



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 7th Grade Students:

- **Number and Quantity:** Fluently add, subtract, multiply and divide with both positive and negative numbers, including fractions and decimals; solve problems involving percentages and proportions; explain operations with positive and negative numbers; change fractions to decimals and explain when a fraction will be a decimal that end or repeats; recognize and analyze proportional relationships in tables, graphs, and equations; connect ratios to the concept of slope.
- **Algebra and Functions:** Create equations and inequalities for real-life situations.
- **Data, Statistics, and Probability:** Find the probability of an event and connect probability to sampling; explore the importance of randomness when creating a sample; describe a population based on data from a random sample; compare two different populations using averages and measures of variability.
- **Geometry:** Create drawings to scale; find the measures of angles formed by the intersection of lines; explain how to tell if two triangles are congruent; explore shapes created when slicing a three-dimensional object; calculate the area and circumference of circles.

Throughout 7th Grade You May Find Students:

- Finding the wholesale price of a shirt with a 12% markup.
- Determining a 20% tip for dinner at a restaurant.
- Exploring when a \$20 discount is better than a 20% discount.
- Calculating the temperature after a 7 degree drop from -15 degrees.
- Explaining why negative two multiplied by negative six equals positive twelve.
- Creating scale models of a zoo to connect the concept of scale to proportions.
- Conducting a study to determine if the average height of seventh-grade boys is different from the average height of seventh-grade girls.
- Calculating the probability of getting heads when flipping a coin or getting the sum of seven when tossing number cubes.
- Explaining the meaning of a weather forecast with a 50% chance of rain.
- Describing shapes formed when slicing a variety of fruit.
- Using the unit price of apples to determine the cost of purchasing 4 pounds of apples using either a table or graph.
- Solving a variety of equations and inequalities for "x", such as $-5x + 18 = 43$.