
    - Introduction to multiplication of large numbers
    - Multiplication with trailing zeros: Problem type 1
    - Multiplication with trailing zeros: Problem type 2
    - Multiplication of large numbers
    - Multiplication as repeated addition
    - Using multiplication to find the number of squares
    - Multiples: Problem type 1
    - Multiples: Problem type 2
    - Division facts
    - Division without regrouping
    - Division with regrouping
    - Division with trailing zeros: Problem type 1
    - Division with trailing zeros: Problem type 2
    - Division with remainder involving quotients with intermediate zeros: Problem type 2
    - Quotient with remainder: 1-digit divisor, 2-digit dividend
    - Word problem on quotient and remainder
    - Quotient with remainder: 1-digit divisor, 3-digit dividend
    - Quotient with remainder: 2-digit divisor, 3-digit dividend
    - Word problem with division of whole numbers and rounding: Problem type 2
    - Word problem with multiplication or division of whole numbers
    - Word problem with multiplication and addition or subtraction of whole numbers
  - Rounding, Estimation, and Order of Operations (13 topics)
    - Introduction to inequalities
    - Ordering large numbers
    - Rounding to tens or hundreds
    - Rounding to hundreds or thousands
    - Rounding to thousands, ten thousands, or hundred thousands
    - Estimating a sum of whole numbers: Problem type 2
    - Estimating a difference of whole numbers: Problem type 2
    - Estimating a product
    - Estimating a quotient
    - Introduction to parentheses

- Introduction to order of operations
- Order of operations with whole numbers
- Order of operations with whole numbers and grouping symbols
- Factors and Prime Numbers (5 topics)
  - Factors
  - Prime numbers
  - Prime factorization
  - Greatest common factor of 2 numbers
  - Least common multiple of 2 numbers
- Properties of Arithmetic, Fact Families, and Sequences (5 topics)
  - Introduction to properties of addition
  - Introduction to properties of multiplication
  - Fact families for addition and subtraction
  - Fact families for multiplication and division
  - Finding the next terms of a sequence with whole numbers
- Fractions (30 topics)
  - Equivalent Fractions (4 topics)
    - Introduction to fractions
    - Equivalent fractions
    - Introduction to simplifying a fraction
    - Simplifying a fraction
  - Ordering and Plotting Fractions (5 topics)
    - Ordering fractions with the same denominator
    - Ordering fractions with the same numerator
    - Using a common denominator to order fractions
    - Fractional position on a number line
    - Plotting fractions on a number line
  - Operations with Fractions (11 topics)
    - Addition or subtraction of fractions with the same denominator
    - Addition or subtraction of unit fractions
    - Introduction to addition or subtraction of fractions with different denominators
    - Addition or subtraction of fractions with different denominators
    - Product of a unit fraction and a whole number
    - Product of a fraction and a whole number: Problem type 1
    - Introduction to fraction multiplication
    - Fraction multiplication
    - The reciprocal of a number
    - Division involving a whole number and a fraction
    - Fraction division
  - Mixed Numbers (10 topics)
    - Writing a mixed number and an improper fraction for a shaded region
    - Writing an improper fraction as a mixed number
    - Writing a mixed number as an improper fraction
    - Addition or subtraction of mixed numbers with the same denominator
    - Mixed number addition with the same denominator and renaming
    - Mixed number subtraction with the same denominator and renaming
    - Addition or subtraction of mixed numbers with different denominators
    - Mixed number multiplication: Problem type 1
    - Mixed number multiplication: Problem type 2
    - Mixed number division
- Decimals (30 topics)
  - Decimal Place Value (13 topics)
    - Writing a decimal and a fraction for a shaded region
    - Decimal place value: Tenths and hundredths
    - Decimal place value: Hundreds to ten thousandths
    - Rounding decimals
    - Introduction to ordering decimals
    - Ordering decimals
    - Converting a decimal to a fraction: Basic
    - Converting a decimal to a proper fraction in simplest form: Advanced
    - Converting a fraction with a denominator of 10, 100, or 1000 to a decimal
    - Converting a fraction to a terminating decimal
    - Converting a fraction to a repeating decimal
    - Converting a decimal to a mixed number
    - Converting a mixed number to a decimal

