



## Bridging for Math Strength Resources

### [Standards of Learning Curriculum Framework \(SOL\)](#)

**Standard of Learning (SOL) 5.19d** Create a problem situation based on a given equation, using a single variable and one operation



Student Strengths	Bridging Concepts	Standard of Learning
Students can use bar models or other pictures to represent the unknown quantity in a story problem.	Students can write story problems using known numbers and all four operations.	Students can create a problem situation based on a given equation, using a single variable and one operation.

### Understanding the Learning Trajectory

#### **Big Ideas:**

- Mathematical situations and structures can be translated and represented abstractly using variables, expressions, and equations. (Charles, 2005)
- When students identify the equal sign in an equation, they recognize that it does not represent an answer, but rather balance an equality.
- The operation in an equation determines the relationship between the variable and other numbers in the equation.

#### **Formative Assessment:**

- [Just in Time Mathematics Quick Check 5.19d PDF](#)
- [Just in Time Mathematics Quick Check 5.19d Desmos](#)

#### **Important Assessment Look Fors:**

- The student uses actions and descriptive words associated with the correct operation.
- The student explains the meaning of the equation in their own words (before creating a story problem).
- The student describes the connection between equality and balance in equations.

#### **Purposeful Questions:**

- How did you use the numbers from the equation in your story problem? How did you use the

variables?

- How does your number story represent the operation in the equation?
- What does this equation mean?
- Could you come up with a different story problem for the same equation?

Bridging Activity to Support Standard	Instructional Tips
<b>Routines:</b> <a href="#">Numberless Word Problems</a>	Numberless word problems allow students to make sense of real world situations without number distractions. They describe the operations needed, “You would need to add the socks and shoes to get the total” rather than just finding numbers and randomly adding or subtracting them. <a href="#">Problem Bank</a>
<b>Rich Tasks:</b> <a href="#">Four Problems</a>	Create story problems using a variable. Share the chart with start unknown, result unknown and change unknown to create story problems.
<b>Games/Tech:</b> <a href="#">Solve Me Mobiles</a>  <a href="#">Desmos 5.19bcd Variables</a>	This game is perfect to transition to algebra. For this standard, challenge students to create a Solve Me Mobile.  In this activity, students will write variable expressions for given mathematical relationships and will create story problems when given an equation with a single variable.
<b>Other Resources:</b> <ul style="list-style-type: none"> <li>• <a href="#">Creating Equations from Word Problems</a></li> <li>• Videos to support variable understanding:               <ul style="list-style-type: none"> <li>◦ <a href="https://twominuteteachersguide.com/2018/08/23/what-are-variables/">https://twominuteteachersguide.com/2018/08/23/what-are-variables/</a></li> <li>◦ <a href="https://twominuteteachersguide.com/2019/01/09/students-and-variables/">https://twominuteteachersguide.com/2019/01/09/students-and-variables/</a></li> </ul> </li> <li>• VDOE Mathematics Instructional Plans (MIPS)               <ul style="list-style-type: none"> <li>◦ <a href="#">Variables, Operations, Numbers, Oh My!</a> (Word) / <a href="#">PDF</a></li> </ul> </li> <li>• VDOE Algebra Readiness Formative Assessments               <ul style="list-style-type: none"> <li>◦ <a href="#">5.19d</a> (Word) / <a href="#">PDF</a></li> </ul> </li> <li>• VDOE Word Wall Cards: <a href="#">Grade 5</a> <ul style="list-style-type: none"> <li>◦ Expression</li> <li>◦ Variable Expression</li> <li>◦ Equation</li> <li>◦ Equality</li> <li>◦ Inequality</li> </ul> </li> <li>• Desmos Activity               <ul style="list-style-type: none"> <li>◦ <a href="#">Variables</a></li> </ul> </li> </ul> <b>Learning Trajectory Resources:</b>  Charles, R. (2005). <a href="#">Big ideas and understandings as the foundation for elementary and middle school mathematics.</a> <i>Journal of Mathematics Education Leadership</i> , 7(3), NCSM.  Common Core Standards Writing Team. (2019). <a href="#">Progressions for the Common Core State Standards for Mathematics.</a> Tucson, AZ: Institute for Mathematics and Education, University of Arizona.	

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)

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