Algebra I builds students' command of linear, quadratic, and exponential relationships. Students learn through discovery and application, developing the skills they need to break down complex challenges and demonstrate their knowledge in new situations.

Course topics include problem-solving with basic equations and formulas; an introduction to functions and problem solving; linear equations and systems of linear equations; exponents and exponential functions; sequences and functions; descriptive statistics; polynomials and factoring; quadratic equations and functions; and function transformations and inverses.

This course supports students as they develop computational fluency, deepen conceptual understanding, and apply mathematical knowledge. Students discover new concepts through guided instruction and confirm their understanding in an interactive, feedback-rich environment.

A variety of activities allow for students to think mathematically in a variety of scenarios and tasks. In Discussions, students exchange and explain their mathematical ideas. Modeling activities ask them to analyze real-world scenarios and mathematical concepts. Journaling activities have students reason abstractly and quantitatively, construct arguments, critique reasoning, and communicate precisely. And in Performance Tasks, students synthesize their knowledge in novel, real-world scenarios, make sense of multifaceted problems, and persevere in solving them.

This course is built to state standards. Throughout the course, students are evaluated by a variety of assessments designed to prepare them for the content, form, and depth of state exams.

Length: Two semesters

## UNIT 1: FOUNDATIONS OF ALGEBRA

### LESSON 1: RATIONAL AND IRRATIONAL NUMBERS

**Study: Rational and Irrational Numbers**
Learn about different types of real numbers, including rational and irrational numbers. Investigate sums and products of rational and irrational numbers.
Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**
Check your understanding of the lesson.
Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Rational and Irrational Numbers**
Take a quiz to assess your understanding of what you have learned.
Duration: 0 hrs 25 mins Scoring: 20 points

### LESSON 2: ALGEBRAIC PROPERTIES AND EXPRESSIONS

**Study: Algebraic Properties and Expressions**
Translate verbal descriptions to mathematical expressions, write expressions to model real-world situations, and evaluate expressions using algebraic properties.
Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**
Check your understanding of the lesson.
Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Algebraic Properties and Expressions**
Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Journal: Algebraic Properties and Expressions

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 3: SOLVING LINEAR EQUATIONS

### Study: Solving Linear Equations

Review how to isolate the variable and solve simple equations with addition, subtraction, multiplication and division.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Solving Linear Equations

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Practice: Modeling: Solving Linear Equations

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 4: FOUNDATIONS OF ALGEBRA WRAP-UP

### Review: Foundations of Algebra Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

### Discuss: Using X to Mark the Spot

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

### Test (CS): Foundations of Algebra

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

### Test (TS): Foundations of Algebra

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

# UNIT 2: SOLVING EQUATIONS AND INEQUALITIES

## LESSON 1: SOLVING MULTISTEP LINEAR EQUATIONS

### Study: Solving Multistep Linear Equations

Solve multistep equations, including equations that have no solutions, one solution, or an infinite number of solutions. Write and solve equations that model real-world situations.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Solving Multistep Linear Equations

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Practice: Modeling: Multistep Linear Equations

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 2: SOLVING LINEAR INEQUALITIES

### Study: Solving Linear Inequalities
Solve multistep inequalities, including those that involve collecting like terms.
Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Solving Linear Inequalities
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 3: LITERAL EQUATIONS

### Study: Literal Equations
Learn how to solve literal equations, including formulas, for a particular variable.
Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Literal Equations
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 4: MEASUREMENT AND UNITS

### Study: Measurement and Units
Explore the ideas of precision and accuracy in measurement. Solve problems involving a single unit conversion and those requiring multiple conversions.
Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Measurement and Units
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins  Scoring: 20 points

### Journal: Measurement and Units
Construct arguments and critique the reasoning of others as you write about topics in algebra.
Duration: 0 hrs 45 mins  Scoring: 20 points

## LESSON 5: PERFORMANCE TASK: PROBLEM SOLVING WITH INEQUALITIES

### Study: Problem Solving with Inequalities
Learn strategies for solving a variety of application problems related to topics in this unit.
Duration: 0 hrs 45 mins

### Project: Performance Task: A Trade Show Booth
Use your knowledge, skills, and resources to make sense of and persevere in solving a real-world problem.
Duration: 2 hrs  Scoring: 80 points

## LESSON 6: SOLVING EQUATIONS AND INEQUALITIES WRAP-UP

### Review: Solving Equations and Inequalities Practice Problems
Check your understanding of the topics in this unit.
Duration: 0 hrs 30 mins  Scoring: 0 points

