Greenwich Public Schools Curriculum Overview

Algebra/Geometry Course 3

Personalized learning is achieved through standards-based, rigorous and relevant curriculum that is aligned to digital tools and resources.

Note: Teachers retain professional discretion in how the learning is presented based on the needs and interests of their students.

Course Description

Algebra/Geometry Course 3
Full Year
022430 6 Blocks 1 Credit
Prerequisite: Algebra 1/Geometry Course 2
This is the third course in a three-year sequence which integrates algebra and geometry, developing and extending the concepts from Course 2. Topics will cover an in-depth look at systems of equations, polynomial equations, quadratic functions and basic trigonometry.

Unit Guide

- Unit 1 Equations, expressions and functions
- Unit 2 Linear Equations
- Unit 3 Parallel Lines and Angle Pair Relationships
- Unit 4 Polygons
- Midterm Review & Midterm Exam*
- Unit 5 Systems of Linear Equations
- Unit 6 Polynomials
- Unit 7 Right Triangles and Trigonometry
- Final Review & Final Exam*

**Note*: Semester exam review packets with answer keys and formula sheets can be found by joining our Schoology Math Department Review Course, using COURSE access code P9V9X-H6V37.

Mathematical Practices

- Make sense of problems and persevere in solving them.
- Reason abstractly and quantitatively.
- Construct viable arguments and critique the reasoning of others.
- Model with mathematics.
- Use appropriate tools strategically.
- Attend to precision.
- Look for and make use of structure.

Enduring Understandings:

- *Unit 1*: Equations and inequalities may be used as models to solve mathematical and real-world problems.
- *Unit 2:* Linear functions are characterized by a constant average rate of change (or constant additive change).
- *Unit 3:* Angle pairs are formed by intersecting lines.
- *Unit 4:*
    - Triangles can be classified by their side lengths and angle measures.
    - The name of a polygon depends on the number of sides it has.
    - The interior and exterior angles of a polygon can be determined by the number of sides of the polygon.
- *Unit 5:*
    - Systems of linear equations can be used to model problems.
    - Systems of equations can be solved by graphing, substitution, or eliminating a variable.
- *Unit 6:* Multiplying and factoring polynomials are related.
- *Unit 7:*
    - Pythagorean Theorem can be used to find the missing side of a right triangle.
    - Trigonometric relationships can be used to solve right triangles.

Essential Questions:

Unit 1:

- How can you represent and describe functions?
- What is an equation? What is an inequality?
- How can you solve a two-step equation using inverse operations? How can you solve multi-step equations?
- How can we utilize equations to solve problems?
- How can you graph solutions to multi-step inequalities?

Unit 2:

- What is a linear function?
- What are the different ways that linear functions may be represented?
- What is the significance of a linear function's slope and y-intercept?
- What is the standard form of a linear equation? What is the slope intercept form of a linear equation?
- How do you graph a line?
- How do you write the equation of a line that passes through two given points?
- How can a line of best fit help make predictions?

Unit 3:

- How can you find the measures of angles formed by intersecting lines?

Unit 4:

- What are the differences between isosceles, scalene, and equilateral triangles?
- What are the differences between acute, obtuse, right and equiangular triangles?

Unit 5:

- What is a system of equations?
- What does the number of solutions (none, one or infinite) of a system of linear equations represent?
- What are the advantages and disadvantages of solving a system of linear equations graphically versus algebraically?
- How can systems of equations be used to represent situations and solve problems?

Unit 6:

- What are the rules of exponents?
- How can polynomials be simplified and applied to solve problems?
- How do you multiply polynomials?
- Can two algebraic expressions that appear to be different be equivalent?

Unit 7:

- How does the Pythagorean Theorem relate the side lengths of a right triangle?
- How can you determine if a triangle is a right triangle?

Resources and Assured Experiences

GHS Capstone Task:
Vision of the Graduate #3 - Explore, define, and solve complex problems

- Car Insurance - to complete after Unit 5 Systems of Linear Equations

Extra Resources:

- CT DoE Math Model Curriculum Materials for Algebra 1
- Arlington Algebra Project

Quarterly Grading

Quarter Grades will be determined using the following components:

- Participation (includes Classwork) = 20%
- Preparation (includes Homework) = 20%
- Assessments (both Summative & Formative) = 60%

Connecticut Common Core State Standards

- *Unit 1*: CCSS.MATH.CONTENT.HSF.IF.A.1; 7.RP.A.3; HSA.REI.B.3.
- *Unit 2*: CCSS.MATH.CONTENT.HSF.IF.B.6, C.7, C.7a; 8.SP.A.1.
- *Unit 3*: CCSS.MATH.CONTENT.HSG.CO.C.9.
- *Unit 4*: CCSS.MATH.CONTENT.HSG.CO.C.10.
- *Unit 5*: CCSS.MATH.CONTENT.HSA.REI.C.5, C.6.
- *Unit 6*: CCSS.MATH.CONTENT.HSA.APR.A.1; HSA.REI.B.4, B.4b.
- *Unit 7*: CCSS.MATH.CONTENT.8.G.B.7; HSG.SRT.C.8.