8ᵗʰ Grade Algebra Course Outline

First Quarter:

Chapter 1: Expressions, Equations, and Functions

In chapter 1, students write and evaluate expressions equations, and inequalities. They learn how to apply the order of operations and to use a problem-solving plan to solve real-world problems.

Chapter 2: Properties of Real Numbers

In chapter 2, students will learn about the real number system. They will classify real numbers, perform basic operations, find square roots, apply properties to evaluate and simplify expressions, and use the Distributive property to write equivalent expressions.

Chapter 3: Solving Linear Equations

In chapter 3, students use properties of equality to solve equations in one variable. Students write ratios and proportions, solve proportions and solve percent problems. Finally, students rewrite equations in function form and solve formulas and literal equations for a given variable.

Second Quarter:

Chapter 4: Graphing Linear Equations and Functions

In chapter 4, students learn how to plot points in a coordinate plane 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. They use slope to identify parallel lines, learn how to solve direct variation problems, and evaluate functions.

Chapter 5: Writing Linear Equations

In chapter 5, students will learn how to write equations of lines in slope-intercept form, in standard form, point-slope 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 and use best-fitting lines for data and to make predictions.

Chapter 6: Solving and Graphing Linear Inequalities

In chapter 6, students will write, solve, and graph linear inequalities in one variable, and use inequalities to model real-life situations. They will solve and graph compound inequalities using *and* and *or*, and absolute value equations and inequalities. Finally, students graph linear inequalities in two variables.

Third Quarter:
Chapter 7: System of Equations and Inequalities
In chapter 7, students use graphing substitution, and elimination to solve systems of linear equations. Students identify linear systems as having one solution, no solution, or infinitely many solutions. Students solve systems of linear inequalities.

Chapter 8: Exponents and Exponential Functions
In chapter 8, students learn how to simplify expressions involving exponents and use exponential notation. Students also use zero and negative exponents. Students learn how to graph and write rules for exponential functions.

Chapter 9: Polynomials and Factoring
In chapter 9, students identify, classify, add, subtract, and multiply polynomials. Students factor polynomials to describe and solve real-world problems and solve polynomials equations. Students factor polynomials and use factoring to solve equations, to find zeros of functions, and to find the roots of equations.

Fourth Quarter:

Complete Chapter 9: Polynomials and Factoring

MCA III Review, Pythagorean theorem, MCA III Test

Chapter 10: Quadratic Equations and Functions
In Chapter 10, students graph quadratic functions, solve quadratic equations and use the discriminant to determine the number and type of solutions of a quadratic equation. Students determine whether a linear, exponential, or quadratic function best models a set of data.

Chapter 11: Radicals and Geometry Connections (if time allows)

Project/s and Final test

Throughout the year we will also take some time to look at the TI-73. The TI-83 will be introduced so students have an idea of how it works for when they get into high school.

| **Supplies:** | Needed everyday; notebook, pencil, pen |
| | Other items; graph paper, graphing calculator |

| **Tests, Quizzes:** | There will be one or two quizzes per chapter, and a test at the end of the chapter. |

| **Notes:** | Notes will be taken almost every day in class. |

Assignments: Students will have an assignment almost every night. It is very important to complete the assignments and turn them in on time.

Class Participation: Class participation is very important, as students get older. Students will be encouraged to participate in class as much as possible.

Attendance: Attendance is very important. If a student needs to be gone for any reason, they need to pick up an absence slip when they return and complete all the work in the time allowed.

Grading:
100 – 9 %	A
89 – 8 %	B
79 – 70 %	C
69 – 60 %	D

In 8th grade homework is not worth as much as it was in 7th grade. Tests and quizzes are worth more than homework is.