Mathematics 7 is a two-semester course that is 100% aligned to Common Core Standards for Mathematics. The course is designed to help students develop computational fluency, deepen their conceptual understanding, and apply mathematical practices. Students will learn to perform operations with positive and negative rational numbers, solve two-step equations and inequalities, and apply proportional reasoning to solve real-world problems. They will also calculate area, volume, and surface area of two- and three-dimensional figures, analyze data to make inferences about populations, and design simulations to model probability. In addition, this course includes unit-level discussion activities in which students will learn techniques for having productive group conversations and will reflect on their own thinking and the thinking of others.

There are no required materials for this course.

Length: Two Semesters

Unit 1: Number Sense

- Fractions
- Fractions, Decimals, and Percents
- Using Properties to Simplify Expressions
- Using Operations on Rational Numbers to Solve Problems
- Wrap-Up: Number Sense

Unit 2: Operations with Integers

- Adding Integers
- Subtracting Integers
- Multiplying and Dividing Integers
- Wrap-Up: Operations with Integers

Unit 3: Operations with Rational Numbers

- Adding Rational Numbers
- Subtracting Rational Numbers
- Multiplying Rational Numbers
- Dividing Rational Numbers
- Solving Multistep Problems with Rational Numbers
- Wrap-Up: Operations with Rational Numbers

Unit 4: Rates and Proportional Relationships

- Unit Rates
- Identifying Proportional Relationships
- Identifying the Constant of Proportionality
- Representing Proportional Relationships
- Wrap-Up: Rates and Proportional Relationships

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Unit 5: Percents and Proportions

- Applications of Percents
- Using Proportions to Solve Problems
- Markups, Discounts, and Percent Change
- Wrap-Up: Percents and Proportions

Unit 6: Semester Wrap-Up

- Semester Wrap-Up

Unit 7: Expressions, Equations, and Inequalities

- Writing Expressions
- Algebraic Expressions
- Solving Two-Step Equations
- Using Equations to Solve Problems
- Solving Linear Inequalities
- Wrap-Up: Expressions, Equations, and Inequalities

Unit 8: Geometric Figures

- Scale Drawings
- Geometric Drawings
- Cross-Sections of Geometric Solids
- Wrap-Up: Geometric Figures

Unit 9: Geometry in Two and Three Dimensions

- Circles
- Angle Relationships
- Area
- Prisms
- Pyramids
- Wrap-Up: Geometry in Two and Three Dimensions

Unit 10: Statistics and Sampling

- Populations and Samples
- Comparing Data Sets Visually
- Using Statistical Measures to Compare Data Sets
- Project: Collecting and Analyzing Data
- Wrap-Up: Statistics and Sampling

Unit 11: Probability

- Probability
- Theoretical and Experimental Probability
- Probability of Compound Events
- Simulations
- Wrap-Up: Probability

Unit 12: Semester 2 Exam

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- Semester Wrap-Up

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