

Inside or Outside

Choose volume or surface area for each situation.

GRADE 7 • 7.MG.1.c

7.MG.1.c "Determine if a problem in context, involving a rectangular prism or right cylinder, represents the application of volume or surface area."

NAME _____

DATE _____

PICK THE MEASURE

Use volume when the question is about how much space is inside a rectangular prism or right cylinder. Use surface area when the question is about covering, painting, wrapping, or finding the outside of the solid.

WORKED EXAMPLE

A right cylindrical water bottle holds 48 cubic centimeters of water. Does this question use volume or surface area?

1. The question asks how much water fits inside.
2. Inside space is measured with volume.
3. The unit cubic centimeters also shows volume.

Answer: volume

PRACTICE 5 problems

- 1** A rectangular prism planter needs enough soil to fill it. Write volume or surface area.

ANSWER _____

- 2** A right cylindrical gift tube needs paper around its outside. Write volume or surface area.

ANSWER _____

- 3** A rectangular prism storage box needs paint on all its outer faces. Write volume or surface area.

ANSWER _____

- 4** A right cylindrical snack container is being filled with popcorn. Write volume or surface area.

ANSWER _____

- 5** A rectangular prism aquarium needs to hold water. Write volume or surface area.

ANSWER _____

APPLY IT Show your work

- 1** A student builds a rectangular prism speaker box that is 12 inches long, 8 inches wide, and 10 inches high. They want fabric to cover every outside face. Should they use volume or surface area?

WORK SPACE

ANSWER _____

- 2** A sports team orders a right cylindrical water cooler that is 9 inches across and 16 inches tall. They need to know how much water it can hold. Should they use volume or surface area?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A gaming club has a right cylindrical supply container. They want to paint its outside, then find how many game tokens can fit inside. Name the measure for each job and explain why.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	A rectangular prism planter needs enough soil to fill it. Write volume or surface area.	volume
2	A right cylindrical gift tube needs paper around its outside. Write volume or surface area.	surface area
3	A rectangular prism storage box needs paint on all its outer faces. Write volume or surface area.	surface area
4	A right cylindrical snack container is being filled with popcorn. Write volume or surface area.	volume
5	A rectangular prism aquarium needs to hold water. Write volume or surface area.	volume

PART 2 • APPLY IT

1. **surface area** Fabric covers the outside faces of the speaker box, so use surface area.
2. **volume** The question asks for the space inside the cooler, so use volume.

CHALLENGE

Painting uses surface area because paint covers the outside. Finding how many tokens fit uses volume because it measures space inside.

Accept "SA" for surface area if students clearly use it correctly. Accept explanations that connect inside space to volume or outside covering to surface area.