

**7th Grade Standards**

**Mathematics 7B**

**Course Overview:** In this course, you will learn to use new models and methods to think about problems as well as solve them. You will be developing powerful mathematical tools and learning new ways of thinking about and investigating situations. You will be making connections, discovering relationships, figuring out what strategies can be used to solve problems, and explaining your thinking. Learning to think in these ways and communicate about your thinking is useful in mathematical contexts, other subjects in school, and situations outside the classroom. The mathematics you have learned in the past will be valuable for learning in this course. That work, and what you learn in this course, will prepare you for future courses.

**Bold standards are essential standards that all students will learn as they complete the course.**

**Unit 1 Introduction and Probability (20 days)**

**Description:** In this unit, students will find the likelihood that a specific event will occur, calculate the probabilities of two separate events, find both experimental and theoretical probabilities of events, and add and subtract fractions, as well as write equivalent fractions.

**Standards**

1. **The students will understand the differences between experimental and theoretical probability. (7. SP.5) (7. SP.6)**
2. The students will develop a probability model by observing frequencies in experimental data. (7.SP.7)
3. The students will calculate probabilities of compound events. (7.SP.8)

**Unit 2 Fractions and Integer Addition (18 days)**

**Description:** In this unit, students will rewrite numbers in different forms in order to compare them, determine whether a fraction can be written as a repeating or terminating decimal, build and take apart numbers and lengths, add and multiply positive and negative integers and rational numbers, and choose appropriate scales and set up useful graphs for data.

**Standards**

1. The students will be able to convert fractions to decimals and decimals to fraction. (7.NS.2)
2. **The students will add and multiply integers and rational numbers. (7.NS.1) (7NS.2)**
3. The students will multiply mixed numbers. (7.NS.2)

**Unit 3 Arithmetic Properties (18 days)**

**Description:** In this unit, students will simplify expressions with multiple operations by identifying and evaluating groups, subtract and multiply positive and negative numbers, and divide with fractions, mixed numbers, and decimals.

**Standards**

1. **The students will solve problems using order of operations. (7.NS.1) (7.NS.2) (7.NS.3)**
2. The students will subtract and add integers using tiles to show their understanding. (7.NS.1)
3. The students will simplify numerical expressions. (7NS.1)
4. The students will multiply integers and decimals. (7NS.1) (7NS.2)
5. The students will divide fractions, mixed numbers, and decimals. (7NS.2) (7NS.3)

**Unit 4 Proportions and Expressions (20 days)**

**Description:** In this unit, students will find solutions to problems involving proportional relationships, identify proportional relationships in tables, graphs, and equations, calculate unit rates, combine like terms and simplify algebraic expressions, rewrite expressions by combining like terms and using the Distributive Property, and simplify and compare two algebraic expressions.

**Standards**

1. **The students will determine unit rate and equivalent ratios. (7.RP.1)**
2. **The students will solve proportional relationships. (7.RP.1) (7.RP.2)**
3. The students will identify corresponding sides of similar figures. (7.G.1)
4. The students will create scale drawings. (7.G.1)
5. The students will combine like terms. (7.EE.1)

**Unit 5 Probability and Solving Word Problems (23 days)**

**Description:** In this unit, students will find and use percentages to solve problems, calculate the probability of compound events, use experimental results to make and test conjectures about unknown sample spaces, describe how the relationship between experimental and theoretical probabilities for an experiment changes as the experiment is conducted many times, and solve situational problems using the 5-D process.

**Standards**

1. The students will develop strategies to find and use percents. (7.RP.3) (7.EE.4)
2. The students will find probabilities of compound independent events. (7.SP.6)
3. The students will find experimental probabilities of complex compound probabilities. (7.SP.7)
4. **The students will use probability tables to list possible outcomes and calculate probabilities. (7. SP.8)**
5. The students will solve problems using rational numbers. (7.EE.3)

**Unit 6 Solving Inequalities and Equations (20 days)**

**Description:** In this unit, students will simplify and compare two algebraic expressions, write and solve algebraic inequalities, solve for a variable when two expressions are equal, write and solve an equation to solve a word problem, and recognize when an equation has no solution or infinite solutions.

**Standards**

1. **The students will solve one variable inequality. (7.EE.4)**
2. **The students will write and solve equations. (7.EE.4)**

**Unit 7 Proportions and Percents (17 days)**

**Description:** In this unit, students will solve problems involving distance, rate, and time, solve equations that have fractional or decimal coefficients, find the whole amount if you only know a percentage of it, calculate simple interest, and set up and solve proportional equations.

**Standards**

1. The students will make tables, graphs, and rules relating distance to time. (7.RP.3)
2. The students will use multiplication to scale a quantity. (7.RP.3) (7.EE.2)
3. **The students will solve percent discount and increase problems. (7.RP.3) (7.NS.3) (7.EE.2) (7.EE.3)**
4. The students will learn multiple ways to solve equations with fractional coefficients and decimal coefficients. (7.RP.3) (7.NS.3) (7.EE.2)
5. **The students will be able to calculate simple interest over time. (7.RP.3)**

**Unit 8 Statistics and Angle Relationships (17 days)**

**Description:** In this unit, students will describe, analyze, and compare sets of data using measures of central tendency, attempt to find random and representative samples to complete a survey, identify angles by their characteristics, and construct triangles and quadrilaterals with given side lengths and/or angles and predict if they will be unique shapes.

**Standards**

1. The students will analyze methods of sampling and critique it. (7.SP.1)
2. The students will use random sampling to draw inferences. (7.SP.1) (7.SP.2) (7.SP.4)
3. The students will measure a length using two different measuring tools and generate two sets of data and compare the two sets of data. (7.SP.3)
4. The students will draw geometric shapes. (7.G.2)
5. The students will construct geometric shapes. (7.G.2) (7.G.4)
6. **The students will classify angles. (7.G.5)**

**Unit 9 Circles and Volume (22 days)**

**Description:** In this unit, students will calculate the circumference and areas of circles, find the areas of shapes made up of special quadrilaterals, circles, and triangles, calculate the volumes of some three-dimensional shapes, and find the surface area and volumes of rectangular prisms.

**Standards**

1. The students will describe a two dimensional shape. (7.G.3)
2. The students will graph the relationship between circumference and diameter. (7.G.4)
3. **The students will find area of a circle, rectangle, and triangle. (7.G.4) (7.G.6)**
4. **The students will find volume of different prisms. (7.G.6)**