

# Pequannock Township School District Curriculum Syllabus

Course Name and level / Grade level and Subject: Math Applications

## Course Description:

This course exposes students to a general survey of mathematical topics helping students with different backgrounds and career plans, to succeed in mathematics. Students will be provided the applications and technology need to gain an appreciation of mathematics through their college careers and beyond. The course will demonstrate how mathematics can be applied to students' lives in interesting, enjoyable and meaningful ways. Topics include: reviewing linear, exponential, and logarithmic functions, evaluating perimeter, area, surface area, and volume of 2D shapes and 3D solids, and analysis, application of statistics and probability.

## Course Standards:

The following is a list of NJSLS and goals that describe what students are expected to know and be able to do as a result of successfully completing this course. The following NJSLS are the basis of the assessment of student achievement. The learner will demonstrate mastery of:

1. The student will understand how the real number system impacts our ability to effectively navigate other mathematical topics. 6.  
*NS.4-7, 7.NS.1-3, 8.NS.1-2,*  
*N.RN.1-3, F.BF.2, N.Q.2*
2. The student will demonstrate the ability to investigate, interpret, and communicate solutions to mathematical and real-world problems using patterns, functions, and Algebra. 7.  
*RP.1-3, A.SSE.1-3, A.APR.2-3,*  
*A*  
*.REI.1-7,10,12, A.CED.1-3*
3. The student will demonstrate the ability to solve mathematical and real-world problems using measurement and geometric models and will justify solutions and explain processes used. 7.  
*G.4,6, G.CO.4-5, G.SRT.2,4-8*
4. The student will understand statistics well enough to be able to consume the information they are inundated on a daily basis, think critically about it, and make good decisions based on that

information.  
*ID.1-2, 5-6, S.IC.1-2, 5-6, S.MD.5-7*

S.

*S.CP2-3, 6,8,9, N.VM6-8*

5. The student will understand how to compare, contrast and calculate different financial investments.

7.

*RP.3, A.SSE.3c, 9.2.12.B.2-5, 8,9,*

*9.2.12.C.3, 9.2.12.G.6*

## Scope and Sequence

### **Unit 1: Number Theory and the Real Number System (MP 1)**

Students will use their understanding of the real number system to identify real numbers on a number line. They will perform operations with real numbers and apply these skills to real-world problems. Finally, students will work with arithmetic and geometric sequences.

### **Unit 2: Algebra: Equations, Inequalities, Graphs, Functions, and Linear Systems (MP 1 and 2)**

All students will develop algebraic reasoning abilities to model, describe and analyze phenomena in the forms of:

- a. Algebraic Expressions
- b. Linear Equations and Inequalities
- c. Quadratic equations
- d. Functions
- e. Systems of equations

### **Unit 3: Geometry (MP2)**

All students will develop spatial sense and the ability to use geometric properties, relationships, and measurement to model, describe and analyze phenomena:

- a. Geometric Properties
- b. Transforming Shapes
- c. Coordinate Geometry
- d. Units of Measurement
- e. Measuring Geometric Objects

### **Unit 4: Analysis, Probability, & Statistics (MP 3 and 4)**

All students will develop an understanding of the concepts and techniques of data analysis, probability, and discrete mathematics, and will use them to model situations, solve problems, and analyze and draw appropriate inferences from data:

- a. Data Analysis (Statistics)
- b. Probability
- c. Discrete Mathematics—Systematic Listing and Counting
- d. Discrete Mathematics—Vertex-Edge Graphs and Algorithms

### **Unit 5: Consumer Mathematics (MP4 )**

This unit explores areas of financial literacy within the context of real world projects and simulations.

## **Assessments**

Evaluation of student achievement in this course will be based on the following:

- a. *<broad or general items about how students will be expected to demonstrate their understanding such as writing responses, unit tests, etc. Nothing specific and nothing linked because this will be accessible to everyone >*

## **Curriculum Resources**

### **Anchor Programs/Teacher Materials**

*Thinking Mathematically*, R. Blitzer

Better Lesson: <https://betterlesson.com/>

Illustrative Mathematics: [www.illustrativemathematics.org](http://www.illustrativemathematics.org)

Desmos: <http://teacher.desmos.com>

## **Home and School Connection**

The following are suggestions and/or resources that will help parents support their children:

- <https://www.mathhelp.com>
- <https://www.desmos.com/>
- <https://www.khanacademy.org/math>
- <https://www.mathplanet.com/education>

