Course Description:

Algebra 2 Honors (2 of 2) explores modeling real-life situations with equations and inequalities, solving exponential equations with logarithms, synthesizing and generalizing a variety of function families, making decisions using probability and statistics, and understanding an analyzing methods of collecting and modeling data.

Course Objectives:

- Solve problems represented by linear and nonlinear equations and inequalities.
- Graph linear and nonlinear equations and inequalities.
- Rewrite and interpret expressions and equations using mathematical properties, patterns, and structures.
- Solve equations using properties of exponents and logarithms.
- Identify and use inverse functions to solve problems.
- Identify and create new functions using operations and transformations.
- Understand and analyze methods of collecting and modeling data.
- Identify, interpret, and compare key features of functions represented in different ways.
- Use statistics and probabilities to estimate values, make inferences, and evaluate decisions.

Required Materials:

In course.

Course Overview:

Unit 1: Lost in Translation
- Math Muscle Exercise (Lessons 1-5)
- Morning Introduction (Lessons 1-5)
- Research
  - Key Terms
  - Text and Videos: Single Variable Equations and Inequalities; Multivariable Equations and Inequalities; Multivariable Systems of Equations; Multivariable Systems of Inequalities; Optimization and Linear Programming
  - Workbook assessments
- Night Discussion (Lessons 1-5)
- Checkpoint assessments (Lessons 1-4)
- Unit 1 Exam (Lesson 5)
- Project 1: Treat Thief (Lessons 1-4); Close Reading (Lesson 5)
- Denouement

Unit 2: Out of the Woods
- Math Muscle Exercise (Lessons 6-10)
- Morning Introduction (Lessons 6-10)
- Research
  - Key Terms
  - Text and Videos: Rearranging formulas and Isolating Variables; Rewriting Exponentials; Inverse Functions; Logarithms, Part 1; Logarithms, Part 2

QM QUALITY MATTERS

- - Workbook assessments
- Night Discussion (Lessons 6-10)
- Checkpoint assessments (Lessons 6-9)
- Unit 1 Exam (Lesson 10)
- Project 2: Pigs and Paint and Potions (Lessons 6-8, 10); Close Reading (Lesson 9)
- Denouement

Unit 3: A Model Family
- Math Muscle Exercise (Lessons 11-15)
- Morning Introduction (Lessons 11-15)
- Research
  - Key Terms
  - Text and Videos: Graphing Logarithms; Transformation of Graphs; Average Rates of Change; Exploring Function Families; Building Models
  - Workbook assessments
- Night Discussion (Lessons 11-15)
- Checkpoint assessments (Lessons 11-14)
- Unit 3 Exam (Lesson 15)
- Project 3: Wedding Bells (Lessons 11-15)
- Denouement

Unit 4: Theoretically Speaking
- Math Muscle Exercise (Lessons 16-20)
- Morning Introduction (Lessons 16-20)
- Research
  - Key Terms
  - Text and Videos: Modeling Data from Simulations; Basic Probability Review; Complementary Events; Compound Events; Expected Value
  - Workbook assessments
- Night Discussion (Lessons 16-20)
- Checkpoint assessments (Lessons 16-19)
- Unit 4 Exam (Lesson 20)
- Project 4: Feast for a Beast (Lessons 17-20); Close Reading (Lesson 16)
- Denouement

Unit 5: Trial and Error
- Math Muscle Exercises (Lessons 21-25)
- Morning Introduction (Lessons 21-25)
- Research
  - Key Terms
  - Text and Videos: Decisions Based on Probability; Introductory Statistics; Sampling a Population; Designing and Analyzing Surveys; Margins of Error
  - Workbook assessments
- Night Discussion (Lessons 21-25)
- Checkpoint assessments (Lessons 21-24)
- Unit 5 Exam (Lesson 25)
- Project 5: Spoiled Rotten (Lessons 22-25); Close Reading (Lesson 21)
- Denouement

Unit 6: Bells and Whistles

- Math Muscle Exercises (Lessons 26-29)
- Morning Introduction (Lessons 26-29)
- Research
    - Key Terms
    - Text and Videos: Review of Basic Statistics; Data Displays; Normal Distributions; What Are z-Scores?
    - Workbook assessments
- Unit Review (Lesson 30)
- Night Discussion (Lessons 26-30)
- Checkpoint assessments (Lessons 26-28)
- Unit Exam (Lesson 29)
- Course Final Exam (Lesson 30)
- Project 6: The Final Spell (Lessons 26-29)
- Denouement (Lessons 26-29)