

Space Inside

Find the volume of rectangular prisms.

GRADE 5 • 5.MG.2

5.MG.2 "The student will use multiple representations to solve problems, including those in context, involving perimeter, area, and volume. Investigate and develop a formula for determining the area of a right triangle..."

NAME _____

DATE _____

VOLUME AND CAPACITY

Volume tells how much space is inside a solid, so it can describe capacity. To find the volume of a rectangular prism, multiply its length, width, and height. Write the answer in cubic units.

WORKED EXAMPLE

Find the volume of a rectangular prism that is 7 cm long, 3 cm wide, and 2 cm high.

1. Multiply the length and width: 7 times 3 = 21.
2. Multiply that result by the height: 21 times 2 = 42.
3. Use cubic centimeters because three dimensions were multiplied.

Answer: 42 cubic centimeters

PRACTICE 6 problems

- 1** Find the volume of a rectangular prism that is 6 cm long, 4 cm wide, and 5 cm high.

ANSWER _____

- 2** Find the volume of a rectangular prism that is 8 inches long, 9 inches wide, and 1 inch high.

ANSWER _____

- 3** A prism has 6 identical layers. Each layer has 4 rows of 4 unit cubes. What is the volume?

ANSWER _____

- 4** Find the volume of a rectangular prism that is 11 feet long, 4 feet wide, and 8 feet high.

ANSWER _____

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

ANSWER _____

- 6** A container is shaped like a rectangular prism. It is 12 inches long, 10 inches wide, and 4 inches high. How much can it hold?

ANSWER _____

APPLY IT Show your work

- 1** A student is making a cardboard organizer for trading cards. The inside is 9 inches long, 4 inches wide, and 6 inches high. What volume of space is inside the organizer?

WORK SPACE

ANSWER _____

- 2** A robotics team packs supplies in a rectangular case. The inside is 10 inches long, 8 inches wide, and 5 inches high. What volume of space is inside the case?

WORK SPACE

ANSWER _____

CHALLENGE One step up

CHALLENGE

Two game-storage boxes are rectangular prisms. Box A is 9 inches long, 5 inches wide, and 4 inches high. Box B is 8 inches long, 6 inches wide, and 4 inches high. Which box holds more, and how much more does it hold?

PART 1 • PRACTICE

#	PROBLEM	ANSWER
1	Find the volume of a rectangular prism that is 6 cm long, 4 cm wide, and 5 cm high.	120 cubic centimeters
2	Find the volume of a rectangular prism that is 8 inches long, 9 inches wide, and 1 inch high.	72 cubic inches
3	A prism has 6 identical layers. Each layer has 4 rows of 4 unit cubes. What is the volume?	96 cubic units
4	Find the volume of a rectangular prism that is 11 feet long, 4 feet wide, and 8 feet high.	352 cubic feet
5	Find the volume of a rectangular prism that is 9 m long, 6 m wide, and 5 m high.	270 cubic meters
6	A container is shaped like a rectangular prism. It is 12 inches long, 10 inches wide, and 4 inches high. How much can it hold?	480 cubic inches

PART 2 • APPLY IT

1. **216 cubic inches** Multiply 9 by 4 to get 36. Then multiply 36 by 6 to get 216 cubic inches.
2. **400 cubic inches** Multiply 10 by 8 to get 80. Then multiply 80 by 5 to get 400 cubic inches.

CHALLENGE

Box B holds 12 cubic inches more.

Accept equivalent unit abbreviations, such as cubic cm, cubic in., cubic ft, and cubic m. For the unit-cube problem, accept 96 cubic units.