Arkansas Tutorials are designed specifically for the Arkansas Standards found in the Curriculum Framework documents to prepare students in English, reading, writing, math and science tests.

Math Tutorials offer targeted instruction, practice and review designed to develop computational fluency, deepen conceptual understanding, and apply mathematical practices. They automatically identify and address learning gaps down to elementary-level content, using adaptive remediation to bring students to grade-level no matter where they start. Students engage with the content in an interactive, feedback-rich environment as they progress through standards-aligned modules. By constantly honing the ability to apply their knowledge in abstract and real world scenarios, students build the depth of knowledge and higher order skills required to demonstrate their mastery when put to the test.

In each module, the Learn It and Try It make complex ideas accessible to students through focused content, modeled logic and process, multi-modal representations, and personalized feedback as students reason through increasingly challenging problems. The Review It offers a high impact summary of key concepts and relates those concepts to students' lives. The Test It assesses students' mastery of the module's concepts, providing granular performance data to students and teachers after each attempt. To help students focus on the content most relevant to them, unit-level pretests and posttests can quickly identify where students are strong and where they're still learning.

Unit 1: Ratios and Rates

- **RATIOS**
  - AR.Math.Content.6.RP.A.1: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities.
  - AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
  - AR.Math.Content.6.NS.C.8: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Solve real-world and mathematical problems by graphing

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points in all four quadrants of the coordinate plane. Use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

- AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- AR.Math.Content.6.NS.C.6: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. Recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. Find and position pairs of integers and other rational numbers on a coordinate plane.
- AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to

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convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

- AR.Math.Content.6.NS.C.7: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand ordering and absolute value of rational numbers. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. Write, interpret, and explain statements of order for rational numbers in real-world contexts. Understand the absolute value of a rational number as its distance from 0 on the number line. Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. Distinguish comparisons of absolute value from statements about order.

- **RATES AND UNIT RATES**
  - AR.Math.Content.6.RP.A.2: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Understand the concept of a unit rate a/b associated with a ratio a:b with b 0, and use rate language in the context of a ratio relationship.
  - AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
  - AR.Math.Content.6.RP.A.2: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Understand the concept of a unit rate a/b associated with a ratio a:b with b 0, and use rate language in the context of a ratio relationship.
  - AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
  - AR.Math.Content.6.RP.A.2: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Understand the concept of a unit rate a/b associated with a ratio a:b with b 0, and use rate language in the context of a ratio relationship.

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- AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Unit 2: Percents and Unit Conversions

- **SOLVING PERCENT PROBLEMS**
  - AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.
- **UNIT CONVERSIONS**
  - AR.Math.Content.6.RP.A.3: Ratios and Proportional Relationships Understand ratio concepts and use ratio reasoning to solve problems. Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Use and create tables to compare equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Solve unit rate problems including those involving unit pricing and constant speed. Find a percent of a quantity as a rate per 100 (e.g., 30 of a quantity means 30/100 times the quantity). Solve problems involving finding the whole, given a part and the percent. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

Unit 3: Division

- **DIVIDING FRACTIONS**
  - AR.Math.Content.6.NS.A.1: The Number System Apply and extend previous understandings of multiplication and division to divide fractions by fractions. Interpret and compute quotients of fractions. Solve word problems involving division of fractions by fractions (e.g., by using various strategies, including but not limited to, visual fraction models and equations to represent the problem).

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- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**
  - AR.Math.Content.6.NS.A.1: The Number System Apply and extend previous understandings of multiplication and division to divide fractions by fractions. Interpret and compute quotients of fractions. Solve word problems involving division of fractions by fractions (e.g., by using various strategies, including but not limited to, visual fraction models and equations to represent the problem).
- **DIVIDING MULTI-DIGIT WHOLE NUMBERS**
  - AR.Math.Content.6.NS.B.2: The Number System Compute fluently with multi-digit numbers and find common factors and multiples. Use computational fluency to divide multi-digit numbers using a standard algorithm.

