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.

This Tutorial is built to state standards.

Unit 1: Ratios, Rates, and Percents

- **RATIOS**
  - 6.N.3.1: Identify and use ratios to compare and relate quantities in multiple ways. Recognize that multiplicative comparison and additive comparison are different.
  - 6.N.3.3: Apply the relationship between ratios, equivalent fractions, unit rates, and percents to solve problems in various contexts.
- **RATES AND UNIT RATES**
  - 6.N.3.2: Determine the unit rate for ratios.
  - 6.N.3.3: Apply the relationship between ratios, equivalent fractions, unit rates, and percents to solve problems in various contexts.
- **SOLVING PERCENT PROBLEMS**
  - 6.N.1.3: Explain that a percent represents parts out of 100 and ratios to 100.
  - 6.N.1.4: Determine equivalencies among fractions, mixed numbers, decimals, and percents.
  - 6.N.3.3: Apply the relationship between ratios, equivalent fractions, unit rates, and percents to solve problems in various contexts.

Unit 2: Dividing Fractions

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- **DIVIDING FRACTIONS**
  - 6.N.4.2: Illustrate multiplication and division of fractions and decimals to show connections to fractions, whole number multiplication, and inverse relationships.
  - 6.N.4.3: Multiply and divide fractions and decimals using efficient and generalizable procedures.
- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**
  - 6.N.4.4: Use mathematical modeling to solve and interpret problems including money, measurement, geometry, and data requiring arithmetic with decimals, fractions, and mixed numbers.

Unit 3: Signed Numbers

- **SIGNED NUMBERS**
  - 6.N.1.1: Use manipulatives and models (e.g., number lines) to determine positive and negative numbers and their contexts, identify opposites, and explain the meaning of 0 (zero) in a variety of situations.
- **INEQUALITIES AND COMPARISON**
  - 6.N.1.2: Compare and order positive rational numbers, represented in various forms, or integers using the symbols , , and =.

Unit 4: Operations with Rational Numbers I

- **ADDING RATIONAL NUMBERS**
  - 6.N.2.2: Illustrate addition and subtraction of integers using a variety of representations.
  - 6.N.2.3: Add and subtract integers in a variety of situations; use efficient and generalizable procedures including but not limited to standard algorithms.
- **SUBTRACTING RATIONAL NUMBERS**
  - 6.N.2.2: Illustrate addition and subtraction of integers using a variety of representations.
  - 6.N.2.3: Add and subtract integers in a variety of situations; use efficient and generalizable procedures including but not limited to standard algorithms.

Unit 5: Operations with Rational Numbers II

- **DECIMAL OPERATIONS**
  - 6.N.4.3: Multiply and divide fractions and decimals using efficient and generalizable procedures.
  - 6.N.4.4: Use mathematical modeling to solve and interpret problems including money, measurement, geometry, and data requiring arithmetic with decimals, fractions, and mixed numbers.
- **SOLVING MULTI-STEP PROBLEMS WITH RATIONAL NUMBERS**
  - 6.N.2.1: Estimate solutions for integer addition and subtraction of problems in order to assess the reasonableness of results.
  - 6.N.4.1: Estimate solutions to problems with whole numbers, decimals, fractions, and mixed numbers, and use the estimates to assess the reasonableness of results in the context of the problem.

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- 6.N.4.4: Use mathematical modeling to solve and interpret problems including money, measurement, geometry, and data requiring arithmetic with decimals, fractions, and mixed numbers.

Unit 6: Factors and Multiples

- **FACTORS AND MULTIPLES**
  - 6.N.2.5: Factor whole numbers and express prime and composite numbers as a product of prime factors with exponents.
- **GREATEST COMMON FACTOR AND LEAST COMMON MULTIPLE**
  - 6.N.2.6: Determine the greatest common factors and least common multiples. Use common factors and multiples to calculate with fractions, find equivalent fractions, and express the sum of two-digit numbers with a common factor using the distributive property.

Unit 7: The Coordinate Plane

- **PLOTTING POINTS IN THE COORDINATE PLANE**
  - 6.A.1.1: Plot integer- and rational-valued (limited to halves and fourths) ordered-pairs as coordinates in all four quadrants and recognize the reflective relationships among coordinates that differ only by their signs.
- **QUADRANTS AND AXES**
  - 6.A.1.1: Plot integer- and rational-valued (limited to halves and fourths) ordered-pairs as coordinates in all four quadrants and recognize the reflective relationships among coordinates that differ only by their signs.

Unit 8: Simplifying Expressions

- **EXPONENTS**
  - 6.N.2.4: Identify and represent patterns with whole-number exponents and perfect squares. Evaluate powers with whole-number bases and exponents.
- **EVALUATING EXPRESSIONS**
  - 6.A.2.1: Generate equivalent expressions and evaluate expressions involving positive rational numbers by applying the commutative, associative, and distributive properties and order of operations to model and solve mathematical problems.
- **EQUIVALENT EXPRESSIONS**
  - 6.A.2.1: Generate equivalent expressions and evaluate expressions involving positive rational numbers by applying the commutative, associative, and distributive properties and order of operations to model and solve mathematical problems.

