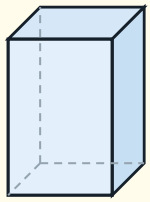
Lesson 58

Volume — counting unit cubes in a cuboid

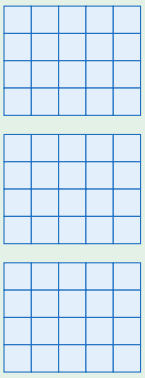
COUNTING CUBES IN A CUBOID

1. The bottom layer is **2** cubes wide and **2** cubes deep, so it holds **2 × 2 = 4** cubes.
2. The cuboid is **3** cubes high, so there are **3** equal layers.
3. Multiply: **4 × 3 = 12**.



WARM-UP

Look at the cuboid of unit cubes drawn on the page. Use it to answer the tasks.



1. Count the cubes along the width of 5, the depth of 4 and the height of 3 on the drawn cuboid.
2. Find how many unit cubes sit in the bottom layer that is 5 wide by 4 deep.
3. Work out the total volume of the cuboid that is 5 cubes wide, 4 cubes deep and 3 cubes high.

PRACTICE

1. Sam builds a wall of cubes that is **7** cubes wide and **3** cubes high in one layer. How many unit cubes does it hold?
2. A model tower is **2** cubes wide and **2** cubes deep, stacked **3** layers high. How many unit cubes fill it?
3. A crate is built **5** cubes wide, **3** cubes deep and **4** cubes high. How many unit cubes does it take to fill it?

SPOT THE MISTAKE

Sean counts the unit cubes in a cuboid that is 4 cubes long, 3 cubes wide and 2 cubes high like this:

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4 × 3 = 12
Volume = 12 cubes
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Sean is wrong. What did he forget? What is the correct volume?

REFLECT How is counting cubes for volume different from counting squares for area?

MEASURES