COURSE OUTLINE

SUBJECT: Algebra I   **GRADE**: 8

This is a full-year course in Common Core Algebra I that meets every day. Topics include relationships between quantities, linear relationships, exponential and quadratic relationships, advanced functions and equations, and data analysis.

ANTICIPATED STUDENT OUTCOMES

By the end of the school 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
    - Factor expressions
    - Solve and graph one-step and multi-step inequalities
    - Plot 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

- o Understand the connections between proportional relationships, lines, and linear equations
  - o Use percentages while problem solving
- Geometry
  - o Understand and apply the Pythagorean Theorem
  - o Understand geometric angle relationships and applications
  - o Understand and apply transformational geometry
- Patterns, Relations, and Functions
  - o Recognize, use, and represent algebraic patterns, relations, and functions

KEY CONCEPTS

- Relationships
- Logic

MATERIALS REQUIRED OR USED

- Chromebook
- TI-84 Plus Graphing Calculator
- 4 AAA Batteries
- 4 Spiral Notebooks (100 sheets each)
- Pencil Case
- Loose Leaf Paper
- Graph Paper
- One Folder
- One Ruler
- Highlighters (different colors)
- Pens (blue or black only)
- Pencils
- Pencil Sharpener (canister)
- Pencil Erasers

CRITERIA FOR GRADING
Grades will be based on the following:
- Homework
- Tests/Quizzes

Outline developed by: Math Department   *Date: March 2018*