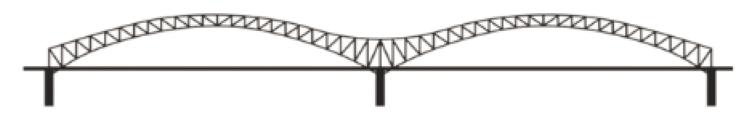


Bridging for Math Strength Resources

Standards of Learning Curriculum Framework (SOL)

Bridging Standards of Learning (SOL) for Grade 7

Standard of Learning (SOL) 7.12 Solve two-step linear equations in one variable, including practical problems that require the solution of a two-step linear equation in one variable.



Student Strengths	Bridging Concepts	Standard of Learning
Students can perform operations and	Students can solve one-step linear	Students can solve two-step linear
simplify expressions with fractions,	equations, including practical	equations in one variable, including
decimals, and integers.	problems.	practical problems.

Understanding the Learning Trajectory

Big Ideas:

- A given equation can be represented in an infinite number of different ways that have the same solution (Charles, 2005).
- A variety of concrete materials such as colored chips, algebra tiles, or weights on a balance scale may be used to model solving equations in one variable.
- The inverse operation for addition is subtraction, and the inverse operation for multiplication is division.
- Properties of real numbers and properties of equality can be applied when solving equations, and justifying solutions.
- Some problem situations can be represented as algebraic expressions or algebraic equations.

Formative Assessment:

- Just in Time Mathematics Quick Check 7.12 Word
- Just in Time Mathematics Quick Check 7.12 Desmos
- Just in Time Mathematics Quick Check 7.12 PDF

Important Assessment Look Fors:

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- The student can identify the inverse operation(s) required for solving the equation.
- The student can translate the equation between visual and concrete representations.
- The student can verify their solution.
- The student provided a response that is reasonable.

Purposeful Questions:

- What is the important information in this problem?
- How did you determine the terms and their placement within the equation?
- What inverse operations will you use to solve your written equation?
- How did you determine what is unknown?

Bridging Activity to Support Standard	Instructional Tips
Routine	The solution to the scenarios presented on these slides is easily derived. The teacher
<u>Numberless Word Problem</u> -	should instruct the students to attempt to translate the scenario and solution into a
Slide 10, 18, 26, 34, or 42.	mathematical equation.
Rich Tasks	If a teacher notices a student experiencing difficulty during the initiation of the task,
Mars - Grade 7: Mystery	please instruct the student to begin with 4a = 8.
Letters pg. 47 - 48	
Games/Tech	Math-Play: One-Step Equations Soccer can be played with two students competing
MathGames: One-Step	against each other, or with one student representing both the red and blue teams.
<u>Equations</u>	
Math-Play: One-Step	
Equations Soccer	
Khan Academy: <u>Two-Step</u>	
Equations Practical Problems	
(Interpretation)	
Khan Academy: <u>Two-Step</u>	
Equations Practical Problems	
(Solving)	
Desmos 7.12 Translating	Students complete card sorts to review translating expressions, then equations, then
Expressions and Equations	word problems.
<u>Card Sorts</u>	

Other Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - o 7.12 Solving Two-Step Equations (Word) / PDF Version
 - o 7.12 Translating Expressions and Equations (Word) / PDF Version
- VDOE Co-Teaching Mathematics Instruction Plans (MIPS)
 - o <u>7.12 Solving Equations</u> (Word) / <u>PDF Version</u>
- VDOE Algebra Readiness Formative Assessments
 - o <u>SOL 7.12</u> (Word) / <u>PDF</u>
- VDOE Algebra Readiness Remediation Plans
 - o Applying Properties of Real Numbers When Solving Equations (Word) / PDF
 - o Solving Equations Applying Properties (Word) / PDF
 - o Solving Equations Using Algebra Tiles (Word) / PDF

- o Solving Two-Step and Multi-Step Equations (Word) / PDF
- o Solving Practical Problems Using Two-Step Equations (Word) / PDF
- VDOE Word Wall Cards: Grade 7 (Word) | (PDF)
 - o Verbal and Algebraic Expressions and Equations
 - o Equations
- Desmos Activity
 - o Translating Expressions and Equations Card Sorts

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). <u>Progressions for the Common Core State Standards for Mathematics</u>. Tucson, AZ: Institute for Mathematics and Education, University of Arizona.

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