



The mathematics standards in middle school build on students' understanding of number and quantity. Students apply more formal statistics, probability, and algebra to model phenomena in the world around them. Students gain a deeper understanding of geometry and its application. Students also persevere in solving problems as they use strategies to apply their new tools and techniques.

#### Expectations for 6th Grade Students:

- **Number and Quantity:** Compare quantities using ratios and unit rates (such as miles per hour); fluently add, subtract, multiply, and divide fractions and decimals; understand the concept of negative numbers and absolute value; extend the number line and coordinate grids to include negative numbers.
- **Algebra and Functions:** Analyze relationships between variables using tables, graphs, and equations; solve one-variable equations and inequalities; apply the order of operations to find the value of an algebraic expression.
- **Data, Statistics, and Probability:** Create graphs including dotplots, boxplots, and histograms; describe data by examining the center (averages) and spread (variability) of a distribution.
- **Geometry:** Apply formulas for the area of triangles and quadrilaterals, including parallelograms and trapezoids; find the volume of rectangular boxes; calculate the surface area of three-dimensional figures.

#### Throughout 6th Grade You May Find Students:

- Finding a cyclist's speed in miles per hour by creating ratio tables, graphs, and number lines.
- Calculating a better deal (buying a gallon or four quarts of milk) using unit prices or ratios.
- Explaining the connection between latitude and longitude on a map and the horizontal and vertical axes on a coordinate grid.
- Recognizing situations involving negative numbers such as temperature, sea level, and bank account balances.
- Designing packaging by creating two-dimensional cutouts and folding them into three-dimensional boxes.
- Describing the difference between the independent and dependent variables for a phone plan.
- Collecting and using data to answer the question: how many hours does the typical sixth-grade student sleep?
- Explaining why average home prices are reported as medians instead of means.