Indiana Tutorials are designed specifically for the Indiana Academic Standards to prepare students for the Indiana Statewide Testing for Educational Progress-Plus (ISTEP+) End-of-Course Assessments (ECAs).

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: Operations with Rational Numbers

- **MULTIPLYING FRACTIONS**
  - 6.NS.4: Solve real-world problems with positive fractions and decimals by using one or two operations. (E)
- **DIVIDING FRACTIONS**
  - 6.NS.4: Solve real-world problems with positive fractions and decimals by using one or two operations. (E)
- **SOLVING PROBLEMS BY DIVIDING FRACTIONS**
  - 6.NS.4: Solve real-world problems with positive fractions and decimals by using one or two operations. (E)
- **DECIMAL OPERATIONS**
  - 6.NS.4: Solve real-world problems with positive fractions and decimals by using one or two operations. (E)

Unit 2: Number Sense and Integers

- **GREATEST COMMON FACTOR AND LEAST COMMON MULTIPLE**

- 6.NS.6: Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers from 1 to 100, with a common factor as a multiple of a sum of two whole numbers with no common factor.

- **EXPONENTS**
  - 6.NS.8: Evaluate positive rational numbers with whole number exponents.
- **SIGNED NUMBERS**
  - 6.NS.1: Use positive and negative numbers to represent and compare quantities in real-world contexts, explaining the meaning of 0 in each situation. (E)
  - 6.NS.2: Explain how opposite signs of numbers indicate locations on opposite sides of 0 on the number line; identify the opposite of the opposite of a number.
  - 6.NS.3: Compare and order rational numbers and plot them on a number line. Write, interpret, and explain statements of order for rational numbers in real-world contexts.
- **INEQUALITIES AND COMPARISON**
  - 6.AF.4: Write an inequality of the form x c, x c, x c, or x c, where c is a rational number, to represent a constraint or condition in a real-world or other mathematical problem. Explain that inequalities have infinitely many solutions and how to represent solutions on a number line diagram.

Unit 3: The Coordinate Plane

- **QUADRANTS AND AXES**
  - 6.AF.5: Solve real-world and other mathematical problems by graphing points with rational number coordinates on a coordinate plane. Include the use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (E)
- **PLOTTING POINTS IN THE COORDINATE PLANE**
  - 6.AF.5: Solve real-world and other mathematical problems by graphing points with rational number coordinates on a coordinate plane. Include the use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (E)
- **USING GRAPHS TO SOLVE PROBLEMS**
  - 6.AF.5: Solve real-world and other mathematical problems by graphing points with rational number coordinates on a coordinate plane. Include the use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate. (E)

Unit 4: Ratios and Rates

- **RATIOS**
  - 6.RP.3: Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane.
- **RATES**

- 6.RP.2: Understand the concept of a unit rate and use terms related to rate in the context of a ratio relationship.

- **UNIT RATES**
  - 6.RP.2: Understand the concept of a unit rate and use terms related to rate in the context of a ratio relationship.
- **UNIT CONVERSIONS**
  - 6.GM.1: Convert between measurement systems (Customary to metric and metric to Customary) given the conversion factors, and use these conversions in solving real-world problems.

Unit 5: Proportional Reasoning

- **PROPORTIONAL RELATIONSHIPS**
  - 6.RP.4: Solve real-world and other mathematical problems involving rates and ratios using models and strategies such as reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. (E)
- **FRACTIONS, DECIMALS, AND PERCENTS**
  - 6.RP.1: Convert between any two representations (fractions, decimals, percents) of positive rational numbers without the use of a calculator. (E)

Unit 6: Numerical and Algebraic Expressions

- **WRITING EXPRESSIONS**
  - 6.AF.1: Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values. (E)
- **EVALUATING EXPRESSIONS**
  - 6.NS.5: Apply the order of operations and properties of operations (i.e., identity, inverse, commutative properties of addition and multiplication, associative properties of addition and multiplication, and distributive property) to evaluate numerical expressions with nonnegative rational numbers, including those using grouping symbols, such as parentheses, and involving whole number exponents. (E)
  - 6.AF.1: Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values. (E)
- **EQUIVALENT EXPRESSIONS**
  - 6.NS.7: Apply the properties of operations (i.e., identity, inverse, commutative, associative, distributive properties) to create equivalent linear expressions and to justify whether two linear expressions are equivalent when the two expressions name the same number regardless of which value is substituted into them. (E)
- **WRITING EXPRESSIONS TO SOLVE PROBLEMS**
  - 6.AF.1: Define and use multiple variables when writing expressions to represent real-world and other mathematical problems, and evaluate them for given values. (E)

