**Mathematics Program Syllabus (Grades 7-9):**

**Note:** For the following courses, students must have a mastery of basic addition, subtraction, multiplication, and division involving whole numbers. If students do not have the necessary prerequisite, they are welcome to look at the course list on our Elementary School Program.

1. **Mathematical Basics:**
   1. **Decimal Operations**

In this course, students will learn techniques for solving problems that involve addition, subtraction, multiplication, or division of decimals. Here, students will develop an understanding of what decimals are, and how they can be rounded to make mental math easier.

**Prerequisites:** None.

* 1. **Fractions: Operations**

In this course, students will learn how to solve problems involving fractions. They will also learn how to model word problems as fraction equations. Students will develop an in-depth understanding of how to add, subtract, multiply, and divide fractions.

**Prerequisites:** Students should understand what a fraction is, but no prior knowledge of operations with fractions is required.

1. **Exponents and Radicals:**
   1. **Exponents: First Steps**

This course introduces students to the fundamentals of exponents, and teaches students how to solve problems involving exponents. Students will learn how to solve problems involving squares and cubes.

**Prerequisites:** None.

* 1. **Radical Fundamentals**

This course introduces students to radicals, and teaches them how to identify mixed and whole radicals, as well as how to change a radical to an integer base with a fractional exponent. Students will also learn how to solve problems involving square roots and cube roots.

**Prerequisites:** An understanding of exponents is required for this course.

* 1. **Radicals: Beyond the Basics**

This course introduces students to conversion of mixed radicals to whole radicals, and whole radicals to mixed radicals. In this course, students will also learn how to model word problems using radicals.

**Prerequisites:** Students should have an understanding of the basics of radicals as well as exponents.

1. **Algebra:**
   1. **Algebra Made Simple**

In this course, students will learn how to solve basic algebra problems that are not based on words. This course will introduce students to solving three and four-step problems, as well as problems involving fractions.

**Prerequisites:** Students must have an understanding of fractions, as well as a firm understanding of solving one and two-step algebraic problems.

* 1. **Algebra Extended**

This course, which is an extension upon the ideas learned in *Algebra Made Simple,* teaches students how to solve algebraic equations where there is a variable on both sides of the equals sign. In addition, students will learn how to solve algebraic equations that they must create based on words.

**Prerequisites:** Students must have an understanding of fractions, as well as an understanding of the concepts taught in *Algebra Made Simple*.

* 1. **Polynomials: An Introduction**

In this course, students will be introduced to polynomials. Here, they will learn about the distributive property, simplification, and expansion.

**Prerequisites:** Students must have an understanding of algebra, as well as exponents.

1. **Circle Geometry:**
   1. **The Basics of Circular Geometry**

This course is designed to teach students the basics of solving problems involving circular geometry. Students will learn how to calculate the area of a circle, as well as how to apply algebra to solve problems that use tangent lines, chords etc.

**Prerequisites:**  Students must have an understanding of algebra.

1. **Graphing**
   1. **Slopes and Intercepts**

This course teaches students how to calculate the slope of a line, as well as how to write an equation for a line using y-intercept form. This course will allow students to solve word problems using graphs.

**Prerequisites:** Students should have an understanding of algebra as well as fractions.