

# Math 8 Syllabus

## Course Overview

This course will place a strong emphasis on the continued study of integers, order of operations, variables, expressions, and equations. Students will solve and graph equations and systems of equations, write and solve proportions, explore geometry, and graphing concepts. Problem solving will be emphasized throughout the course. Instruction will be carefully aligned with the grade level standards in mathematics. Students who successfully complete this course will have an opportunity to begin the formal study of Algebra I the following year.

## Materials

- Go Math!: Teacher Edition Grade 8 2015 by HOLT MCDUGAL
- Student issued computer
- Student issued calculator
- Student issued textbook
- Get More Math <https://gmm.getmoremath.com/student.html>
- various materials for projects, reviews, and enrichment

## Standards

This course covers standards outlined in the [Pennsylvania Department of Education Academic Standards for Mathematics](#).

## Course Outline

The following is a course outline with a suggested timeline.

### I. Real Numbers, Exponents, and Scientific Notation

#### A. Real Numbers (about 3 weeks) CC.2.1.8.E.1, CC.2.1.8.E.4

1. Rational and Irrational Numbers
2. Sets of Real Numbers
3. Ordering Real Numbers

#### B. Exponents and Scientific Notation (about 3 weeks) CC.2.2.8.B.1

1. Integer Exponents
2. Scientific Notation with Positive Exponents
3. Scientific Notation with Negative Exponents
4. Operations with Scientific Notation

## II. Proportional and Nonproportional Relationships and Functions

### A. Proportional Relationships (about 3 weeks) CC.2.2.8.B.2, CC.2.2.8.B.3

1. Representing Proportional Relationships
2. Rate of Change and Slope
3. Interpreting the Unit Rate as Slope

### B. Nonproportional Relationships (about 4 weeks) CC.2.2.8.B.2, CC.2.4.8.B.1

1. Representing Linear Nonproportional Relationships
2. Determining Slope and Y-Intercept
3. Graphing Nonproportional Relationships using Slope and Y-Intercepts
4. Proportional and Nonproportional Situations

### C. Writing Linear Equations (about 3 weeks) CC.2.2.8.B.2, CC.2.2.8.C.2

1. Writing Linear Equations from Situations and Graphs
2. Writing Linear Equations from a Table
3. Linear Relationships and Bivariate Data

### D. Functions (about 2 weeks) CC.2.2.8.C.2

1. Identifying and Representing Functions
2. Describing Functions
3. Comparing Functions
4. Analyzing Graphs

## III. Measurement Geometry

### A. Volume (about 2 weeks) CC.2.3.8.A.1

1. Volume of Cylinders
2. Volume of Cones
3. Volume of Spheres

### B. The Pythagorean Theorem (about 2 weeks) CC.2.3.8.A.3

1. The Pythagorean Theorem
2. Converse of the Pythagorean Theorem
3. Distance Between Two-Points

### C. Tessellations (about 1 week) CC.2.3.8.A.2

#### IV. Transformational Geometry

##### A. Transformations and Congruence (about 1 week) CC.2.3.8.A.2

1. Properties of Translations
2. Properties of Reflections
3. Properties of Rotations

##### B. Transformations and Similarity (about 1 week) CC.2.3.8.A.2

1. Properties of Dilations
2. Algebraic Representations of Dilations

#### V. Solving Equations and Systems of Equations

##### A. Solving Linear Equations (about 3 weeks) CC.2.2.7.B.1, CC.2.2.7.B.3

1. Equations with a Variable on Both Sides
2. Equations with Rational Numbers
3. Equations with the Distributive Property
4. Equations with Many Solutions or No Solution

##### B. Solving Systems of Equations (about 4 weeks) CC.2.2.8.B.3

1. Solving Systems of Equations by Graphing
2. Solving Systems by Substitution
3. Solving Systems by Elimination
4. Solving Systems by Elimination with Multiplication
5. Solving Special Systems