Bridging for Math Strength Resources

Standards of Learning Curriculum Framework (SOL)

Standard of Learning (SOL) 6.14b Solve one-step linear inequalities in one variable, involving addition or subtraction, and graph the solution on a number line

Student Strengths	Bridging Concepts	Standard of Learning
Students can identify and use the appropriate symbol to distinguish between expressions that are equal and expressions that are not equal.	Students can use an expression with a variable as a representation of a verbal expression involving one operation.	Students can solve one-step linear inequalities, involving addition or subtraction, and graph the solution on a number line.

Understanding the Learning Trajectory

Big Ideas:

- An inequality is "another way to describe a relationship between expressions but instead of showing that the values of two expressions are equal, inequalities indicate that the value of one expression is greater than (or greater than or equal to) the value of the other expression" (NCTM, 2016, p. 37).
- The solution set to an inequality is the set of all numbers that make the inequality true.
- Solving an inequality is similar to solving an equation in that "we need to add or subtract the same value on both sides of the expression in an inequality to preserve the particular relationship of inequality between the expressions" (NCTM, 2016, p. 39).
- Solving an equation or inequality involves a process of determining which value(s) from a specified set, if any, make the equation or inequality a true statement. Substitution can be used to determine whether a given value(s) makes an equation or inequality true. (VDOE Curriculum Framework)

Formative Assessment:

- Just in Time Mathematics Quick Check 6.14b Word
- Just in Time Mathematics Quick Check 6.14b PDF
- Just in Time Mathematics Quick Check 6.14b Desmos

Important Assessment Look Fors:

- The student can accurately represent the solution to an inequality on a number line.
- The student can accurately write and solve one-step inequality from a practical problem.
- The student can identify values to make the solutions to an inequality true.
- The student can write an inequality statement in written and symbolic forms.

Purposeful Questions:

- How do you know whether a solution should be graphed with an open or closed circle on the number line?
- How can you determine whether the graphed solution on your number line is correct?
- Try a number in your inequality. Is the inequality still true? Where would that number go on the number line? Is that number part of the area you shaded?
- What is one technique you can use to verify your solution?

Bridging Activity to Support Standard	Instructional Tips
Routine Desmos Adapted from Open Middle-Creating Inequalities	Within this routine, students are creating different one-step inequality problems using the number -4 to 4. The students must make connections between the solution possibilities of the inequality and the inequality symbol.
Rich Tasks Log Ride, Illustrative Mathematics	This task would best work in a group setting. The students can work together to determine the maximum number of children who can be on a ride at an amusement park.
Games/Tech Desmos: Inequalities on the Number Line Desmos 6.14b Inequalities graphing and real world contexts	This is an entire Desmos lesson that could be used. Slide 11 & 15 have 2 sorting activities that can be used as a game. Use a number line to: better understand inequality notation; write, graph, and shade inequalities; apply inequalities to real-world contexts.

Other Resources:

- Solve me-Who Am I?
- VDOE Mathematics Instructional Plans (MIPS)
  - Solving One Step Inequalities with Addition and Subtraction (Word) / PDF
- VDOE Co-Teaching Mathematics Instruction Plans (MIPS)
  - Solving Inequalities (Word) / PDF
- VDOE Algebra Readiness Formative Assessments
  - SOL 6.14 / PDF
- VDOE Algebra Readiness Remediation Plans
  - Representing and Solving Practical Situations (Word) / PDF
  - Solving and Graphing Practical Situations (Word) / PDF
- VDOE Word Wall Cards: Grade 6 (Word) / PDF
  - Connecting Representations
  - Variable
  - Term
  - Inequality
- Desmos Activity
  - Inequalities Graphing and Real World Contexts

Learning Trajectory Resources

Van De Walle, J., Karp, K. S., & Bay-Williams, J. M. (2018). *Elementary and Middle School Mathematics: Teaching Developmentally.* (10th edition) New York: Pearson(2019:9780134802084)

Curriculum Framework for All Grades -Standard of Learning Curriculum Framework (SOL)

Common Core Standards Writing Team. (2019). Progressions for the Common Core State Standards for Mathematics. Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

Charles, R., (2005). Big Ideas and Understandings as the Foundation for Elementary and Middle School Mathematics. *Journal of Mathematics Education Leadership*, 7,(3), NCSM.