Course Description:

Algebra 1 Honors (1 of 2) explores algebraic problems and applies the knowledge to real-life situations. Topics include: rewriting and simplifying expressions with rational numbers and rational exponents, writing and graphing linear equations and inequalities in one and two variables, solving systems of equations and inequalities using graphs and algebraic methods, an introduction to polynomial expressions and their components, and factoring, solving, and graphing quadratic expressions and equations.

Course Objectives:

- Use properties of rational and irrational numbers.
- Rewrite and analyze expressions and equations in different forms.
- Extend the properties of exponents to rational exponents.
- Create, graph, interpret, and solve equations and inequalities.
- Explain the reasoning involved in the process of solving equations.
- Solve systems of equations or inequalities using different methods.
- Perform arithmetic operations on polynomials.
- Analyze, solve, and interpret problems using algebraic concepts, mathematical reasoning, and context clues.

Required Materials:

In course.

Course Overview:

Unit 1: The Real Numbers

- Prepare to Learn (Lessons 1–5)
- Learn (Lessons 1–5)
    - Key Terms
    - Text: Integers; Rational Numbers; Exponents, Roots, and Irrational Numbers; Rational Exponents; Order of Operations
    - Videos
    - Step-by-Step Example Problem(s)
- Practice: (Lessons 1–5)
- Discussion (Lessons 1–5)
- Project (Lessons 1–4)
- Checkpoint (Lessons 1–4)
- Notes Upload (Lesson 5)
- Unit 1 Exam (Lesson 5)

Unit 2: Lines and Their Graphs

- Prepare to Learn (Lessons 6–10)
- Learn (Lessons 6–10)
    - Key Terms
    - Text: Solving Linear Equations; Forms of Equations of Lines; Graphing Lines; Creating Linear Equations from Graphs; Linear Systems by Graphing
    - Videos
    - Step-by-Step Example Problem(s)
- Practice: (Lessons 6–10)
- Discussion (Lessons 6–10)
- Project (Lessons 6, 8, and 10)
- Notes Upload (Lessons 7 and 9)
- Checkpoint (Lessons 6–9)
- Unit 2 Exam (Lesson 10)

Unit 3: Linear Systems and Inequalities

- Prepare to Learn (Lessons 11–15)
- Learn (Lessons 11–15)
    - Key Terms
    - Text: Solving Linear Systems by Substitution; Solving Systems by Elimination; Linear Inequalities in One Variable; Linear Inequalities in Two Variables; Systems of Linear Inequalities
    - Videos
    - Step-by-Step Example Problem(s)
- Practice (Lessons 11–15)
- Discussion (Lessons 11–15)
- Notes Upload (Lessons 11, 13, 15)
- Project (Lessons 12, 14)
- Checkpoint (Lessons 11–14)
- Unit 3 Exam (Lesson 15)

Unit 4: Polynomials and Factoring Quadratic Expressions

- Prepare to Learn (Lessons 16–20)
- Learn (Lessons 16–20)
  - Key Terms
  - Text: Adding and Subtracting Polynomials; Multiplying Polynomials; Introduction to Quadratic Expressions; Factoring Quadratic Expressions by Decomposition; Other Methods for Factoring Quadratics
  - Videos
  - Step-by-Step Example Problem(s)
- Practice (Lessons 16–20)
- Discussion (Lessons 16–20)
- Notes Upload (Lessons 17 and 19)
- Project (Lessons 16, 18, and 20)
- Checkpoint (Lessons 16–19)
- Unit 4 Exam (Lesson 20)

Unit 5: Quadratic Equations, Part I

- Prepare to Learn (Lessons 21–25)
- Learn (Lessons 21–25)
  - Key Terms
  - Text: Solving Quadratic Equations by Factoring; Graphing Quadratics in Factored Form; Completing the Square; Solving Quadratic Equations by Taking Square Roots; The Vertex Form of a Quadratic Equation
  - Videos
  - Step-by-Step Example Problem(s)
- Practice (Lesson 21–25)
- Discussion (Lessons 21–25)
- Notes Upload (Lessons 21, 23, 25)
- Project (Lessons 22, 24)
- Checkpoint (Lessons 21–24)
- Unit 5 Exam (Lesson 25)

Unit 6: Quadratic Equations, Part II

- Prepare to Learn (Lessons 26–29)

- Learn (Lessons 26–29)

    - Key Terms

    - Text: Graphing Quadratics in Vertex Form; The Quadratic Formula; Solving Quadratics with Technology; Systems Involving Quadratic Equations

    - Videos

    - Step-by-Step Example Problem(s)

- Practice: Lessons 26–29

- Unit 1–Unit 6 Reviews (Lesson 30)

- Discussion (Lessons 26–30)

- Notes Upload (Lessons 26–29)

- Checkpoint (Lessons 26–28)

- Unit 6 Exam (Lesson 29)

- Course Final Exam (Lesson 30)

- Course Summary (Lesson 30)