



## **Math 7: Things Change**

### **Linear Rates And Proportionality**

This course will focus on number sense, proportional reasoning, and linear relationships. Students will extend their understanding of operations and properties of integers and rational numbers. They will also develop and use strategies for solving problems that involve proportional relationships. Students will build algebraic thinking as they learn to recognize various representations of linear relationships and investigate ways to solve equations.

#### **Example Units**

- Ratios And Proportional Relationships
- The Number System
- Expressions And Equations
- Geometry
- Statistics And Probability

### ● **UNIT 1: Ratios And Proportional Relationships**

- Compute unit rates associated with ratios of fractions
- Recognize and represent proportional relationships between quantities
- Use proportional relationships to solve multi-step ratio, rate, and percent problems

### ● **UNIT 2: The Number System**

- Add, subtract, multiply, and divide integers and other rational numbers
- Understand the concept of irrational numbers
- Approximate irrational numbers
- Know and apply the properties of integer exponents
- Use square root and cube root to find solutions to simple equations

### ● **UNIT 3: Expressions And Equations**

- Write inequalities and represent solutions on number lines
- Use properties of operations to generate equivalent expressions
- Construct equations and inequalities to solve real world and mathematical problems
- Graph proportional relationships, interpreting the unit rate as the slope of the graph
- Compare two different proportional relationships represented in different ways
- Derive the equation  $y = mx + b$  for a line
- Solve linear equations in one variable

#### ● **UNIT 4: Geometry**

- Solve problems involving scale drawings of geometric figures
- Understand the relationships among the radius, diameter, circumference, and area of a circle
- Know the formulas for the area and circumference of a circle and use them to solve problems
- Find the area, surface area, and volume of shapes composed of polygons, circles, and right prisms
- Solve problems involving volume of cylinders, cones, and spheres.

#### ● **UNIT 5: Statistics And Probability**

- Approximate the probability of a chance event
- Develop a probability model and use it to find probabilities of events
- Find probabilities of compound events