- Operations with Decimals (17 topics)
  - Addition of aligned decimals
  - Addition with money
  - Decimal addition with 3 numbers
  - Subtraction of aligned decimals
  - Subtraction with money
  - Word problem with one decimal operation: Problem type 1
  - Word problem with one decimal operation: Problem type 2
  - Estimating a decimal sum or difference
  - Multiplication of a decimal by a power of ten
  - Multiplying a decimal by a whole number
  - Decimal multiplication: Problem type 1
  - Decimal multiplication: Problem type 2
  - Word problem with multiple decimal operations: Problem type 1
  - Division of a decimal by a power of ten
  - Division of a decimal by a whole number
  - Division of a decimal by a 2-digit decimal
  - Word problem with multiple decimal operations: Problem type 2
- Geometry (20 topics)
  - Angles and Lines (2 topics)
    - Measuring an angle with the protractor
    - Acute, obtuse, and right angles
  - Polygons (13 topics)
    - Acute, obtuse, and right triangles
    - Area of a triangle
    - Finding an angle measure of a triangle given two angles
    - Perimeter of a square or a rectangle
    - Perimeter of a polygon
    - Finding the missing length in a figure
    - Perimeter of a piecewise rectangular figure
    - Perimeter and area on a grid
    - Area of a square or a rectangle
    - Distinguishing between the area and perimeter of a rectangle
    - Finding the side length of a rectangle given its perimeter or area
    - Area of a piecewise rectangular figure
    - Area of a parallelogram
  - Circles (2 topics)
    - Circumference of a circle
    - Circumference and area of a circle
  - Volumes and Surface Areas (3 topics)
    - Classifying solids
    - Volume of a rectangular prism
    - Volume of a rectangular prism made of unit cubes
- Measurement and Graphs (25 topics)
  - Customary Measurement (6 topics)
    - Choosing U.S. Customary measurement units
    - Reading a positive temperature from a thermometer
    - Conversions involving measurements in feet and inches
    - U.S. Customary unit conversion with whole number values
    - U.S. Customary unit conversion with whole number values: Two-step conversion
    - U.S. Customary unit conversion with mixed number values: One-step conversion
  - Metric Measurement (5 topics)
    - Choosing metric measurement units
    - Metric distance conversion with whole number values
    - Metric mass or volume conversion with whole number values
    - Metric distance conversion with decimal values
    - Converting between metric and U.S. Customary unit systems
  - Time (3 topics)
    - Time unit conversion with whole number values
    - Introduction to adding time
    - Introduction to elapsed time
  - Data and Graphs (11 topics)
    - Constructing a bar graph for non-numerical data
    - Constructing a line plot

- Interpreting a tally table
  - Interpreting a bar graph
  - Interpreting a double bar graph
  - Interpreting a line graph
  - Finding the mode and range of a data set
  - Mean of a data set
  - Mean and median of a data set
  - Interpreting a stem-and-leaf plot
  - Finding the value for a new score that will yield a given mean
- Proportions, Percents, and Probability (17 topics)
  - Proportions (4 topics)
    - Writing ratios for real-world situations
    - Solving a proportion of the form  $x/a = b/c$
    - Solving a word problem on proportions using a unit rate
    - Word problem on proportions: Problem type 1
  - Percents (9 topics)
    - Finding the percentage of a grid that is shaded
    - Converting between percentages and decimals
    - Converting a percentage to a fraction in simplest form
    - Converting a fraction to a percentage: Denominator of 20, 25, or 50
    - Finding a percentage of a whole number without a calculator: Basic
    - Writing a ratio as a percentage without a calculator
    - Finding the sale price without a calculator given the original price and percent discount
    - Finding the percentage increase or decrease: Advanced
    - Finding simple interest without a calculator
  - Counting and Probability (4 topics)
    - Classifying likelihood
    - Introduction to the probability of an event
    - Probability of an event
    - Interpreting a Venn diagram of 2 sets
- Algebra (48 topics)
  - Integers and Signed Numbers (11 topics)
    - Reading the temperature from a thermometer
    - Plotting integers on a number line
    - Ordering integers
    - Absolute value of a number
    - Integer addition: Problem type 1
    - Integer addition: Problem type 2
    - Integer subtraction: Problem type 1
    - Integer subtraction: Problem type 2
    - Integer subtraction: Problem type 3
    - Integer multiplication and division
    - Signed decimal addition and subtraction
  - Real Numbers and Variable Expressions (6 topics)
    - Distributive property: Whole number coefficients
    - 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
    - Writing a one-step expression for a real-world situation
    - Evaluating a linear expression: Integer multiplication with addition or subtraction
  - Equations (14 topics)
    - Additive property of equality with whole numbers
    - Additive property of equality with decimals
    - Additive property of equality with fractions and mixed numbers
    - Additive property of equality with integers
    - Introduction to solving an equation with multiplication or division
    - Multiplicative property of equality with whole numbers
    - Multiplicative property of equality with integers
    - Using two steps to solve an equation with whole numbers
    - Solving a two-step equation with integers
    - Translating a sentence into a one-step equation
    - Solving a fraction word problem using a linear equation of the form  $Ax = B$
    - Translating a sentence by using an inequality symbol
    - Solving a linear inequality: Problem type 1
    - Graphing a linear inequality on the number line

