DOBBS FERRY MIDDLE SCHOOL
Dobbs Ferry, N. Y. 10522

COURSE OUTLINE

SUBJECT: Algebra Lab **GRADE**: 8

The *mathematics* curriculum across grades 6, 7, and 8 is designed to build and strengthen Algebra skills for middle school students. The focus of this course is to pre-teach and re-teach mathematical concepts that are presented in the Algebra class, providing students with more time on task. Selected eighth grade students will participate in the *Algebra Lab* to further develop foundational skills. This will give students an opportunity to clarify misunderstandings, revisit concepts that are still unclear, and apply their knowledge in a variety of engaging ways.

Anticipated student outcomes:

Grade 8 – Algebra Lab (*Meets every other day***):**
By the end of year, student will be able to work with:

- Number Systems
  - Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers
  - Recognize the difference between rational and irrational numbers, as well as the subsets of rational numbers
  - Perform all scientific notation operations
  - Perform all polynomial operations
  - Compute accurately and make reasonable estimates
- Number Theory
  - Identify and apply the properties of real numbers (closure, commutative, associative, distributive, identity, inverse)
- Equations and Inequalities
  - Solve real-life and mathematical problems using numerical and algebraic expressions and equations
  - Analyze and solve linear equations and pairs of simultaneous linear equations.
  - Work with radicals and integer exponents
  - Define variables and evaluate expressions
  - Solve multi-step equations by combining like terms, using the distributive property, or moving variables to one side of the equation
  - Factoring expressions

    - Solve and graph multi-step inequalities
    - Plotting linear equations on the coordinate grid
    - Analyze and solve verbal problems whose solution requires solving a linear equation in one variable or linear inequality in one variable
- Proportional Reasoning
    - Analyze proportional relationships and use them to solve real-world and mathematical problems.
    - Understand the connections between proportional relationships, lines, and linear equations.
    - Use percentages while problem solving
- Geometry
    - Understand and apply the Pythagorean Theorem
    - Understand geometric angles relationships and apply its concepts
    - Understand and apply Transformational Geometry
- Patterns, Relations and Functions
    - Recognize, use, and represent algebraically patterns, relations, and functions

Materials required or used:

- Loose leaf paper
- One pencil case which includes pens, pencils, erasers and highlighters
- Graphing calculator (the one used in the Algebra 1 class)

Criteria for grading:

There are no grades for this class. Homework is not assigned and exams are not given. However, practice exams and reviews are provided in preparation for students' Algebra 1 course. At the end of each marking period student progress reports/report cards will contain comments regarding their performance in the following areas:

- In-class assignments
- Class participation and effort
- Growth of Understanding
- Behavior

Outline developed by: Math Department *Date: Spring 2017*