

Honors Algebra I builds a deep understanding 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 an introduction to functions and problem solving, measurement; problem solving with basic equations and formulas, 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, build conceptual understanding, and apply mathematical practice skills. Students begin each lesson by discovering new concepts through guided instruction, then confirm their understanding in an interactive, feedback-rich environment. Modeling activities equip students with tools for analyzing a variety of real-world scenarios and mathematical ideas. In these activities, additional items require Honors students to extend their understanding by answering "what if" questions, thinking abstractly about the mathematics involved, and analyzing the strengths and weaknesses of the model as a reflection of the real-world situation. Performance tasks prepare students to synthesize their knowledge in novel, real-world scenarios and require that they make sense of multifaceted problems and persevere in solving them. Honors students are required to go deeper into these investigations; for example, they may be asked to change or validate assumptions, add constraints, or extend the project. Journal activities allow students to reason abstractly and quantitatively, construct arguments, critique reasoning, and communicate precisely. Throughout the course, students are evaluated through a diversity of assessments specifically designed to prepare them for the content, form, and depth of high-stakes assessments.

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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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: 10 points

Practice: Modeling: Solving Linear Equations

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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: 10 points

Practice: Modeling: Multistep Linear Equations

Model and solve a real-world problem.

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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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: 100 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 points

Practice: Modeling: Graphs of Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 points

Practice: Modeling: Slope-Intercept Equation of a Line

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 points

Practice: Modeling: Two-Variable Systems of Inequalities

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 points

Practice: Modeling: Exponential Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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: 10 points

Practice: Modeling: Geometric Sequences

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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: 10 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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.

Duration: 0 hrs 25 mins Scoring: 10 points

Practice: Modeling: Multiplying Binomials

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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: 10 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 points

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

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 points

Practice: Modeling: Linear, Quadratic, and Exponential Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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: 100 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: Practice Problems

Check your understanding of the lesson.

Duration: 0 hrs 25 mins Scoring: 0 points

Quiz: Shifting Functions

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

Duration: 0 hrs 25 mins Scoring: 10 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

Checkpoint: 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: 10 points

Practice: Modeling: Stretching and Compressing Functions

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 points

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

Model and solve a real-world problem.

Duration: 0 hrs 45 mins Scoring: 30 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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

Checkpoint: 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: 10 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: 10 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