

# Planned Course of Study Honors Algebra 8 (0380)

**Abington School District** 

Abington, Pennsylvania

September, 2016

#### I. Objectives

Students will demonstrate a level of proficiency in each of the following areas of mathematics:

### A. Operations and Linear Equations and Inequalities

- a. Operations with Real Numbers and Expressions
- b. Linear Equations
- c. Linear Inequalities

#### **B.** Linear Functions and Data Organizations

- a. Functions
- b. Coordinate Geometry
- c. Data Analysis

## II. Major Concepts

# A. Operations and Linear Equations and Inequalities

- a. Operations with Real Numbers and Expressions
  - i. Represent and/or use numbers in equivalent form.
  - ii. Apply number theory concepts to show relationships between real numbers in problem solving settings.
  - iii. Use exponents, roots, and absolute value to solve problems.
  - iv. Use estimation strategies in problem solving situations.
  - vi. Simplify expressions involving polynomials.
- b. Linear Equations
  - i. Write, solve, and/or graph linear equations using various methods.

ii. Write, solve, and/or graph systems of linear equations using various methods.

c. Linear Inequalities

i. Write, solve, and/or graph systems of linear inequalities using various methods.

ii. Write, solve, and/or graph systems of linear inequalities using various methods.

#### **B.** Linear Functions and Data Organizations

a. Functions

i. Analyze and/or use patterns or relations.

ii. Interpret and/or use linear functions and their equations, graphs, or tables.

#### b. Coordinate Geometry

i. Describe, compute, and/or use rate of change (slope) of a line.

ii. Analyze and/or interpret data on a scatter plot.

#### c. Data Analysis

i. Use measures of dispersion to describe a set of data.

ii. Use data displays in problem solving settings and/or to make predictions.

iii. Apply probability to practical situations.

#### III. Instruction

## A. Course Schedule

i. Course Schedule - 46 minute classes, 5 days a week

B. Pacing

- a. Marking Period 1
  - i. Linear equations graphing and writing equations of lines.
  - ii. Linear inequalities solving and graphing
- b. Marking Period 2
  - i. Systems of Equations and Inequalities
  - ii. Exponents and Exponential functions
- c. Marking Period 3
  - i. Polynomials and Factoring
  - ii. Quadratic Equations and Functions
- d. Marking Period 4
  - i. Rational Functions
  - ii. Radicals, Functions and Coordinate Geometry

## C. Methods

- i. Methods suggested by the text will be employed
- ii. Manipulative materials will be used where appropriate
- iii. Scientific and Graphing Calculators will be used when appropriate
- iv. Computers and math software will be incorporated into the course
- v. Cooperative learning activities will be employed
- vi. Supplementary materials supplied by the publisher will be used

# D. Resources

- i. The text employed in this course is <u>Algebra I</u>. It is published by Holt, Rinehart and Winston (2003).
- ii. Supplementary materials such as worksheets, quizzes, computer activities, and enrichment activities will be used.
- iii. Calculator activities from Texas Instruments and from Holt, Rinehart and Winston to accompany both scientific and graphing calculators will be used.

# E. Assessment

## A. Procedures for Assessments

- a. Formative assessments in a variety of formats
- b. Summative Assessments
  - i. Departmental common test at conclusion of each unit.

ii. Accommodations and modifications included in IEP's and 504's provided for special education students.

- B. Grade Calculations
  - a. Achievement Based 80% of marking period grade
    - i. Tests & Quizzes
  - b. Effort based 20% of marking period grade
    - i. Homework
    - ii. Classwork
    - iii. Class Participation and Preparation
- C. Expected Levels of Achievement
  - a. Students are expected to achieve at least a minimum level of proficiency.
  - b. Proficiency and related grades are defined as follows:
    - A 90 100%
    - B 80 89%
    - C 70 79%
    - D 60 69%



# A Planned Course of Study Grade 8 College Preparatory Mathematics (0381)

**Abington School District** 

Abington, Pennsylvania

September, 2017

#### I. Objectives

Students will demonstrate the appropriate level of proficiency in each of the following areas of mathematics:

#### A. Numbers and Operations

a. The Number System

#### **B.** Algebraic Concepts

- a. Expressions & Equations
- b. Functions

## C. Geometry

a. Geometry

# D. Data Analysis and Probability

a. Statistics and Probability

# II. Major Concepts

Students will demonstrate the appropriate level of proficiency in each of the following areas of mathematics:

## A. Numbers and Operations

- a. The Number System
  - i. Demonstrate an understanding of rational and irrational numbers.

# **B.** Algebraic Concepts

- a. Expressions & Equations
  - i. Demonstrate an understanding of expressions and equations, including those with radicals and integer exponents.
  - ii. Understand and apply connections between proportional relationships, lines, and linear equations.
  - iii. Analyze and solve linear equations and systems of linear equations.

## b. Functions

- i. Analyze and interpret functions.
- ii. Use functions to model relationships between quantities (using tables, graphs, and descriptions).

# C. Geometry

- a. Geometry
  - i. Demonstrate an understanding of geometric transformations.
  - ii. Understand and apply the Pythagorean Theorem.
  - iii. Solve real-world and mathematical problems involving volume.

# D. Data Analysis and Probability

- a. Statistics and Probability
  - i. Investigate patterns of association in bivariate data.

## III. Instruction

# A. Course Schedule

i. Course Schedule - 46 minute classes, 5 days a week

# B. Pacing

- a. Marking Period 1
  - i. Real Numbers
  - ii. Exponents and Scientific Notation
  - iii. Proportional Relationships
  - iv. Nonproportional Relationships
- b. Marking Period 2
  - i. Writing Linear Equations
  - ii. Scatter Plots
  - iii. Functions
  - iv. Solving Linear Equations
- c. Marking Period 3
  - i. Solving Systems of Linear Equations
  - ii. Transformations and Congruence
  - iii. Transformations and Similarity
- d. Marking Period 4
  - i. The Pythagorean Theorem
  - ii. Volume of cylinders, cones, and spheres
  - iii. Two-Way Tables
  - iv. Angle relationships in parallel lines and triangles

## C. Methods

- i. Methods suggested by the text will be employed.
- ii. Manipulative materials will be used where appropriate.
- iii. Scientific and Graphing Calculators will be used when appropriate.
- iv. Computers and math software will be incorporated into the course.
- v. Cooperative learning activities will be employed.
- vi. Supplementary materials supplied by the publisher will be used.

# D. Resources

- i. The text employed in this course is <u>Go Math</u>. It is published by Houghton Mifflin Harcourt (2014)
- ii. Supplementary materials such as worksheets, quizzes, computer activities, and enrichment activities will be used.

# IV. Assessment

- A. Procedures for Assessments
  - a. Formative assessments in a variety of formats
  - b. Summative Assessments
    - i. Departmental common test at conclusion of each unit.
    - ii. Accommodations and modifications included in IEP's and 504's provided for special education students.
  - B. Grade Calculations
    - a. Achievement Based 70% of marking period grade
      - i. Tests & Quizzes
    - b. Effort based 30% of marking period grade
      - i. Homework
      - ii. Classwork
      - iii. Class Participation and Preparation

- C. Expected Levels of Achievement
  - a. Students are expected to achieve at least a minimum level of proficiency.
  - b. Proficiency and related grades are defined as follows:
    - A 90 100%
    - B 80 89%
    - C 70 79%
    - D 60 69%