Unit 7: Representing Equations

- **INDEPENDENT AND DEPENDENT VARIABLES**
  - 6.RP.5: Use variables to represent two quantities in a proportional relationship in a real-world problem; write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (E)
- **MULTIPLE REPRESENTATIONS: TABLES, GRAPHS, AND EQUATIONS**
  - 6.RP.5: Use variables to represent two quantities in a proportional relationship in a real-world problem; write an equation to express one quantity, the dependent variable, in terms of the other quantity, the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. (E)

Unit 8: Solving Equations and Inequalities

- **SOLUTIONS OF EQUATIONS AND INEQUALITIES**
  - 6.AF.2: Demonstrate which values from a specified set, if any, make the equation or inequality true. Use substitution to determine whether a given number in a specified set makes an equation or inequality true. (E)
- **SOLVING ADDITION EQUATIONS**
  - 6.AF.3: Solve equations of the form x + p = q, x - p = q, px = q, and x/p = q fluently for cases in which p, q, and x are all nonnegative rational numbers. Represent real-world problems using equations of these forms and solve such problems. (E)
- **SOLVING MULTIPLICATION EQUATIONS**
  - 6.AF.3: Solve equations of the form x + p = q, x - p = q, px = q, and x/p = q fluently for cases in which p, q, and x are all nonnegative rational numbers. Represent real-world problems using equations of these forms and solve such problems. (E)
- **SOLVING INEQUALITIES**
  - 6.AF.4: Write an inequality of the form x c, x c, x c, or x c, where c is a rational number, to represent a constraint or condition in a real-world or other mathematical problem. Explain that inequalities have infinitely many solutions and how to represent solutions on a number line diagram.

Unit 9: Geometry

- **ANGLE RELATIONSHIPS IN TRIANGLES**
  - 6.GM.2: Apply the sums of interior angles of triangles and quadrilaterals to solve real-world and mathematical problems.
- **SQUARES AND RHOMBI**
  - 6.GM.2: Apply the sums of interior angles of triangles and quadrilaterals to solve real-world and mathematical problems.
- **AREA**

- 6.GM.3: Find the area of complex shapes composed of polygons by composing or decomposing into simple shapes; apply this technique to solve real-world and other mathematical problems.

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

Unit 10: Introduction to Statistics

- **STATISTICAL QUESTIONS AND DATA DISTRIBUTIONS**
  - 6.DS.2: Formulate statistical questions; collect and organize the data (e.g., using technology), and display and interpret the data with graphical representations (e.g., using technology). (E)
- **BOX PLOTS**
  - 6.DS.1: Select, create, and interpret graphical representations of numerical data, including line plots, histograms, and box plots.
- **DOT PLOTS AND HISTOGRAMS**
  - 6.DS.1: Select, create, and interpret graphical representations of numerical data, including line plots, histograms, and box plots.

Unit 11: Summarizing Data

- **COLLECTING DATA**
  - 6.DS.3.a: Report the number of observations;
  - 6.DS.3.b: Describe the nature of the attribute under investigation, including how it was measured and its units of measurement;
- **SUMMARIZING DATA USING MEASURES OF CENTER AND VARIABILITY**
  - 6.DS.3.c: Determine quantitative measures of center (mean and/or median) and spread (range and interquartile range);
  - 6.DS.3.d: Describe any overall pattern and any striking deviations from the overall pattern with reference to the context in which the data were gathered; and
- **CHOOSING APPROPRIATE MEASURES TO SUMMARIZE DATA SETS**
  - 6.DS.3.e: Relate the choice of measures of center and spread to the shape of the data distribution and the context in which the data were gathered.