**Discuss: In Your Own Words**

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

**Test (CS): Solving Equations and Inequalities**

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

**Test (TS): Solving Equations and Inequalities**

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

# UNIT 3: FUNCTIONS

## LESSON 1: DOMAIN AND RANGE

**Study: Domain and Range**

Understand the meanings of the domain and range of a function. Use function notation and evaluate a function for a given value in its domain.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Domain and Range**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

**Journal: Domain and Range**

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 2: IDENTIFYING FUNCTIONS

**Study: Identifying Functions**

Determine whether relations represented by graphs or tables of values are functions. Identify the domain and range of a function from an input-output table.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Identifying Functions**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 3: GRAPHS OF FUNCTIONS

**Study: Graphs of Functions**

Determine the domain and range of a function from its graph. Identify sections where a graph is increasing, decreasing, or remaining constant.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Graphs of Functions**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Practice: Modeling: Graphs of Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 4: ADDING AND SUBTRACTING FUNCTIONS

### Study: Adding and Subtracting Functions

Learn how to add and subtract functions.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Adding and Subtracting Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 5: FUNCTIONS WRAP-UP

### Review: Functions Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

### Discuss: Relating to Functions

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

### Test (CS): Functions

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

### Test (TS): Functions

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

# UNIT 4: LINEAR EQUATIONS

## LESSON 1: SLOPE

### Study: Slope

Learn how to find the slope of a line, define rise and run, and measure rates of change.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Slope

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Journal: Slope

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 2: SLOPE-INTERCEPT EQUATION OF A LINE

### Study: Slope-Intercept Equation of a Line

Learn to use the slope and $y$-intercept of a line to write its slope-intercept equation. Understand the meaning of the slope and $y$-intercept in slope-intercept equations that model real-world situations.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Slope-Intercept Equation of a Line
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins  Scoring: 20 points

### Practice: Modeling: Slope-Intercept Equation of a Line
Model and solve a real-world problem.
Duration: 0 hrs 45 mins  Scoring: 20 points

## LESSON 3: POINT-SLOPE EQUATION OF A LINE

### Study: Point-Slope Equation of a Line
Write point-slope equations for lines given a point and the slope or two points. Rewrite point-slope equations in slope-intercept form.
Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Point-Slope Equation of a Line
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 4: PARALLEL AND PERPENDICULAR LINES

### Study: Parallel and Perpendicular Lines
Learn about parallel and perpendicular lines and the relationships between their slopes. Write equations for lines perpendicular and parallel to given lines.
Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Parallel and Perpendicular Lines
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 5: LINEAR INEQUALITIES

### Study: Linear Inequalities
Learn how to graph the half-planes that represent solutions for linear inequalities.
Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems
Check your understanding of the lesson.
Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Linear Inequalities
Take a quiz to check your understanding of what you have learned.
Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 6: LINEAR EQUATIONS WRAP-UP

### Review: Linear Equations Practice Problems
Check your understanding of the topics in this unit.
Duration: 0 hrs 30 mins  Scoring: 0 points

### Discuss: A Slippery Slope

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins  Scoring: 20 points

### Test (CS): Linear Equations

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins  Scoring: 50 points

### Test (TS): Linear Equations

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins  Scoring: 50 points

## UNIT 5: SYSTEMS OF LINEAR EQUATIONS

### LESSON 1: TWO-VARIABLE SYSTEMS: GRAPHING

#### Study: Two-Variable Systems: Graphing

Use graphing to solve two-variable systems of linear equations. Explore what it means for a linear system to have no solution, one solution, or an infinite number of solutions.

Duration: 0 hrs 45 mins  Scoring: 0 points

#### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

#### Quiz: Two-Variable Systems: Graphing

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins  Scoring: 20 points

### LESSON 2: TWO-VARIABLE SYSTEMS: SUBSTITUTION

#### Study: Two-Variable Systems: Substitution

Use substitution to solve two-variable systems of linear equations.

Duration: 0 hrs 45 mins  Scoring: 0 points

#### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

#### Quiz: Two-Variable Systems: Substitution

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins  Scoring: 20 points

### LESSON 3: TWO-VARIABLE SYSTEMS: ELIMINATION

#### Study: Two-Variable Systems: Elimination

Use elimination to solve two-variable systems of linear equations.

