**Curriculum 2.0 Algebra 1**

**Course Description:**

Curriculum 2.0 (C2.0) Algebra 1 is designed to analyze and model real-world phenomena. Exploration of linear, exponential, and quadratic functions forms the foundation of the course. Key characteristics and representations of functions – graphic, numeric, symbolic, and verbal – are analyzed and compared. Students develop fluency in solving equations and inequalities. One- and two-variable data sets are interpreted using mathematical models.

**Content Emphasis:**

C2.0 Algebra 1 focuses on the Standards for Mathematical Practice to build a climate that engages students in the exploration of mathematics. The Standards of Mathematical Practice are habits of mind applied throughout the course so that students see mathematics as a coherent, useful, and logical subject that makes use of their ability to make sense of problem situations. Through this course, students will . . .

* *Develop fluency and master writing, interpreting, and translating between various forms of linear equations and inequalities in one variable, and using them to solve problems*
* *Solve simple exponential equations that rely only on the application of the laws of exponents*
* *Interpret functions (graphically, numerically, symbolically, verbally), translate between representations, and understand the limitations of various representations*
* *Use regression techniques to describe approximately linear relationships between quantities and look at residuals to analyze the goodness of fit and use more formal means of assessing how a model fits data*
* *Compare the key characteristics of quadratic functions to those of linear and exponential functions and select from among these functions to model phenomena*
* *Explore more specialized functions—absolute value, step, and those that are piecewise-defined and select from among these models to model phenomena and solve problems*

**Topics of Study:**

* **Relationships between Quantities and Reasoning with Equations**

*Linear Equations in One Variable*

*Linear Inequalities in One Variable*

*Exponential Equations in One Variable*

* **Linear and Exponential Relationships**

*Characteristics of Functions*

*Constructing and Comparing Linear and Exponential Functions*

*Solving Systems of Equations and Inequalities in Two Variables*

* **Descriptive Statistics**

*Analyzing Data Representations*

* **Quadratic Relationships**

*Quadratic Functions*

*Equations in Two Variables*

*Solving Quadratic Equations*

* **Generalizing Function Properties**

*Function Families*