

Volume Builder Lab

Multiply dimensions and add separate spaces.

GRADE 5 • 5.MD.C

CCSS.Math.Content.5.MD.C "Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition."

NAME _____

DATE _____

BUILD VOLUME

Volume tells how much space is inside a rectangular prism. Multiply length x width x height to find volume in cubic units. If a solid is made of separate rectangular prisms that do not overlap, find each volume and add them.

WORKED EXAMPLE

Find the volume of a rectangular prism that is 7 units long, 8 units wide, and 5 units high.

1. Multiply the length and width: $7 \times 8 = 56$.
2. Multiply by the height: $56 \times 5 = 280$.
3. Write the volume: 280 cubic units.

Answer: 280 cubic units

PRACTICE 6 problems

- 1** Find the volume of a rectangular prism that is 2 cm long, 9 cm wide, and 10 cm high.

ANSWER _____

- 2** Find the volume of a rectangular prism that is 11 units long, 2 units wide, and 12 units high.

ANSWER _____

- 3** A rectangular prism has 9 unit cubes in each layer and 12 equal layers. What is its volume?

ANSWER _____

- 4** A rectangular prism has a volume of 220 cubic centimeters. Its length is 11 cm and its width is 2 cm. What is its height?

ANSWER _____

- 5** Two rectangular prisms are joined with no overlap. One is 2 units by 10 units by 9 units. The other is 2 units by 10 units by 12 units. What is the total volume?

ANSWER _____

- 6** Which volume matches a rectangular prism that is 12 cm by 10 cm by 2 cm?

ANSWER _____

APPLY IT Show your work

- 1** Maya makes a rectangular storage box for trading cards. The box is 12 inches long, 10 inches wide, and 2 inches high. What is the volume of the box?

WORK SPACE

ANSWER _____

- 2** A maker club fills two separate prize bins. One bin is 11 inches by 2 inches by 9 inches, and the other is 12 inches by 2 inches by 9 inches. What is the total volume of both bins?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

A rectangular prism has a volume of 396 cubic centimeters. Its length is 11 cm and its width is 9 cm. What is its height? Explain how you know.

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a rectangular prism that is 2 cm long, 9 cm wide, and 10 cm high.	180 cubic centimeters
2	Find the volume of a rectangular prism that is 11 units long, 2 units wide, and 12 units high.	264 cubic units
3	A rectangular prism has 9 unit cubes in each layer and 12 equal layers. What is its volume?	108 cubic units
4	A rectangular prism has a volume of 220 cubic centimeters. Its length is 11 cm and its width is 2 cm. What is its height?	10 cm
5	Two rectangular prisms are joined with no overlap. One is 2 units by 10 units by 9 units. The other is 2 units by 10 units by 12 units. What is the total volume?	420 cubic units
6	Which volume matches a rectangular prism that is 12 cm by 10 cm by 2 cm?	240 cubic centimeters

PART 2 • APPLY IT

- 240 cubic inches** Multiply the dimensions: $12 \times 10 \times 2 = 240$. The box has a volume of 240 cubic inches.
- 414 cubic inches** Find each volume: $11 \times 2 \times 9 = 198$ and $12 \times 2 \times 9 = 216$. Add the volumes: $198 + 216 = 414$ cubic inches.

CHALLENGE

4 cm, because $11 \times 9 = 99$ and $396 / 99 = 4$.

Accept equivalent multiplication order and correct cubic units for volume answers. For the challenge, accept a correct division or multiplication explanation that shows the height is 4 cm.