

Just In Time Quick Check
Standard of Learning (SOL) 5.19c

Strand: Patterns, Functions, and Algebra

Standard of Learning (SOL) 5.19c

The student will use an expression with a variable to represent a given verbal expression involving one operation.

Grade Level Skills:

- Use an expression with a variable to represent a given verbal expression involving one operation (e.g., “5 more than a number” can be represented by $y + 5$).

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [Variables, Operations, Numbers, Oh My!](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Formative Assessments
 - [5.19c](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Remediation Plans
 - [Writing Algebraic Equations](#) (Word) / [PDF](#)
- VDOE Word Wall Cards: [Grade 5](#)
 - Expression
 - Variable Expression
 - Equation
 - Equality
 - Inequality
- Desmos Activity
 - [Variables](#)

Supporting and Prerequisite SOL: [5.19a](#), [5.19b](#)

SOL 5.19c - Just in Time Quick Check

1. Lisa is twice as old as Zoe. Write an expression to represent Lisa's age. Explain your reasoning.
2. Tiana ate some raspberries. Anthony ate 9 more raspberries than Tiana. Write an expression to show how many raspberries Anthony ate. Explain your reasoning.
3. Use the expression bank. Match and write an expression from the expression bank with the story or verbal expression. For each, explain your thinking using words and pictures.

Expressions:	
$b + 8$	$8 - b$
$8b$	$\frac{b}{8}$

Phrase: 8 more than b	Expression:
Explain: 	

Phrase: b less than 8	Expression:
Explain:	

Represent the total number of seats available. There are some buses, b , in the parking lot. Each bus can seat 8 students.	Expression:
Explain:	

Represent the number of balloons in each group. Mr. Phillips has some balloons, b , for his class party. He wants to make 8 groups of balloons.	Expression:
Explain:	

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Common Errors/Misconceptions and their Possible Indications

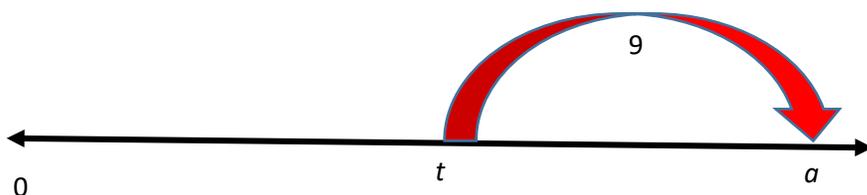
1. Lisa is twice as old as Zoe. Write an expression to represent Lisa's age. Explain your reasoning.

Writing expressions that match the words in story problems is a common challenge related to algebraic thinking. Some students might write $2L = Z$. If students wrote this equation, they may need more time exploring the difference between an expression and an equation.

To help students make the connection between verbal expressions and sentences, use concrete materials, such as algebra tiles, balance scales, or tiles/unifix cubes. Ask questions like: What is the relationship between Lisa and Zoe's ages? Who is older? How do you know? Starting with contextual problems, students can use post-its or larger paper to add labels to the models they are creating—what exactly is showing us Lisa's age? Zoe's age? How does your representation show the relationship between Lisa and Zoe's ages? They can also do this by substituting in numbers for the expressions.

2. Tiana ate some raspberries. Anthony ate 9 more raspberries than Tiana. Write an expression to show how many raspberries Anthony ate. Explain your reasoning.

A common misconception some students may have is confusing the operations of addition and subtraction when connecting this story context to an algebraic expression and may write $a - 9$. One strategy that can be used to correct misconceptions in connecting story contexts to expressions is by creating images such as number lines or bar diagrams. These types of illustrations allow students to visually see what is being compared in the problem and what part might be missing. For example, a teacher may ask "How would you show the amount of raspberries Tiana and Anthony ate on a number line?" A student might draw and label a number line like this:



This diagram is not the only way to represent this relationship. Ask students- "Is there another way we could use a number line to show the number of raspberries Tiana and Anthony ate? Why does this make sense? Who ate more raspberries? How does the number line show us that? How does the expression connect with the number line?"

3. Use the expression bank. Match and write an expression from the expression bank with the story or verbal expression. For each, explain your thinking using words and pictures.

Expressions:	
$b + 8$	$8 - b$
$8b$	$\frac{b}{8}$

Phrase: 8 more than b	Expression:
Explain:	

Phrase: b less than 8	Expression:
Explain:	

<p>Represent the total number of seats available.</p> <p>There are some buses, b, in the parking lot. Each bus can seat 8 students.</p>	<p>Expression:</p>
<p>Explain:</p>	

<p>Represent the number of balloons in each group.</p> <p>Mr. Phillips has some balloons, b, for his class party. He wants to make 8 groups of balloons.</p>	<p>Expression:</p>
<p>Explain:</p>	

Some students may have misconceptions when considering the operations associated with verbal expressions and have difficulty in recognizing what is happening to the variable. Verbal expressions that keep the variable the same but change the operation will help teachers discern these misconceptions.

A strategy a teacher may wish to use is to engage students in comparing examples and non-examples of an operation related to a specific verbal expression. Have students participate in discussions about why they decided certain expressions were incorrect or correct. For example, in the problem regarding balloons, students could compare two different expressions such as $8b$ and $\frac{b}{8}$. “Which expression makes sense and why?” “How would the context change with each algebraic expression?” Have students write problems to match algebraic expressions, and provide an example and non-example. When students create their own story problem, it helps them make connections between a verbal and algebraic expression.