# Essential Skills for Algebra B (8th Grade Mathematics)

Unit 6:

- In this unit, students use graphing, substitution, and elimination to solve systems of linear equations. When solving by the elimination method, they either add or subtract, or they multiply first and then add or subtract. Students identify linear systems as having one solution, no solution, or infinitely many solutions. Students solve systems of linear inequalities.

Unit 7:

- In this unit, students learn and use properties of exponents involving products and quotients. They learn how to apply the product of powers property, the power of a power property, the power of a product property, the quotient of powers property, and the power of a quotient property. Students also use zero and negative exponents. Students learn how to read, write, and compute with numbers in scientific notation. Students also learn how to graph and write rules for exponential functions, including exponential growth and exponential decay functions.

Unit 8:

- In this unit, students identify classify, add, subtract, and multiply polynomials. They use vertical and horizontal formats to find sums and differences. To find products, they use the distributive property, tables of products, and patterns (including the FOIL pattern, the square of a binomial pattern, and the sum and difference patterns). They write Polynomials to describe and solve real-world problems and solve polynomial equations. Students factor polynomials and use factoring to solve equations, to find the zeros of Functions, and to find the roots of equations. FInally, they factor polynomials completely Using a variety of techniques.

Unit 9:

- In this unit, students graph quadratic functions and compare them to the parent graph. They find the axis of symmetry, the vertex, and minimum or maximum values. They solve quadratic equations by factoring, graphing, using square roots, completing the square, and using the quadratic formula. Students use the discriminant to determine the number and type of solutions of a quadratic equation. FInally, students determine whether a linear, exponential, or quadratic function best models a set of data.

Unit 10:

- In this unit, students calculate probabilities and odds of simple events. They calculate probabilities of compound events, identifying whether events are mutually exclusive or overlapping, or whether they are dependent or independent. Students identify potentially biased samples and questions. They compare measures of dispersion, and analyze and display data.

Unit 11:

- In this unit, students calculate probabilities and odds of simple events. They calculate probabilities of compound events, identifying whether events are mutually exclusive or overlapping, or whether they are dependent or independent. Students identify potentially biased samples and questions. They compare measures of central tendency and measures of dispersion, and analyze and display data.