

Just In Time Quick Check
Standard of Learning (SOL) 6.14a

Strand: Patterns, Functions, and Algebra

Standard of Learning (SOL) 6.14a

The student will represent a practical situation with a linear inequality in one variable.

Grade Level Skills:

- Given a verbal description, represent a practical situation with a one-variable linear inequality.
- Identify a numerical value(s) that is part of the solution set of a given inequality.

Just in Time Quick Check

Just in Time Quick Check Teacher Notes

Supporting Resources:

- VDOE Mathematics Instructional Plans (MIPS)
 - [6.14a – Representing Practical Situations with Inequalities](#) (Word) / [PDF](#)
- VDOE Algebra Readiness Formative Assessments
 - [SOL 6.14](#) (Word) / [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
 - Inequality
 - Verbal and Algebraic Expressions and Equations
- Desmos Activity
 - [Inequalities on the Number Line](#)

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

SOL 6.14a - Just in Time Quick Check

1. Joe sent at least 100 texts yesterday. Write an inequality to represent the number of texts Joe might have sent. Explain your reasoning.

Give three possible numbers that could represent a solution to your inequality. Explain why these solutions would work.

2. Callie sold 22 tickets to the school talent show. She sold more than twice the number of tickets that Ava sold. Write an inequality to show how many tickets Ava might have sold. Explain your reasoning.

3. Use the inequalities bank. Write the inequality that matches the verbal description. For each, explain your thinking using words and pictures.

Inequalities:

$$x < 10$$

$$x > 10$$

$$x \geq 10$$

$$x \leq 10$$

Verbal description: Luna bought at least 10 watermelons for the summer party.	Inequality:
Explain:	

Verbal description: Mina walks home in less than 10 minutes.	Inequality:
Explain:	

Verbal description: I spent more than 10 dollars on lunch.	Inequality:
Explain:	

Verbal description: Luca has at most 10 brownies to share with his friends.	Inequality:
Explain:	

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Common Errors/Misconceptions and their Possible Indications

1. Joe sent at least 100 texts yesterday. Write an inequality to represent the number of texts Joe might have sent. Explain your reasoning.

Give three possible numbers that could represent a solution to your inequality. Explain why these solutions would work.

A common error made by some students is to use the less than or equal to sign, rather than the greater than or equal to sign because they associate “at least” with less than. To assist students in understanding what “at least” means conceptually, ask them questions such as, “If Joe sent at least 100 texts yesterday, could he have sent 101 texts? Could he have sent 105 texts? Could he have sent 90 texts?” Substituting possible values for the solutions will help students conceptualize “at least.” Additionally, having students examine “at most” in the same fashion will also help them to understand the difference between these two phrases and the associated inequalities.

2. Callie sold 22 tickets to the school talent show. She sold more than twice the number of tickets that Ava sold. Write an inequality to show how many tickets Ava might have sold. Explain your reasoning.

Writing inequalities that match the words in story problems is a common challenge related to algebraic thinking. Here, a student might write an inequality that has “22c” or might not understand that Ava sold more. To help students make the connection between verbal descriptions and inequalities, use concrete materials, such as algebra tiles, balance scales, or tiles/unifix cubes. Ask questions like: What is the relationship between tickets sold by Callie and tickets sold by Ava? Who sold more? 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 Callie’s tickets? Ava’s tickets? How does your representations show the relationship between Ava and Callie’s tickets? They can also do this by substituting in numbers for the inequalities that would make sense—what are the possibilities that would make it true? Asking questions of students that get them to think critically about how the inequality connects to the story problem is imperative for building inequality understanding.

Students can also work to correct misconceptions in connecting verbal descriptions to inequalities by using the specific representation of number lines to model (also noted in the SOL 6.14b). These types of illustrations allow for students to visually see what is being compared in the problem and the relationship between comparisons. See “Understanding the Standard” in the VDOE Curriculum Framework for more examples.

3. Use the inequalities bank. Write the inequality that matches the verbal description. For each, explain your thinking using words and pictures.

Inequalities:	
$x < 10$	$x > 10$
$x \geq 10$	$x \leq 10$

Verbal description: Luna bought at least 10 watermelons for the summer party.	Inequality:
Explain:	

Verbal description: Mina walks home in less than 10 minutes.	Inequality:
Explain:	

Verbal description: I spent more than 10 dollars on lunch.	Inequality:
Explain:	

Verbal description: Luca has at most 10 brownies to share with his friends.	Inequality:
Explain:	

This problem is designed to uncover student understanding about comparison vocabulary. Students are most likely familiar with “less” and “more” but may have misunderstandings about how those vocabulary terms connect to the symbols, possibly through learning tricks like “the alligator eats the bigger number.” If you notice student explanations that demonstrate a misunderstanding of the comparison vocabulary, have class discussions about what it means to say “less than” or “less than or equal to,” having students debate which signs make the most sense given specific situations. Here, they can also use a representation such as a number line to prove their solutions. Ask questions like, “If this is the inequality, would Luca be able to have 11 brownies? How do you know?” “Does this inequality make sense with the context of the story? How do you know?” “How would the context change with each that does not match?”

As students continue their work in writing inequalities to match verbal descriptions, have them write an example and non-example for each. Conversely, give similar inequalities and have students write the verbal expression or story context that would make sense for each. Ask, “How are these alike? How are they different?”