C2.0 Algebra 1 Unit 1 – Relationships Between Quantities and Reasoning with Equations

Topic	Overview
Topic 1: Linear Equations in One Variable	By the end of 8th grade, students have mastered the process of solving linear equations in one variable. Unit 1 of Algebra I builds on that experience by asking students to analyze and explain this process and to reason quantitatively and use units to solve problems. Students will develop fluency in writing expressions and linear equations in one variable, and will use them to solve problems. ***Concepts:*** • Create expressions to model a given situation. • Interpret parts (e.g. factors, monomials) of expressions. • Compare various expressions generated to represent a situation to determine validity of an expression and equivalent expressions. • Apply rules for arithmetic operations with units to guide the problem solving process. • Create and solve linear equations in one variable. • Describe the structure of a linear equation and use this structure to devise a plan for solving the equation. • Carry out, describe and justify each step of the plan for solving equations in one variable. • Explain the meaning of solutions to equations in one variable using the context of the problem. • Convert literal equations to highlight a specific variable. • Interpret the meaning of expressions by attending to the units associated with each of the variables of a literal equation.
Topic 2: Linear Inequalities in One Variable	Students apply their knowledge of linear equations to inequalities. Students develop fluency and master writing, interpreting, and translating inequalities in one variable. They will then use these inequalities to solve problems. ***Concepts:*** • Create inequalities in one variable to represent a given context. • Solve inequalities for one variable. • Construct arguments to justify their reasoning in solving inequalities. • Articulate the differences and similarities in solving equations and solving inequalities.

Topic	Overview
Topic 3: Exponential Equations in One Variable	Students will extend their knowledge from linear equations and inequalities to solve simple exponential equations that rely only on the application of the laws of exponents. ***Concepts:*** • Solve simple exponential equations. • Construct arguments to justify their reasoning in problems involving exponential expressions and equations. • Articulate the differences and similarities in solving linear and exponential equations.