LESSON MAKER PRO

Cube Count Quest

Count unit cubes to measure volume.

GRADE 5 · 5.MD.C.4

CCSS.Math.Content.5.MD.C.4 "Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units."

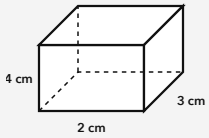
NAME _____ DATE _____

COUNT CUBES BY LAYERS

One unit cube fills 1 cubic unit of space. Count the cubes in one layer, then count the equal layers to find the total volume.

WORKED EXAMPLE

A rectangular prism is filled with 1 cm by 1 cm by 1 cm cubes. Find its volume.

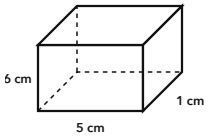


1. One layer has 2 × 3 = 6 cubes.
2. There are 4 equal layers.
3. 6 × 4 = 24 cubes.

Answer: 24 cubic cm

PRACTICE 4 problems

1 This prism is filled with 1 cubic cm cubes. What is its volume?



ANSWER _____

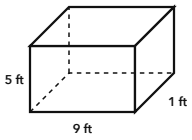
2 A box has 8 layers of unit cubes. Each layer has 5 cubes. Each cube is 1 cubic inch. What is the volume?

ANSWER _____

3 A sculpture has 7 rows with 6 snap cubes in each row. It is 1 cube high. Each snap cube is 1 cubic block-unit. What is the volume?

ANSWER _____

4 This prism is filled with 1 cubic foot cubes. What is its volume?



ANSWER _____

APPLY IT Show your work

1 At robotics club, Maya builds a rectangular stand from 1 cubic cm cubes. It has 8 cubes in each row, 6 rows in each layer, and 5 layers. What is the volume?

WORK SPACE

ANSWER _____

2 An online game display uses a rectangular treasure chest made of 1 cubic inch blocks. Its base has 7 rows of 9 blocks, and it is 5 blocks high. What is the volume?

WORK SPACE

ANSWER _____

CHALLENGE One step up

A cube tower is built from 1 cubic foot cubes. It has 9 layers. Each layer has 8 rows of 7 cubes. What is the volume? Explain how you counted.

WORK SPACE AND ANSWER

ANSWER KEY

Cube Count Quest

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PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	This prism is filled with 1 cubic cm cubes. What is its volume?	**30 cubic cm**
2	A box has 8 layers of unit cubes. Each layer has 5 cubes. Each cube is 1 cubic inch. What is the volume?	**40 cubic in**
3	A sculpture has 7 rows with 6 snap cubes in each row. It is 1 cube high. Each snap cube is 1 cubic block-unit. What is the volume?	**42 cubic block-units**
4	This prism is filled with 1 cubic foot cubes. What is its volume?	**45 cubic ft**

PART 2 · APPLY IT

1. **240 cubic cm** Count one layer: 8 × 6 = 48 cubes. Then count 5 layers: 48 × 5 = 240 cubes.
2. **315 cubic in** The base has 7 × 9 = 63 blocks. Count 5 equal layers: 63 × 5 = 315 blocks.

CHALLENGE

504 cubic ft; 8 × 7 = 56 cubes per layer, and 56 × 9 = 504 cubes.

Accept equivalent unit wording, such as cm^3, in^3, or ft^3. For the challenge, accept a correct layer-by-layer explanation that shows 504 cubes.