Unit 4: Number Sense

- **DECIMAL OPERATIONS**
  - AR.Math.Content.6.NS.B.3: The Number System Compute fluently with multi-digit numbers and find common factors and multiples. Use computational fluency to add, subtract, multiply, and divide multi-digit decimals and fractions using a standard algorithm for each operation.
- **GREATEST COMMON FACTOR AND LEAST COMMON MULTIPLE**
  - AR.Math.Content.6.NS.B.4: The Number System Compute fluently with multi-digit numbers and find common factors and multiples. Find the greatest common factor of two whole numbers less than or equal to 100 using prime factorization as well as other methods. Find the least common multiple of two whole numbers less than or equal to 12 using prime factorization as well as other methods. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor.

Unit 5: Signed Numbers

- **SIGNED NUMBERS**
  - AR.Math.Content.6.NS.C.5: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand that positive and negative numbers are used together to describe quantities having opposite directions or values, explaining the meaning of 0. (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge);
  - AR.Math.Content.6.NS.C.6: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. Recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers

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on a horizontal or vertical number line diagram. Find and position pairs of integers and other rational numbers on a coordinate plane.

- **INEQUALITIES AND COMPARISON**
  - AR.Math.Content.6.NS.C.7: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand ordering and absolute value of rational numbers. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. Write, interpret, and explain statements of order for rational numbers in real-world contexts. Understand the absolute value of a rational number as its distance from 0 on the number line. Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. Distinguish comparisons of absolute value from statements about order.
  - AR.Math.Content.6.EE.B.8: Expressions and Equations Reason about and solve one-variable equations and inequalities. For real world or mathematical problems, write an inequality of the form x c, x c, x c, or x c to represent a constraint or condition, recognize that inequalities of the form x c or x c have infinitely many solutions, represent solutions of such inequalities on number line diagrams.
  - AR.Math.Content.6.EE.B.8: Expressions and Equations Reason about and solve one-variable equations and inequalities. For real world or mathematical problems, write an inequality of the form x c, x c, x c, or x c to represent a constraint or condition, recognize that inequalities of the form x c or x c have infinitely many solutions, represent solutions of such inequalities on number line diagrams.
- **ABSOLUTE VALUE**
  - AR.Math.Content.6.NS.C.6: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. Recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. Find and position pairs of integers and other rational numbers on a coordinate plane.
  - AR.Math.Content.6.NS.C.7: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand ordering and absolute value of rational numbers. Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. Write, interpret, and explain statements of order for rational numbers in real-world contexts. Understand the absolute value of a rational number as its distance from 0 on the number line. Interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. Distinguish comparisons of absolute value from statements about order.

Unit 6: The Coordinate Plane

- **PLOTTING POINTS IN THE COORDINATE PLANE**

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- AR.Math.Content.6.NS.C.6: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. Recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. Find and position pairs of integers and other rational numbers on a coordinate plane.
- AR.Math.Content.6.NS.C.8: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
- AR.Math.Content.6.G.A.3: Geometry Solve real-world and mathematical problems involving area, surface area, and volume. Apply the following techniques in the context of solving real-world and mathematical problems. Draw polygons in the coordinate plane given coordinates for the vertices. Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.

- **QUADRANTS AND AXES**
  - AR.Math.Content.6.NS.C.8: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
  - AR.Math.Content.6.NS.C.6: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. Recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. Find and position pairs of integers and other rational numbers on a coordinate plane.
- **USING GRAPHS TO SOLVE PROBLEMS**
  - AR.Math.Content.6.NS.C.8: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

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- AR.Math.Content.6.NS.C.6: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. Recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. Find and position pairs of integers and other rational numbers on a coordinate plane.
- AR.Math.Content.6.G.A.3: Geometry Solve real-world and mathematical problems involving area, surface area, and volume. Apply the following techniques in the context of solving real-world and mathematical problems. Draw polygons in the coordinate plane given coordinates for the vertices. Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.