Unit 9: Writing Expressions

- **WRITING EXPRESSIONS**
  - 6.A.1.3: Use and evaluate variables in expressions, equations, and inequalities that arise from various contexts, including determining when or if, for a given value of the variable, an equation or inequality involving a variable is true or false.

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- **WRITING EXPRESSIONS TO SOLVE PROBLEMS**
  - 6.A.3.1: Model mathematical situations using expressions, equations and inequalities involving variables and rational numbers.

Unit 10: Solving Equations and Inequalities I

- **SOLVING INEQUALITIES**
  - 6.A.1.3: Use and evaluate variables in expressions, equations, and inequalities that arise from various contexts, including determining when or if, for a given value of the variable, an equation or inequality involving a variable is true or false.
- **SOLUTIONS OF EQUATIONS AND INEQUALITIES**
  - 6.A.1.3: Use and evaluate variables in expressions, equations, and inequalities that arise from various contexts, including determining when or if, for a given value of the variable, an equation or inequality involving a variable is true or false.
  - 6.A.3.1: Model mathematical situations using expressions, equations and inequalities involving variables and rational numbers.
  - 6.A.3.2: Use number sense and properties of operations and equality to model and solve mathematical problems involving equations in the form x + p = q and px = q, where p and q are nonnegative rational numbers. Graph the solution on a number line, interpret the solution in the original context, and assess the reasonableness of the solution.

Unit 11: Solving Equations and Inequalities II

- **SOLVING ADDITION EQUATIONS**
  - 6.A.3.2: Use number sense and properties of operations and equality to model and solve mathematical problems involving equations in the form x + p = q and px = q, where p and q are nonnegative rational numbers. Graph the solution on a number line, interpret the solution in the original context, and assess the reasonableness of the solution.
- **SOLVING MULTIPLICATION EQUATIONS**
  - 6.A.3.2: Use number sense and properties of operations and equality to model and solve mathematical problems involving equations in the form x + p = q and px = q, where p and q are nonnegative rational numbers. Graph the solution on a number line, interpret the solution in the original context, and assess the reasonableness of the solution.

Unit 12: Equations and Relationships

- **INDEPENDENT AND DEPENDENT VARIABLES**
  - 6.A.1.2: Represent relationships between two varying positive quantities involving no more than two operations with rules, graphs, and tables; translate between any two of these representations.
- **MULTIPLE REPRESENTATIONS: TABLES, GRAPHS, AND EQUATIONS**
  - 6.A.1.2: Represent relationships between two varying positive quantities involving no more than two operations with rules, graphs, and tables; translate between any two of these representations.

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Unit 13: Measurement

- **AREA**
  - 6.GM.2.1: Develop and use formulas for the area of squares and parallelograms using a variety of methods including but not limited to the standard algorithms and finding unknown measures.
  - 6.GM.2.2: Develop and use formulas to determine the area of triangles and find unknown measures.
  - 6.GM.2.3: Find the area of right triangles, other triangles, special quadrilaterals, and polygons that can be decomposed into triangles and other shapes.
- **UNIT CONVERSIONS**
  - 6.GM.4.2: Solve problems that require the conversion of lengths within the same measurement systems using appropriate units.

Unit 14: Angles and Triangles

- **ANGLE RELATIONSHIPS**
  - 6.GM.3.1: Solve problems using the relationships between the angles (vertical, complementary, and supplementary) formed by intersecting lines.
- **ANGLE RELATIONSHIPS IN TRIANGLES**
  - 6.GM.3.2: Develop and use the fact that the sum of the interior angles of a triangle is 180 to determine missing angle measures in a triangle.

Unit 15: Transformations

- **BASICS OF TRANSFORMATIONS**
  - 6.GM.1.1: Predict, describe, and apply translations (slides), reflections (flips), and rotations (turns) to a two-dimensional figure.
- **TRANSFORMATIONS AND CONGRUENCE**
  - 6.GM.1.2: Recognize that translations, reflections, and rotations preserve congruence and use them to show that two figures are congruent.

Unit 16: Probability

- **PROBABILITY**
  - 6.D.2.1: Represent possible outcomes using a probability continuum from impossible to certain.
- **CALCULATING PROBABILITY**
  - 6.D.2.2: Determine the sample space for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables, or pictorial representations.
- **PROBABILITY OF COMPOUND EVENTS**
  - 6.D.2.2: Determine the sample space for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables, or pictorial representations.

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Unit 17: Statistics

- **MEASURES OF CENTER AND VARIABILITY**
  - 6.D.1.1: Interpret the mean, median, and mode for a set of data.
  - 6.D.1.2: Explain and justify which measure of center (mean, median, or mode) would provide the most descriptive information for a given set of data.
- **ANALYZING STATISTICAL SAMPLES**
  - 6.D.2.3: Demonstrate simple experiments in which the probabilities are known and compare the resulting relative frequencies with the known probabilities, recognizing that there may be differences between the two results.

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