Essential Skills for Algebra A (7th Grade Mathematics)

Unit 1:

- In this unit, students write and evaluate expressions, equations, and inequalities. They learn to apply the order of operations and to use a problem solving plan to solve real-world problems. Students represent functions as rules and tables. They also graph functions given a rule or table of values.

Unit 2:

- In this unit, students use properties of equality to solve one-step, two-step, and multi-step equations in one variable. They also use properties of equality and the distributive property to solve equations with variables on both sides. Students write ratios and proportions and solve proportions using cross products. Finally, students rewrite equations in function form and solve formulas and literal equations for a given variable.

Unit 3:

- In this unit, students learn how to plot points in a coordinate plan and use tables, x- and y-intercepts, and the slope and y-intercept to graph linear equations and functions. They interpret slope as a rate of change in real-world situations and explore how changing the slope and y-intercept changes the graph. They use slope to identify parallel lines. They write and graph direct variation equations and use them to solve real-world problems. They learn how to use function notation and they compare families of graphs.

Unit 4:

- In this unit, students write equations of lines in slope-intercept form given three situations: the slope and y-intercept; the slope and a point; or two points. Also, they write and graph equations using the slope and a point, using a graph of the line, or using real-world data. They write equations of lines in standard form, and use their equations to solve real-world problems. They write and find equations of lines parallel or perpendicular to a given line. They make scatter plots of data, and use lines of fit and the best-fitting line to model data and to make predictions.

Unit 5:

- In this unit, students write, solve, and graph one-step and multi-step inequalities using addition, subtraction, multiplication, and division. They learn to reverse an inequality sign when multiplying or dividing by a negative number. Students solve and graph compound inequalities using *and* and *or*. They solve absolute value equations using *or* and they solve and graph absolute value inequalities using *and* and *or*. Finally, students graph linear inequalities in two variables.