Unit 7: Exponents and Expressions

- **EXPONENTS**
  - AR.Math.Content.6.EE.A.1: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write and evaluate numerical expressions involving whole-number exponents.
  - AR.Math.Content.6.EE.A.2: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write, read, and evaluate expressions in which letters (variables) stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
- **UNDERSTANDING PARTS OF EXPRESSIONS**
  - AR.Math.Content.6.EE.A.2: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write, read, and evaluate expressions in which letters (variables) stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
- **EQUIVALENT EXPRESSIONS**

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- AR.Math.Content.6.EE.A.3: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Apply the properties of operations to generate equivalent expressions.
- AR.Math.Content.6.EE.A.4: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Identify when two expressions are equivalent (i.e., when the two expressions name the same number regardless of which value is substituted into them).
- AR.Math.Content.6.EE.A.2: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write, read, and evaluate expressions in which letters (variables) stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Unit 8: Writing and Evaluating Expressions

- **WRITING EXPRESSIONS**
  - AR.Math.Content.6.EE.B.6: Expressions and Equations Reason about and solve one-variable equations and inequalities. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number or any number in a specified set.
  - AR.Math.Content.6.EE.A.2: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write, read, and evaluate expressions in which letters (variables) stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
  - AR.Math.Content.6.EE.C.9: Expressions and Equations Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real-world problem that change in relationship to one another. Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.
- **WRITING EXPRESSIONS TO SOLVE PROBLEMS**
  - AR.Math.Content.6.EE.B.6: Expressions and Equations Reason about and solve one-variable equations and inequalities. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number or any number in a specified set.

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- AR.Math.Content.6.EE.A.2: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write, read, and evaluate expressions in which letters (variables) stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
- AR.Math.Content.6.EE.C.9: Expressions and Equations Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real-world problem that change in relationship to one another. Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

- **EVALUATING EXPRESSIONS**
  - AR.Math.Content.6.EE.A.2: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write, read, and evaluate expressions in which letters (variables) stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).

Unit 9: Basics of Equations

- **INDEPENDENT AND DEPENDENT VARIABLES**
  - AR.Math.Content.6.EE.B.6: Expressions and Equations Reason about and solve one-variable equations and inequalities. Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number or any number in a specified set.
  - AR.Math.Content.6.EE.A.2: Expressions and Equations Apply and extend previous understandings of arithmetic to algebraic expressions. Write, read, and evaluate expressions in which letters (variables) stand for numbers. Write expressions that record operations with numbers and with letters standing for numbers. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole-number exponents, in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
  - AR.Math.Content.6.EE.C.9: Expressions and Equations Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real-world problem that change in relationship to one another. Write an equation to

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express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

- **MULTIPLE REPRESENTATIONS: TABLES, GRAPHS, AND EQUATIONS**
  - AR.Math.Content.6.EE.C.9: Expressions and Equations Represent and analyze quantitative relationships between dependent and independent variables. Use variables to represent two quantities in a real-world problem that change in relationship to one another. Write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation.

Unit 10: Solving Equations and Inequalities 1

- **SOLUTIONS OF EQUATIONS AND INEQUALITIES**
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
  - AR.Math.Content.6.EE.B.7: Expressions and Equations Reason about and solve one-variable equations and inequalities. Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
- **SOLVING ADDITION EQUATIONS**
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
  - AR.Math.Content.6.EE.B.7: Expressions and Equations Reason about and solve one-variable equations and inequalities. Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true

Unit 11: Solving Equations and Inequalities 2

- **SOLVING MULTIPLICATION EQUATIONS**
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question:

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Using substitution, which values from a specified set, if any, make the equation or inequality true

- AR.Math.Content.6.EE.B.7: Expressions and Equations Reason about and solve one-variable equations and inequalities. Solve real-world and mathematical problems by writing and solving equations of the form x + p = q and px = q for cases in which p, q and x are all nonnegative rational numbers.
- AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
- AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true

