Unit 1a-Expressions and Equations

Content Area: **Math**
Course(s): **Math 7 PRE-ALGEBRA, Math 7 Pre-Algebra Honors**
Time Period: **Marking Period 1**
Length: **Weeks 2-4 Module 1**
Status: **Published**

Essential Questions

- How can you solve real-world and mathematical problems with numerical and algebraic equations and inequalities?

Big Ideas

- Use properties of operations to generate equivalent expressions.
- Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
- Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations or inequalities to solve problems by reasoning about the quantities.

Diversity Integration

Objective: Students will be able to create, interpret, and use equations to figure out the factors that affect population growth.

Description of Activity: Students will explore the science of demography. They will explore how birth rate, death rate, emigration, and immigration affect population growth with a country of their heritage. Students will analyze how changes in these indicators affect resource sustainability and how resource availability affects population growth.

CSDT Technology Connection

8.2.8.ED.5 Explain the need for optimization in a design process

Enduring Understandings

Expressions and Equations

7.EE.1 [M] Apply properties of operations as strategies to add, subtract, factor and expand linear expressions with rational coefficients.

7.EE.3 Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies. For example: If a woman making $25 an hour gets a 10% raise, she will make an additional 1/10 of her salary an hour, or $2.50, for a new salary of $27.50. If you want to place a towel bar 9 ¾ inches long in the center of a door that is 27 ½ inches wide, you will need to place the bar about 9 inches from each edge; this estimate can be used as a check on the exact computation. Students may solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form, based on quantitative data related to the five main contributors to climate change:

- Burning coal, oil and gas produces carbon dioxide and nitrous oxide
- Cutting down forests (deforestation)
- Increasing livestock farming
- Fertilizers containing nitrogen produce nitrous oxide emissions, and
- Fluorinated gasses are emitted from equipment and products that use these gasses.

Mathematical Practices Focus

1. Make sense of problems and persevere in solving them. Lesson 1.1, 1.4
4. Model with mathematics. Lesson 1.1,1.3,1.4
5. Use appropriate tools strategically. 1.4
7. Look for and make use of structure. Lesson 1.1