Unit 4: Solving Inequalities

Content Area: **Mathematics**
Course(s): **Algebra 8**
Time Period: **November**
Length: **2 weeks**
Status: **Published**

Transfer

Big Idea: Solving Inequalities

Enduring Understandings

Real world situations can be represented symbolically and graphically.

Using variables in place of numbers allows the statement of relationship among numbers that are unknown or unspecified.

Useful information about equations and inequalities, including solutions, can be found by analyzing graphs or tables

Essential Questions

How is thinking algebraically different from thinking arithmetically?

How do I use algebraic expressions to analyze or solve problems?

How do you represent relationships between quantities that are not equal?

Critical Knowledge and Skills

Vocabulary

Vocabulary

Complement of a Set, Compound Inequality, Disjoint Sets, Empty Set, Equivalent Inequalities, Intersection, Interval Notation, Replacement Set, Roster Form, Set-Builder Notation, Solution of an Inequality, Union, Universal Set

Learning Objectives

Write, graph, and identify solutions of inequalities (A.REI.3)

Use addition or subtraction to solve inequalities (A.REI.3, A.CED.1)

Use multiplication or division to solve inequalities(A.REI.3, A.CED.1, N.Q.2)

Solve multi-step inequalities (A.REI.3, A.CED.1)

Write sets and identify subsets (A.REI.3)

Find the complement of a set (A.REI.3)

Solve and graph inequalities contain the words “and” and “or” (A.REI.3, A.CED.1)

Find the unions and intersections of sets (A.CED.1)

Resources

Desmos: Compound Inequalities on the Number line

3 Act Math: Nail polish

Khan Academy: Solving Inequalities

Standards

RST.6-8.4 Determine the meaning of symbols, key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6-8 texts and topics.

RST.6-8.7 Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP11. Use technology to enhance productivity.

9.1.8.A.2 Relate how career choices, education choices, skills, entrepreneurship, and economic conditions affect income.

9.1.8.C.5 Calculate the cost of borrowing various amounts of money using different types of credit (e.g., credit cards, installment loans, mortgages).

9.1.8.D.3 Differentiate among various investment options.

9.1.8.E.6 Compare the value of goods or services from different sellers when purchasing large quantities and small quantities.

9.2.8.B.7 Evaluate the impact of online activities and social media on employer decisions.

8.1.8.A.1 Demonstrate knowledge of a real world problem using digital tools.

8.2.8.C.8 Develop a proposal for a chosen solution that include models (physical, graphical or mathematical) to communicate the solution to peers.

MA.K-12.3	Construct viable arguments and critique the reasoning of others.
MA.K-12.4	Model with mathematics.
MA.K-12.5	Use appropriate tools strategically.
MA.N-Q.A	Reason quantitatively and use units to solve problems.
MA.N-Q.A.2	Define appropriate quantities for the purpose of descriptive modeling.
MA.K-12.6	Attend to precision.
MA.K-12.7	Look for and make use of structure.
MA.K-12.8	Look for and express regularity in repeated reasoning.
MA.A-CED.A	Create equations that describe numbers or relationships
MA.A-CED.A.1	Create equations and inequalities in one variable and use them to solve problems.
MA.A-REI.B	Solve equations and inequalities in one variable
MA.A-REI.B.3	Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.