

Prism Space Mission

Find how much space fills each rectangular prism.

GRADE 5 • 5.MG.2.e

5.MG.2.e "Solve problems, including those in context, to estimate and determine the volume of a rectangular prism using concrete objects, diagrams, and formulas when the length, width, and height are given in whole number units..."

NAME _____

DATE _____

FIND THE VOLUME

Volume tells how much space is inside a rectangular prism. Multiply the length, width, and height. Write the answer in cubic units, such as cubic centimeters or cubic inches.

WORKED EXAMPLE

Find the volume of a rectangular prism that is 2 units long, 6 units wide, and 7 units high.

1. Write the rule: Volume = length $\times$ width $\times$ height.
2. Multiply the length and width: $2 \times 6 = 12$.
3. Multiply by the height: $12 \times 7 = 84$.

Answer: 84 cubic units

PRACTICE 6 problems

- 1** Find the volume of a rectangular prism that is 8 cm long, 3 cm wide, and 4 cm high.

ANSWER _____

- 2** Find the volume of a rectangular prism that is 5 inches long, 9 inches wide, and 1 inch high.

ANSWER _____

- 3** A prism has 4 layers of unit cubes. Each layer has 3 rows with 8 cubes in each row. What is the volume?

ANSWER _____

- 4** Find the volume of a rectangular prism that is 9 yards long, 5 yards wide, and 4 yards high.

ANSWER _____

- 5** A rectangular prism is 14 cm long, 11 cm wide, and 9 cm high. Round each dimension to the nearest ten to estimate the volume. Then find the exact volume.

ANSWER _____

- 6** Find the volume of a rectangular prism that is 1 foot long, 9 feet wide, and 5 feet high.

ANSWER _____

APPLY IT Show your work

- 1** A gaming club packs prizes in a rectangular box that is 8 inches long, 4 inches wide, and 5 inches high. What is the volume of the box?

WORK SPACE

ANSWER _____

- 2** A science club builds a rectangular habitat for a class project. The habitat is 9 feet long, 3 feet wide, and 8 feet high. What is its volume?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Box A is 8 inches long, 3 inches wide, and 5 inches high. Box B is 4 inches long, 9 inches wide, and 4 inches high. Which box has the greater volume, and how many more cubic inches does it hold?

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a rectangular prism that is 8 cm long, 3 cm wide, and 4 cm high.	96 cubic centimeters
2	Find the volume of a rectangular prism that is 5 inches long, 9 inches wide, and 1 inch high.	45 cubic inches
3	A prism has 4 layers of unit cubes. Each layer has 3 rows with 8 cubes in each row. What is the volume?	96 cubic units
4	Find the volume of a rectangular prism that is 9 yards long, 5 yards wide, and 4 yards high.	180 cubic yards
5	A rectangular prism is 14 cm long, 11 cm wide, and 9 cm high. Round each dimension to the nearest ten to estimate the volume. Then find the exact volume.	Estimate: 1,000 cubic centimeters; exact volume: 1,386 cubic centimeters
6	Find the volume of a rectangular prism that is 1 foot long, 9 feet wide, and 5 feet high.	45 cubic feet

PART 2 • APPLY IT

- 160 cubic inches** Multiply $8 \times 4 \times 5$ to find 160, then label the volume in cubic inches.
- 216 cubic feet** Multiply $9 \times 3 \times 8$ to find 216, then label the volume in cubic feet.

CHALLENGE

Box B has the greater volume. It holds 24 cubic inches more than Box A.

Accept correct multiplication methods and answers written with equivalent cubic-unit wording. For the estimate problem, accept 1,000 cubic centimeters when each dimension is rounded to the nearest ten.