Department: Mathematics
Course Name: Algebra I

Course Description:
This course is a one-year study of algebra designed to provide students the requisite skills necessary for all future mathematics courses. It proceeds rapidly through the prerequisite topics and continues at a pace that demands daily preparation from the student. Note-taking, mathematical communication and precision are emphasized. Major topics include the tabular, graphical, and symbolic representations of linear, quadratic, exponential, rational and radical functions; inequalities; solving linear, quadratic, rational and radical equations; systems of equations and inequalities; and factoring. During the second semester, each student is required to complete a major project which requires a class presentation. This course places an emphasis on critical thinking, communication, collaboration, creativity and risk-taking.

Content:
Expressions and Equations
Inequalities
Functions
Linear Functions
Linear and Non-Linear Systems
Exponents and Polynomials
Factoring
Quadratic Functions and Equations
Exponential Functions
Rational Expressions and Equations
Radical Expressions and Equations

Skills:
Represent quantitative situations algebraically
Evaluate and simplify expressions
Solve any type of linear equation with and without a calculator
Solve absolute-value equations with and without a calculator
Solve proportion problems with and without a calculator
Solve linear inequalities
Graph solutions to linear inequalities
Solve absolute-value inequalities
Graph solutions to absolute-value inequalities
Describe relations and functions with multiple representations
Identify independent and dependent variables in functional situations
Determine domain and range of continuous and discreet relations
Use set notation and inequality notation for domain and range
Determine the slope from various situations
Graph and write equations for linear functions
Solve systems of linear equations by graphing, substitution, and elimination
Solve systems of linear inequalities
Develop and use the rules of rational exponents
Add, subtract and multiply polynomials
Expand polynomials into factors

Graph quadratic functions with and without a calculator
Solve quadratic equations by graphing, factoring, and quadratic formula with and without a calculator
Write quadratic functions to model situations
Determine the types of solutions to quadratic equations with the discriminant
Solve non-linear systems of equations in two variables by graphing
Identify linear, quadratic and exponential relationships from data sets and graphs
Write exponential functions to model situations
Solve exponential equations from tables and graphs
Simplify rational expressions
Solve rational equations with and without a calculator
Simplify monomial radical expressions
Solve radical equations with and without a calculator
Make predictions from a curve of best fit
Solve problems using mathematical models

Text and Materials:
Desmos Graphing Calculator App
Flipgrid App
Quizlet App
Google Apps For Education
DeltaMath website
Quizizz website
Formative website

Methods of Instruction:
Teacher directed instruction
Individual, partner activities
Cooperative Learning
Project Based Learning
Worksheets

Methods of Evaluation:
Tests
Projects
Quizzes
Daily work
Oral response
Class participation