Duration: 0 hrs 45 mins  Scoring: 0 points

#### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

#### Quiz: Two-Variable Systems: Elimination

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins  Scoring: 20 points

#### Journal: Two-Variable Systems: Elimination

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins  Scoring: 20 points

### LESSON 4: TWO-VARIABLE SYSTEMS OF INEQUALITIES

#### Study: Two-Variable Systems of Inequalities

Use graphing to solve two-variable systems of linear inequalities. Use what you know about solving systems of inequalities to solve a real-world problem where there are constraints (limitations) that restrict your options.

Duration: 0 hrs 45 mins   Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

### Quiz: Two-Variable Systems of Inequalities

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins   Scoring: 20 points

### Practice: Modeling: Two-Variable Systems of Inequalities

Model and solve a real-world problem.

Duration: 0 hrs 45 mins   Scoring: 20 points

## LESSON 5: SYSTEMS OF LINEAR EQUATIONS WRAP-UP

### Review: Systems of Linear Equations Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins   Scoring: 0 points

### Discuss: What's the Solution?

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins   Scoring: 20 points

### Test (CS): Systems of Linear Equations

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins   Scoring: 50 points

### Test (TS): Systems of Linear Equations

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins   Scoring: 50 points

# UNIT 6: EXPONENTS AND EXPONENTIAL FUNCTIONS

## LESSON 1: EXPONENTS

### Study: Exponents

Evaluate exponential expressions. Use properties to rewrite exponential expressions, including those with rational exponents, and to rewrite radicals using fractional exponents.

Duration: 0 hrs 45 mins   Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

### Quiz: Exponents

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins   Scoring: 20 points

## LESSON 2: EXPONENTIAL FUNCTIONS

### Study: Exponential Functions

Define an exponential function and explore applications of exponential functions, such as exponential growth and decay. Interpret the parts of an exponential expression that represents a real-world context.

Duration: 0 hrs 45 mins   Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins   Scoring: 0 points

### Quiz: Exponential Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Practice: Modeling: Exponential Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 3: GRAPHS OF EXPONENTIAL FUNCTIONS

### Study: Graphs of Exponential Functions

Learn about graphs of exponential functions with different bases. Identify the domain, range and $y$-intercept of an exponential function from its equation and from its graph. Use graphs to evaluate exponential functions for given $x$-values.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Graphs of Exponential Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Journal: Graphs of Exponential Functions

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 4: EXPONENTS AND EXPONENTIAL FUNCTIONS WRAP-UP

### Review: Exponents and Exponential Functions Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

### Discuss: Exponential Potential

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

### Test (CS): Exponents and Exponential Functions

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

### Test (TS): Exponents and Exponential Functions

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

# UNIT 7: SEQUENCES AND FUNCTIONS

## LESSON 1: ARITHMETIC SEQUENCES

### Study: Arithmetic Sequences

Learn about arithmetic sequences, explicit and recursive formulas, and finding the next term in a sequence.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Arithmetic Sequences

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

**Journal: Arithmetic Sequences**

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 2: GEOMETRIC SEQUENCES

**Study: Geometric Sequences**

Explore geometric sequences as sets of numbers in which the ratio between any two consecutive numbers is a constant. Compare how the recursive formula and the explicit formula allow you to find the value of any term in a geometric sequence.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Geometric Sequences**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

**Practice: Modeling: Geometric Sequences**

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 3: UNDERSTANDING NUMBER SEQUENCES

**Study: Understanding Number Sequences**

Learn about applications and models of arithmetic, geometric, and special sequences.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Understanding Number Sequences**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 4: EXPONENTIAL AND LINEAR GROWTH

**Study: Exponential and Linear Growth**

Learn about the connections between linear and exponential functions and arithmetic and geometric sequences.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Exponential and Linear Growth**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 5: SEQUENCES AND FUNCTIONS WRAP-UP

**Review: Sequences and Functions Practice Problems**

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

**Discuss: What's the Difference?**

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

**Test (CS): Sequences and Functions**

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

### Test (TS): Sequences and Functions

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

## UNIT 8: SEMESTER 1 EXAM

### LESSON 1: SEMESTER 1 EXAM

#### Review: Semester 1 Exam

Prepare for the final exam by reviewing key concepts and skills.

Duration: 0 hrs 30 mins Scoring: 0 points

#### Exam: Semester 1 Exam

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 1.

Duration: 0 hrs 50 mins Scoring: 200 points

## UNIT 9: POLYNOMIALS

### LESSON 1: WHAT IS A POLYNOMIAL?

#### Study: What Is a Polynomial?

Learn the definitions for monomials, polynomials, constants, terms, coefficients, binomials, trinomials, and degree. Learn how to find the degree of polynomials.

