MATH

Volume with unit cubes

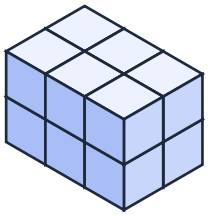


Name _____ Date _____

🎯 **I can find volume by counting unit cubes.**

1 How it works 💡

Volume is how much space a solid shape takes up. We measure it by counting unit cubes, cubes that are 1 unit long, wide and tall. Count the cubes in the bottom layer, then multiply by the number of layers. A box 3 cubes long, 2 wide and 2 tall holds 6 cubes in each layer, so 6 × 2 = 12 cubic units.

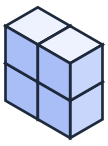


3 × 2 × 2
= 12 cubes

2 Count the unit cubes ✏️

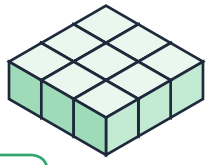
Count the hidden cubes too.

1.



_____ cubic units

2.



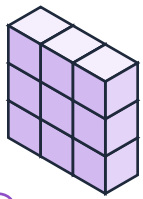
_____ cubic units

3.



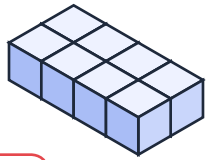
_____ cubic units

4.



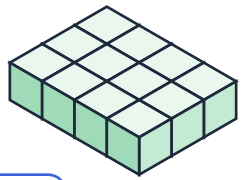
_____ cubic units

5.



_____ cubic units

6.



_____ cubic units

How did I do? ☆ ☆ ☆

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MATH · VOLUME WITH UNIT CUBES

Layers of cubes

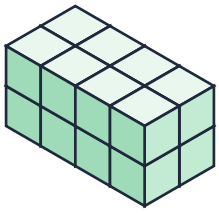
Name _____ Date _____

I can find volume by counting layers.

1 Find the cubes in one layer, then the volume

cubes in a layer × layers

1.

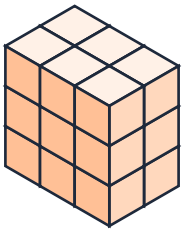


One layer: ☐ cubes

Layers: ☐

Volume: ☐ cubic units

2.

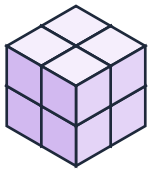


One layer: ☐ cubes

Layers: ☐

Volume: ☐ cubic units

3.

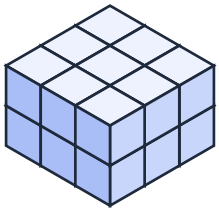


One layer: ☐ cubes

Layers: ☐

Volume: ☐ cubic units

4.

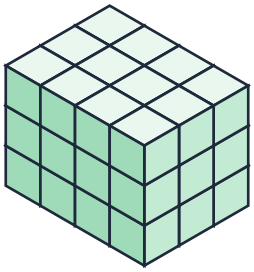


One layer: ☐ cubes

Layers: ☐

Volume: ☐ cubic units

5.

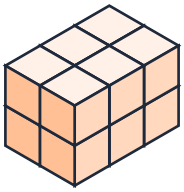


One layer: ☐ cubes

Layers: ☐

Volume: ☐ cubic units

6.



One layer: ☐ cubes

Layers: ☐

Volume: ☐ cubic units

How did I do? ☆ ☆ ☆

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MATH · VOLUME WITH UNIT CUBES

Compare and build

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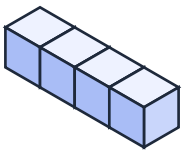
I can compare volumes.

1 Which box has the greater volume? Circle it.

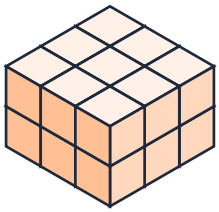
Count, then compare.

1.

A

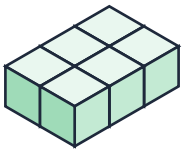


B

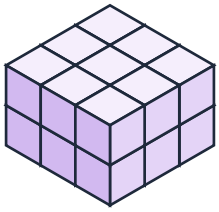


2.

A



B



3 Think about it

1. A box holds 2 layers of 6 cubes. What is its volume?
2. Can two different boxes have the same volume? Give an example.
3. How many 1-cm cubes fill a 3 cm × 3 cm × 3 cm box?
4. Why do we say "cubic units"?

How did I do?

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MATH · VOLUME WITH UNIT CUBES

Word problems

Name _____ Date _____

I can use geometry to solve problems.

1 Read, think, answer

Draw a picture in the box.

1 Sam fills a box with 1 cm cubes. The bottom layer has 4 rows of 3 cubes. There are 2 layers. How many cubes fit?

Answer: _____

2 A gift box holds 3 layers of 6 cubes each. What is its volume in cubic units?

Answer: _____

3 Sara builds a tower 1 cube long, 1 cube wide and 7 cubes tall. What is its volume?

Answer: _____

4 A box is 2 cubes long, 2 cubes wide and 2 cubes tall. If you double the height, what is the new volume?

Answer: _____

How did I do? ☆ ☆ ☆

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FOR TEACHERS AND PARENTS

Answer key: volume with unit cubes

1 Page 1

Cubes: 1) 4; 2) 9; 3) 6; 4) 9; 5) 8; 6) 12.

2 Page 2

Layers: 1) 8 in a layer, 2 layers, 16 cubic units; 2) 6 in a layer, 3 layers, 18 cubic units; 3) 4 in a layer, 2 layers, 8 cubic units; 4) 9 in a layer, 2 layers, 18 cubic units; 5) 12 in a layer, 3 layers, 36 cubic units; 6) 6 in a layer, 2 layers, 12 cubic units.

3 Page 3

Greater volume: 1) B (A = 4, B = 18); 2) B (A = 6, B = 18).

Think: 1) 12 cubic units; 2) Yes: 2 × 3 × 2 and 4 × 3 × 1 both make 12; 3) 27; 4) Volume counts cubes that are 1 unit on every side.

4 Page 4: word problems

1) 4 × 3 × 2 = 24 cubes (24 cm^3)
2) 3 × 6 = 18 cubic units
3) 7 cubic units
4) 2 × 2 × 4 = 16 cubic units (it doubles from 8)

5 Teaching tip 💡

Pictures hide some cubes. Build the first few boxes with real cubes and take them apart layer by layer, so children trust the count of the cubes they cannot see.

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