Mathematics- Scope and Sequence

**Structure and Method**-

Students are able to learn Mathematics using a teaching sequence that follows the 5 E instructional model. Students are **engaged** by prompting curiosity of the subject, are encouraged to **explore** by generating new ideas, are provided opportunities to demonstrate and **explain** their conceptual understanding of the material, are challenged to **elaborate** their understanding, and are **evaluated** by assessing their achievement of the educational goals. The sequential approach emphasizes number sense, patterning, mental math, critical thinking, and algebraic reasoning. Through project and inquiry based learning students are able to forge a bridge between classroom content and real world applications.

**Sixth Grade Math**

Students draw from prior knowledge of whole number addition, subtraction, multiplication and division and begin to touch on their understanding of abstract and quantitative reasoning to assist in problem solving. Areas of study include performing all four operations with integers, positive decimals and fractions; exploring and applying concepts of ratios, rates and percent to solve problems; creating, interpreting and using expressions and equations; extending geometric reasoning to plotting points on the coordinate plane, area and volume of geometric figures; and developing their understanding of statistical thinking.

Textbook- Sadlier-Oxford: Mathematics Middle School Grade 6

**Structure and Method**-

Students are able to learn Mathematics using a teaching sequence that follows the 5 E instructional model. Students are **engaged** by prompting curiosity of the subject, are encouraged to **explore** by generating new ideas, are provided opportunities to demonstrate and **explain** their conceptual understanding of the material, are challenged to **elaborate** their understanding, and are **evaluated** by assessing their achievement of the educational goals. The sequential approach emphasizes number sense, patterning, mental math, critical thinking, and algebraic reasoning. Through project and inquiry based learning students are able to forge a bridge between classroom content and real world applications.

**Seventh Grade HP Math**

Students extend their understanding of mathematical concepts by beginning to construct symbolic representations and use logical reasoning to find the solution to problems. Areas of study include recognizing that fractions, decimals and percentages are different representations of rational numbers; performing all four operations with rational numbers; creating equivalent expressions and solving equations and inequalities; developing understanding of and applying proportional relationships in two variables; extending analysis of two and three dimensional figures to include circles and cylinders; and representing and comparing categorical and numerical data and understanding of probability.

Textbook- Sadlier-Oxford: Fundamentals of Algebra Middle School Grade 7

**Seventh Grade H Pre-Algebra Math**

Students expand their mathematical knowledge and establish the foundation needed to prepare themselves as they transition to Algebra I. Students will need to score a sufficient level on the standardized Terra Nova test, Star Math and pass the Algebra Readiness Tests in order to enroll in the Honors Algebra I course for 8th grade. Areas of study include representing numbers in scientific notation; extending the set of numbers to the system of real numbers to include irrational numbers; generate equivalent numeric and algebraic expressions including Laws of Exponents; creating and reasoning about linear relationships including modeling an association in bivariate data with a linear equation; solving linear equations, inequalities and system of linear equations; developing an understanding of the concept of a function; and analyzing two-dimensional figures, particularly triangles, using distance, angel and applying Pythagorean Theorem.

Textbook- Sadlier-Oxford: Foundations of Algebra Grade 8

**Structure and Method**-

Students are able to learn Mathematics using a teaching sequence that follows the 5 E instructional model. Students are **engaged** by prompting curiosity of the subject, are encouraged to **explore** by generating new ideas, are provided opportunities to demonstrate and **explain** their conceptual understanding of the material, are challenged to **elaborate** their understanding, and are **evaluated** by assessing their achievement of the educational goals. The sequential approach emphasizes number sense, patterning, mental math, critical thinking, and algebraic reasoning. Through project and inquiry based learning students are able to forge a bridge between classroom content and real world applications.

**Eighth Grade Pre-Algebra Math**

Students will establish the building blocks needed for a seamless transition into High School Algebra I. Areas of study include representing numbers in scientific notation, extending the set of numbers to the system of real numbers to include irrational numbers; generate equivalent numeric and algebraic expressions including Laws of Exponents; creating and reasoning about linear relationships including modeling an association in bivariate data with a linear equation; solving linear equations, inequalities and system of linear equations; developing an understanding of the concept of a function; and analyzing two-dimensional figures, particularly triangles, using distance, angel and applying Pythagorean Theorem.

Textbook- Sadlier-Oxford: Foundations of Algebra Grade 8

**Eighth Grade Algebra I Math**

Algebra I students continue to explore and deepen their understanding of abstract concepts with regards to numeric relationships needed for Geometry. Logical reasoning skills are strengthened to promote deeper critical thinking and problem-solving prowess. Areas of study include performing with polynomials and radicals, extending the Laws of Exponents to include rational exponents; understanding of functions to linear, quadratic and exponential functions- using them to model and analyze real-world relationships; solving quadratic equations in one variable and systems of linear equations and inequalities of two variables; building functions, identifying their key features and representing them in various ways; and expanding and interpreting categorical and numerical data with one and two variables.

Textbook- Sadlier- Oxford: Algebra 1