Duration: 0 hrs 45 mins Scoring: 0 points

#### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

#### Quiz: What Is a Polynomial?

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### LESSON 2: ADDING AND SUBTRACTING POLYNOMIALS

#### Study: Adding and Subtracting Polynomials

Learn how to add and subtract polynomials by collecting like terms. Practice adding and subtracting polynomials both vertically and horizontally.

Duration: 0 hrs 45 mins Scoring: 0 points

#### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

#### Quiz: Adding and Subtracting Polynomials

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### LESSON 3: MULTIPLYING BINOMIALS

#### Study: Multiplying Binomials

Learn how to multiply binomials using the distributive property. Use the FOIL mnemonic to help you multiply binomials.

Duration: 0 hrs 45 mins Scoring: 0 points

#### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

#### Quiz: Multiplying Binomials

Take a quiz to check your understanding of what you have learned.

### Practice: Modeling: Multiplying Binomials

Model and solve a real-world problem.

Duration: 0 hrs 45 mins  Scoring: 20 points

## LESSON 4: MULTIPLYING POLYNOMIALS

### Study: Multiplying Polynomials

Extend the use of the distributive property to multiply polynomials with more than two terms. Use a table to organize the multiplication of polynomials. Practice multiplying polynomials horizontally and vertically.

Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Multiplying Polynomials

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins  Scoring: 20 points

### Journal: Multiplying Polynomials

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins  Scoring: 20 points

## LESSON 5: POLYNOMIALS WRAP-UP

### Review: Polynomials Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins  Scoring: 0 points

### Discuss: FOILed Again

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins  Scoring: 20 points

### Test (CS): Polynomials

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 40 mins  Scoring: 50 points

### Test (TS): Polynomials

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins  Scoring: 50 points

# UNIT 10: FACTORING POLYNOMIALS

## LESSON 1: GCF AND FACTORING BY GROUPING

### Study: GCF and Factoring by Grouping

Explore the similarities between factoring numbers and polynomials. Learn how to identify the greatest common factor (GCF) of the terms of a polynomial, and how to use grouping to factor polynomials.

Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: GCF and Factoring by Grouping

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 2: FACTORING $X^2 + BX + C$

### Study: Factoring $x^2 + bx + c$

Learn the definition of a quadratic trinomial. Learn how to factor quadratic trinomials when the coefficient of the $x$-squared term is 1.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Factoring $x^2 + bx + c$**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 3: FACTORING $AX^2 + BX + C$

**Study: Factoring $ax^2 + bx + c$**

Learn how to factor quadratic trinomials with leading coefficients other than 1.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Factoring $ax^2 + bx + c$**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

**Practice: Modeling: Factoring $ax^2 + bx + c$**

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 4: SPECIAL CASES

**Study: Special Cases**

Learn how to work with special cases of factoring. Learn definitions for a perfect square trinomial and a difference of two squares. Practice using strategies that will help you factor each of these special cases.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Special Cases**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 5: FACTORING AND GRAPHING

**Study: Factoring and Graphing**

Compare $x$-intercepts, zeros, roots, and linear factors. Identify the roots of a polynomial. Use the intercepts of the graph of a function to identify the roots and factors of a related equation and vice versa. Understand that a quadratic function may have 0, 1, or 2 real zeros.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Factoring and Graphing**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

**Journal: Factoring and Graphing**

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins  Scoring: 20 points

### LESSON 6: FACTORING POLYNOMIALS WRAP-UP

**Review: Factoring Polynomials Practice Problems**

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins  Scoring: 0 points

**Discuss: Just the Factors**

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins  Scoring: 20 points

**Test (CS): Factoring Polynomials**

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 40 mins  Scoring: 50 points

**Test (TS): Factoring Polynomials**

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins  Scoring: 50 points

## UNIT 11: QUADRATIC EQUATIONS AND FUNCTIONS

### LESSON 1: SOLVING QUADRATIC EQUATIONS

**Study: Solving Quadratic Equations**

Learn to solve quadratics in the form $x^2 = b$ by taking square roots. Use the zero product property to solve quadratic equations by factoring. Learn about standard form and rewrite quadratic equations in that form.

Duration: 0 hrs 45 mins  Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

**Quiz: Solving Quadratic Equations**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins  Scoring: 20 points

### LESSON 2: COMPLETING THE SQUARE

**Study: Completing the Square**

Learn the definition for a special case of factoring called completing the square. Explore the steps to complete a square and practice solving quadratic equations by using this way of factoring.