- **SOLVING INEQUALITIES**
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
  - AR.Math.Content.6.EE.B.8: Expressions and Equations Reason about and solve one-variable equations and inequalities. For real world or mathematical problems, write an inequality of the form x c, x c, x c, or x c to represent a constraint or condition, recognize that inequalities of the form x c or x c have infinitely many solutions, represent solutions of such inequalities on number line diagrams.
  - AR.Math.Content.6.EE.B.5: Expressions and Equations Reason about and solve one-variable equations and inequalities. Understand solving an equation or inequality as a process of answering a question: Using substitution, which values from a specified set, if any, make the equation or inequality true
  - AR.Math.Content.6.EE.B.8: Expressions and Equations Reason about and solve one-variable equations and inequalities. For real world or mathematical problems, write an inequality of the form x c, x c, x c, or x c to represent a constraint or condition, recognize that inequalities of the form x c or x c have infinitely many solutions, represent solutions of such inequalities on number line diagrams.

Unit 12: Area and Volume

- **AREA**
  - AR.Math.Content.6.G.A.1: Geometry Solve real-world and mathematical problems involving area, surface area, and volume. Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems.
- **VOLUME**
  - AR.Math.Content.6.G.A.2: Geometry Solve real-world and mathematical problems involving area, surface area, and volume. Find the volume of a right rectangular prism including whole number and fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths,

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and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas V = l w h and V = B h to find volumes of right rectangular prisms including fractional edge lengths in the context of solving real-world and mathematical problems.

Unit 13: Geometry

- **COORDINATE GEOMETRY**
  - AR.Math.Content.6.NS.C.8: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Use coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.
  - AR.Math.Content.6.NS.C.6: The Number System Apply and extend previous understandings of numbers to the system of rational numbers. Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates. Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line. Recognize that the opposite of the opposite of a number is the number itself, e.g., -(-3) = 3, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane. Recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram. Find and position pairs of integers and other rational numbers on a coordinate plane.
  - AR.Math.Content.6.G.A.3: Geometry Solve real-world and mathematical problems involving area, surface area, and volume. Apply the following techniques in the context of solving real-world and mathematical problems. Draw polygons in the coordinate plane given coordinates for the vertices. Use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate.
- **SOLID FIGURES**
  - AR.Math.Content.6.G.A.4: Geometry Solve real-world and mathematical problems involving area, surface area, and volume. Apply the following techniques in the context of solving real-world and mathematical problems. Represent three-dimensional figures using nets made up of rectangles and triangles. Use the nets to find the surface area of these figures.

Unit 14: Introduction to Statistics

- **STATISTICAL QUESTIONS AND DATA DISTRIBUTIONS**
  - AR.Math.Content.6.SP.A.1: Statistics and Probability Develop understanding of statistical variability. Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers.
  - AR.Math.Content.6.SP.A.2: Statistics and Probability Develop understanding of statistical variability. Determine center, spread, and overall shape from a set of data.
  - AR.Math.Content.6.SP.A.3: Statistics and Probability Develop understanding of statistical variability. Recognize that a measure of center for a numerical data set summarizes all of its values with a single

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number (such as mean, median, or mode), while a measure of variation (such as Interquartile Range or Mean Absolute Deviation) describes how its values vary with a single number.