- Functions and Graphs (11 topics)
  - Function tables with one-step rules
  - Function tables with two-step rules
  - Describing an increasing or decreasing pattern from a table of values
  - Writing a function rule given a table of ordered pairs: One-step rules
  - Reading a point in quadrant 1
  - Reading a point in the coordinate plane
  - Plotting a point in quadrant 1
  - Plotting a point in the coordinate plane
  - Graphing a line in quadrant 1
  - Graphing a line given its equation in slope-intercept form
  - Graphing a vertical or horizontal line
  
- Exponents and Square Roots (6 topics)
  - Introduction to exponents
  - Writing expressions using exponents
  - Power of 10: Positive exponent
  - Scientific notation with a positive exponent
  - Exponents and integers: Problem type 1
  - Square root of a perfect square
  
- Other Topics Available(\*) (98 additional topics)
  - Whole Numbers (13 topics)
    - Expanded form with zeros
    - Finding the value of a collection of coins
    - Finding the value of a collection of bills and coins
    - Understanding multiplication of a one-digit number with a larger number
    - Using addition and multiplication to count the objects on a grid
    - Comparing a numerical expression with a number
    - Average of two numbers
    - Filling in missing operations to make an equation
    - Even and odd numbers
    - Divisibility rules for 2, 5, and 10
    - Divisibility rules for 3 and 9
    - Word problem with common multiples
    - Understanding the distributive property
  
  - Fractions (4 topics)
    - Understanding equivalent fractions
    - Fractional part of a circle
    - Multi-step word problem involving fractions and multiplication
    - Mixed arithmetic operations with fractions
  
  - Decimals (1 topics)
    - Ordering fractions and decimals
  
  - Geometry (35 topics)
    - Drawing an angle with the protractor
    - Naming segments, rays, and lines
    - Identifying parallel and perpendicular lines
    - Naming polygons
    - Classifying scalene, isosceles, and equilateral triangles by side lengths or angles
    - Finding an angle measure for a triangle with an extended side
    - Pythagorean Theorem
    - Sum of the angle measures of a quadrilateral
    - Identifying parallelograms, rectangles, and squares
    - Properties of quadrilaterals
    - Sides of polygons having the same perimeter
    - Areas of rectangles with the same perimeter
    - Area of a trapezoid
    - Area involving rectangles and triangles
    - Estimates and exact answers
    - Finding patterns in shapes
    - Introduction to a circle: Diameter, radius, and chord
    - Finding the radius or the diameter of a circle given its circumference
    - Word problem involving the area between two concentric circles
    - Area involving rectangles and circles
    - Volume of a triangular prism
    - Volume of a cylinder
    - Surface area of a cube or a rectangular prism
    - Surface area of a triangular prism
    - Surface area of a cylinder: Exact answers in terms of pi

- Nets of solids
- Vertices, edges, and faces of a solid
- Side views of a solid made of cubes
- Identifying congruent shapes on a grid
- Identifying similar or congruent shapes on a grid
- Similar polygons
- Introduction to translations
- Introduction to reflections
- Drawing lines of symmetry
- Identifying transformations
  
- Measurement and Graphs (17 topics)
  - Choosing a measuring tool
  - Measuring length to the nearest inch
  - Measuring length to the nearest quarter or half inch
  - Adding measurements in feet and inches
  - U.S. Customary unit conversion with mixed number values: Two-step conversion
  - Measuring length to the nearest centimeter
  - Measuring length to the nearest millimeter
  - Metric conversion with decimal values: Two-step problem
  - Telling time and determining a.m. or p.m.
  - Reading a calendar
  - Adding time
  - Elapsed time
  - Constructing a histogram for numerical data
  - Interpreting a pictograph table
  - Interpreting a circle graph or pie chart
  - Mode of a data set
  - Choosing the best measure to describe data
  
- Proportions, Percents, and Probability (10 topics)
  - Word problem on unit rates associated with ratios of whole numbers: Decimal answers
  - Applying the percent equation
  - Computing a percentage from a table of values
  - Interpreting a tree diagram
  - Introduction to the counting principle
  - Counting principle
  - Outcomes and event probability
  - Experimental and theoretical probability
  - Introduction to expectation
  - Interpreting a Venn diagram of 3 sets
  
- Algebra (18 topics)
  - Writing a signed number for a real-world situation
  - Word problem with addition or subtraction of integers
  - Order of operations with integers
  - Signed fraction addition or subtraction: Basic
  - Signed fraction multiplication: Advanced
  - Signed decimal addition and subtraction with 3 numbers
  - Identifying numbers as integers or non-integers
  - Combining like terms: Integer coefficients
  - Writing a one-step variable expression for a real-world situation
  - Finding a solution to a linear equation in two variables
  - Interpreting the graphs of two functions
  - Order of operations with whole numbers and exponents: Basic
  - Power of 10: Negative exponent
  - Scientific notation with a negative exponent
  - Order of operations with integers and exponents
  - Evaluating a quadratic expression: Integers
  - Ordering numbers with positive exponents
  - Estimating a square root

**\*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.