Volume with Unit Cubes Worksheet

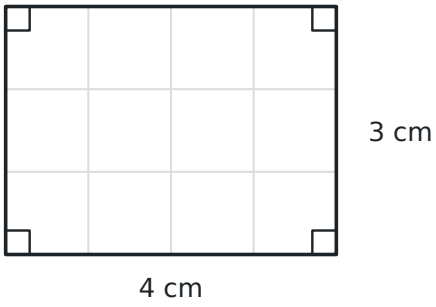
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> Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.

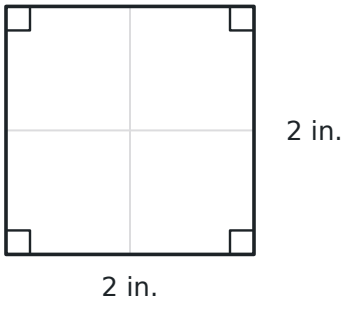
Practice

Builds the skill step by step.

1. The figure shows one layer of 1-cm cubes. What is the volume of this layer?



2. The figure shows the bottom layer of a stack of 1-inch cubes. The stack has 3 layers. What is its volume?



3. Which unit is best for the volume of a classroom?

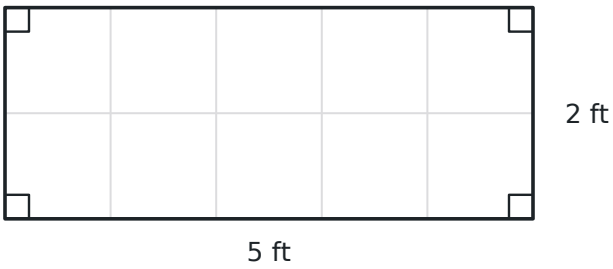
   A. cubic centimeters

   B. feet

   C. cubic feet

   D. square feet

4. The figure shows the bottom layer of a stack of 1-foot cubes. The stack has 2 layers. What is its volume?



5. Ella fills a box with 18 cubes that are each 1 cubic centimeter. What is the box's volume?

6. Which unit is best for the volume of a sugar cube?

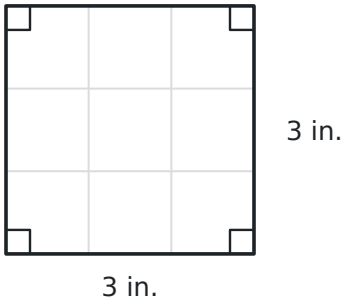
   A. square centimeters

   B. cubic centimeters

   C. cubic yards

   D. cubic feet

7. The figure shows the bottom layer of a stack of 1-inch cubes. The stack has 2 layers. What is its volume?



8. A box holds one layer of 1-inch cubes: 6 rows of 4 cubes. What is its volume?

9. What is a cubic inch?

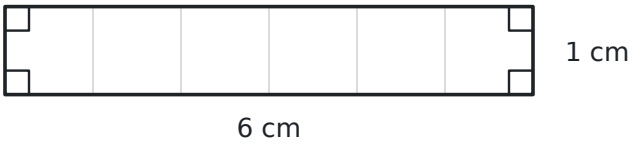
   A. the volume of a cube 1 inch on each side

   B. a square 1 inch on each side

   C. a line 1 inch long

   D. 1 inch of water

10. The figure shows the bottom layer of a stack of 1-cm cubes. The stack has 4 layers. What is its volume?



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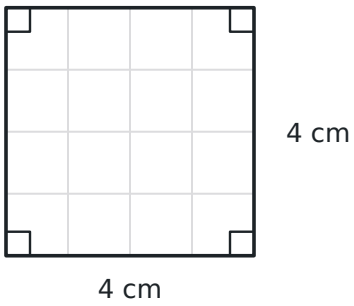
On Level

Grade-level practice.

1. Mo measures a box with toy blocks. 8 blocks fit in each layer, and there are 3 layers. What is the volume in blocks?

2. Mo measures the same box (24 small blocks) with big blocks. Each big block takes the space of 8 small blocks. How many big blocks fit?

3. The figure shows the bottom layer of a stack of 1-cm cubes. The stack has 4 layers. What is its volume?



4. The floor of a crate fits 3 rows of 5 boxes that are each 1 cubic foot. The crate is 2 boxes high. What is its volume?

5. Sam writes that a box's volume is "24." What is missing?

   A. nothing

   B. a plus sign

   C. a decimal point

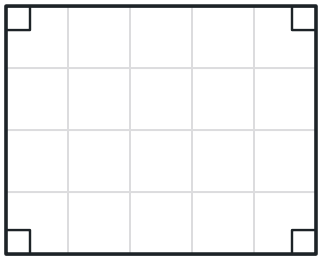
   D. the unit, such as cubic inches

6. How many 1-inch cubes fit in a box 6 inches long, 3 inches wide and 2 inches tall?

7. A toy box is 3 feet long, 2 feet wide and 2 feet tall. How many 1-foot cubes fill it?

8. Ana packs a box 4 cm by 4 cm by 4 cm with cubes that are 2 cm on each edge. How many cubes fit?

9. The figure shows the bottom layer of a box packed with 1-inch cubes. The box's volume is 60 cubic inches. How many layers are there?



10. Two students measure the same box. One counts 48 small cubes and the other counts 6 big cubes. Explain how both can be right.

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Challenge

Multi-step and word problems that stretch it.

1. A box is 10 cm long, 10 cm wide and 10 cm tall. How many 1-cm cubes fill it?

2. A cubic foot is a cube 12 inches on each edge. How many 1-inch cubes fill it?

3. A box is 2 feet long, 1 foot wide and 1 foot tall. How many 1-inch cubes fill it?

4. A box has a bottom layer of 6 by 4 one-centimeter cubes and is 5 layers tall. It already holds 2 full layers. How many more cubes fill it?

5. Box A is 3 in. by 3 in. by 3 in. Box B is 2 in. by 4 in. by 3 in. How many more 1-inch cubes fit in the larger box?

6. Which is the greatest volume? (1 cubic foot = 1,728 cubic inches.)

   A. 1,000 cubic inches

   B. 1 cubic inch

   C. 100 cubic inches

   D. 1 cubic foot

7. A box holds 48 unit cubes in 3 equal layers. How many cubes are in each layer?

8. A drawer is 12 in. long, 10 in. wide and 3 in. tall. How many cubes that are 2 inches on each edge fit inside?

9. A shoebox holds 40 dice in each layer and 3 layers of dice. What is its volume in dice?

10. A box has a bottom layer of 4 by 3 one-centimeter cubes. Its volume is 60 cubic centimeters. How many layers tall is it?