- AR.Math.Content.6.SP.B.5: Statistics and Probability Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. Calculate quantitative measures of center (including but not limited to median and/or mean) and variability (including but not limited to interquartile range and/or mean absolute deviation). Use the calculations to describe any overall pattern and any striking deviations (outliers) from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

- **MEASURES OF CENTER AND VARIABILITY**
  - AR.Math.Content.6.SP.A.2: Statistics and Probability Develop understanding of statistical variability. Determine center, spread, and overall shape from a set of data.
  - AR.Math.Content.6.SP.A.3: Statistics and Probability Develop understanding of statistical variability. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number (such as mean, median, or mode), while a measure of variation (such as Interquartile Range or Mean Absolute Deviation) describes how its values vary with a single number.
  - AR.Math.Content.6.SP.B.5: Statistics and Probability Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. Calculate quantitative measures of center (including but not limited to median and/or mean) and variability (including but not limited to interquartile range and/or mean absolute deviation). Use the calculations to describe any overall pattern and any striking deviations (outliers) from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

Unit 15: Data Displays

- **BOX PLOTS**
  - AR.Math.Content.6.SP.A.3: Statistics and Probability Develop understanding of statistical variability. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number (such as mean, median, or mode), while a measure of variation (such as Interquartile Range or Mean Absolute Deviation) describes how its values vary with a single number.
  - AR.Math.Content.6.SP.B.4: Statistics and Probability Summarize and describe distributions. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.
  - AR.Math.Content.6.SP.B.5: Statistics and Probability Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. Calculate quantitative measures of center (including but not limited to median and/or mean) and variability (including but not limited to interquartile range and/or mean absolute

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deviation). Use the calculations to describe any overall pattern and any striking deviations (outliers) from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

- AR.Math.Content.6.SP.A.2: Statistics and Probability Develop understanding of statistical variability. Determine center, spread, and overall shape from a set of data.

- **DOT PLOTS AND HISTOGRAMS**
  - AR.Math.Content.6.SP.B.4: Statistics and Probability Summarize and describe distributions. Display numerical data in plots on a number line, including dot plots, histograms, and box plots.

Unit 16: Summarizing Data

- **COLLECTING DATA**
  - AR.Math.Content.6.SP.B.5: Statistics and Probability Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. Calculate quantitative measures of center (including but not limited to median and/or mean) and variability (including but not limited to interquartile range and/or mean absolute deviation). Use the calculations to describe any overall pattern and any striking deviations (outliers) from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
- **SUMMARIZING DATA USING MEASURES OF CENTER AND VARIABILITY**
  - AR.Math.Content.6.SP.A.3: Statistics and Probability Develop understanding of statistical variability. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number (such as mean, median, or mode), while a measure of variation (such as Interquartile Range or Mean Absolute Deviation) describes how its values vary with a single number.
  - AR.Math.Content.6.SP.B.5: Statistics and Probability Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. Calculate quantitative measures of center (including but not limited to median and/or mean) and variability (including but not limited to interquartile range and/or mean absolute deviation). Use the calculations to describe any overall pattern and any striking deviations (outliers) from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.
  - AR.Math.Content.6.SP.A.2: Statistics and Probability Develop understanding of statistical variability. Determine center, spread, and overall shape from a set of data.
- **CHOOSING APPROPRIATE MEASURES TO SUMMARIZE DATA SETS**
  - AR.Math.Content.6.SP.A.2: Statistics and Probability Develop understanding of statistical variability. Determine center, spread, and overall shape from a set of data.

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- AR.Math.Content.6.SP.A.3: Statistics and Probability Develop understanding of statistical variability. Recognize that a measure of center for a numerical data set summarizes all of its values with a single number (such as mean, median, or mode), while a measure of variation (such as Interquartile Range or Mean Absolute Deviation) describes how its values vary with a single number.
- AR.Math.Content.6.SP.B.5: Statistics and Probability Summarize and describe distributions. Summarize numerical data sets in relation to their context, such as by: Reporting the number of observations. Describing the nature of the attribute under investigation, including how it was measured and its units of measurement. Calculate quantitative measures of center (including but not limited to median and/or mean) and variability (including but not limited to interquartile range and/or mean absolute deviation). Use the calculations to describe any overall pattern and any striking deviations (outliers) from the overall pattern with reference to the context in which the data were gathered. Relating the choice of measures of center and variability to the shape of the data distribution and the context in which the data were gathered.

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