Duration: 0 hrs 45 mins  Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

**Quiz: Completing the Square**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins  Scoring: 20 points

**Journal: Completing the Square**

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins  Scoring: 20 points

### LESSON 3: THE QUADRATIC FORMULA

**Study: The Quadratic Formula**

Learn the derivation of the quadratic formula and see how it can be used to solve quadratic equations. Understand that the discriminant can be used to determine whether a quadratic equation has 0, 1, or 2 real solutions.

Duration: 0 hrs 45 mins  Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: The Quadratic Formula**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 4: GRAPHS OF QUADRATIC FUNCTIONS

**Study: Graphs of Quadratic Functions**

Relate factors of a quadratic function to the graph of a parabola and its corresponding *x*-intercepts. Locate the vertex of a quadratic function graphically and algebraically. Understand vertex form and use it to identify the vertex of a quadratic function.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Graphs of Quadratic Functions**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 5: NONLINEAR SYSTEMS OF EQUATIONS

**Study: Nonlinear Systems of Equations**

Learn about solution sets for nonlinear systems of equations. Practice solving nonlinear systems of equations by graphing and by using the substitution method. Explore a human-cannonball case study.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Nonlinear Systems of Equations**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 6: LINEAR, QUADRATIC, AND EXPONENTIAL FUNCTIONS

**Study: Linear, Quadratic, and Exponential Functions**

Identify and compare linear, quadratic, and exponential functions and write functions that model real-world situations.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Linear, Quadratic, and Exponential Functions**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

**Practice: Modeling: Linear, Quadratic, and Exponential Functions**

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 7: PERFORMANCE TASK: PRICING FOR PROFIT

**Study: The Headphones Problem**

Use what you have learned about graphing polynomials to solve a real-world business problem.

Duration: 0 hrs 45 mins Scoring: 0 points

**Project: Your Dog-Walking Business**

Use your knowledge, skills, and resources to make sense of and persevere in solving a real-world problem.

Duration: 2 hrs Scoring: 80 points

## LESSON 8: QUADRATIC EQUATIONS AND FUNCTIONS WRAP-UP

**Review: Quadratic Equations and Functions Practice Problems**

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

**Discuss: All Squared Away**

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

**Test (CS): Quadratic Equations and Functions**

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 40 mins Scoring: 50 points

**Test (TS): Quadratic Equations and Functions**

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

# UNIT 12: UNDOING FUNCTIONS AND MOVING THEM AROUND

## LESSON 1: INVERSES

**Study: Inverses**

Learn about undoing functions, mapping diagrams of inverse functions, and finding the equations for inverse functions.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Inverses**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 2: PARENT FUNCTIONS

**Study: Parent Functions**

Learn about the properties and graphs of linear parent functions, quadratic parent functions, absolute value parent functions, and step functions.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Parent Functions**

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 3: SHIFTING FUNCTIONS

**Study: Shifting Functions**

Learn about shifting graphs of functions up/down and left/right by changing the coordinates of each ordered pair. Learn about changing the equation of a function to shift its graph vertically or horizontally and about combining vertical and horizontal shifts.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

### Quiz: Shifting Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Journal: Shifting Functions

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 4: STRETCHING AND COMPRESSING FUNCTIONS

### Study: Stretching and Compressing Functions

Learn about stretching or compressing a function's graph by multiplying by a constant, flipping the graph by multiplying by a negative constant, and combining stretches with shifts.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Stretching and Compressing Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

### Practice: Modeling: Stretching and Compressing Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 5: TRANSFORMATIONS OF PARENT FUNCTIONS

### Study: Transformations of Parent Functions

Learn how to perform vertical and horizontal shifts, stretches, and compressions, and any combination of these transformations, on parent functions.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Transformations of Parent Functions

Take a quiz to check your understanding of what you have learned.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 6: UNDOING FUNCTIONS AND MOVING THEM AROUND WRAP-UP

### Review: Undoing Functions and Moving Them Around Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

### Discuss: Transformation Station

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

### Test (CS): Undoing Functions and Moving Them Around

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 40 mins Scoring: 50 points

### Test (TS): Undoing Functions and Moving Them Around

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

# UNIT 13: DESCRIPTIVE STATISTICS

## LESSON 1: MEASURES OF CENTER AND SPREAD

**Study: Measures of Center and Spread**

Learn how to compute the mean and median of a data set and the effects of outliers on these measures of center. See how to use a calculator to find the standard deviation of a data set, and understand how the standard deviation and the range measure the spread of a data set.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Measures of Center and Spread**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 25 mins Scoring: 20 points

