Unit 3 - Multi-Step Equations and Inequalities

Content Area: **Mathematics**
Course(s): **Pre-Algebra 6**
Time Period: **November**
Length: **4 weeks**
Status: **Published**

Transfer

Big Idea: Multi-Step Equations and Inequalities

Enduring Understandings

Solving multi-step equations allows them to solve real-world problems about rafting, shopping, skiing, advertising, and amusement parks.

Inequalities heard outside of math class “at least” or “no more than” can be solved and graphed algebraically.

Essential Questions

How do we translate verbal ideas to the language of mathematics?

Can the same problem be solved arithmetically and algebraically?

Why does an inequality symbol need to be reversed when solving an inequality?

Critical Knowledge and Skills

Vocabulary

Vocabulary

Inequality

Solution of an inequality

Equivalent inequalities

Learning Objectives

Write Inequalities to represent real world situations

Solve two-step equations

Solve the same problem arithmetically and algebraically

Solve equations with variables on both sides

Solve equations using algebra tiles

Solve inequalities using multiplication or division.

Solve multi-step inequalities

Resources

Prior Knowledge

Written and evaluated variable expressions

Used the distributive property to simplify variable expressions.

Solved one-step equations

Standards

MA.K-12.1	Make sense of problems and persevere in solving them. Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.
MA.7.EE.B	Solve real-life and mathematical problems using numerical and algebraic expressions and equations.
MA.7.EE.B.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.
MA.7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities.
MA.6.EE.B	Reason about and solve one-variable equations and inequalities.
MA.6.EE.B.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
MA.6.EE.B.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real- world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.