## LESSON 2: DOT PLOTS, BOX PLOTS, AND HISTOGRAMS

**Study: Dot Plots, Box Plots, and Histograms**

Learn how to construct and interpret stem-and-leaf plots, histograms, and dot plots along with comparative stem-and-leaf and dot plots.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Dot Plots, Box Plots, and Histograms**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 25 mins Scoring: 20 points

**Practice: Modeling: Dot Plots, Box Plots, and Histograms**

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 3: DESCRIBING DISTRIBUTIONS

**Study: Describing Distributions**

Learn how to describe distributions using measures of center, shape, and spread for single and comparative data sets.

Duration: 0 hrs 45 mins Scoring: 0 points

**Checkup: Practice Problems**

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

**Quiz: Describing Distributions**

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 25 mins Scoring: 20 points

**Journal: Describing Distributions**

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 4: TWO-WAY FREQUENCY TABLES

**Study: Two-Way Frequency Tables**

Learn how to build and use two-way frequency tables and two-way relative frequency tables. Understand how to find and use joint frequencies and marginal frequencies, and how to calculate conditional relative probabilities from a two-way table. Use two-way tables to recognize associations in data.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Two-Way Frequency Tables

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 5: DESCRIPTIVE STATISTICS WRAP-UP

### Review: Descriptive Statistics Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins  Scoring: 0 points

### Discuss: Not All Plots Are Suspicious

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins  Scoring: 20 points

### Test (CS): Descriptive Statistics

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 40 mins  Scoring: 50 points

### Test (TS): Descriptive Statistics

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins  Scoring: 50 points

## UNIT 14: DATA AND MATHEMATICAL MODELING

## LESSON 1: TWO-VARIABLE DATA AND SCATTERPLOTS

### Study: Two-Variable Data and Scatterplots

Create scatterplots for bivariate data and recognize positive and negative correlations. Use a calculator to find correlation coefficients, and understand what the result says about the strength of the correlation. Know that correlation does not imply causation.

Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Two-Variable Data and Scatterplots

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 25 mins  Scoring: 20 points

## LESSON 2: FITTING LINEAR MODELS TO DATA

### Study: Fitting Linear Models to Data

Find equations for best-fit lines (regression equations) by estimation and by using a calculator. Use regression equations to make predictions. Find residuals and residual plots and understand how they indicate whether or not a linear model is appropriate.

Duration: 0 hrs 45 mins  Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins  Scoring: 0 points

### Quiz: Fitting Linear Models to Data

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 25 mins  Scoring: 20 points

### Practice: Modeling: Fitting Linear Models to Data

Model and solve a real-world problem.

## LESSON 3: NONLINEAR MODELS

### Study: Nonlinear Models

Learn how to apply nonlinear regression.

Duration: 0 hrs 45 mins Scoring: 0 points

### Checkup: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

### Quiz: Nonlinear Models

Take a quiz to assess your understanding of the material.

Duration: 0 hrs 25 mins Scoring: 20 points

### Journal: Nonlinear Models

Construct arguments and critique the reasoning of others as you write about topics in algebra.

Duration: 0 hrs 45 mins Scoring: 20 points

## LESSON 4: DATA AND MATHEMATICAL MODELING WRAP-UP

### Review: Data and Mathematical Modeling Practice Problems

Check your understanding of the topics in this unit.

Duration: 0 hrs 30 mins Scoring: 0 points

### Discuss: The Latest Model

Join a three- to five-question discussion to practice methods learned in this unit.

Duration: 0 hrs 40 mins Scoring: 20 points

### Test (CS): Data and Mathematical Modeling

Take a computer-scored test to check what you have learned in this unit.

Duration: 0 hrs 40 mins Scoring: 50 points

### Test (TS): Data and Mathematical Modeling

Take a teacher-scored test to check what you have learned in this unit.

Duration: 0 hrs 50 mins Scoring: 50 points

# UNIT 15: SEMESTER 2 EXAM

## LESSON 1: SEMESTER 2 EXAM

### Review: Semester 2 Exam

Prepare for the final exam by reviewing key concepts and skills.

Duration: 0 hrs 30 mins Scoring: 0 points

### Exam: Semester 2 Exam

Take a computer-scored exam to demonstrate your mastery of concepts and skills covered in Semester 2.

Duration: 1 hr Scoring: 200 points