MATH

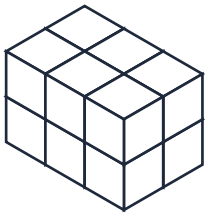
Volume with unit cubes

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? ☆ ☆ ☆

Scan for more free practice

Layers of cubes

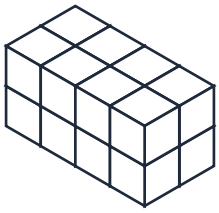
Name _____ **Date** _____

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.



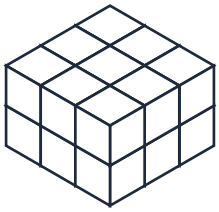
One layer: ☐ cubes
Layers: ☐
Volume: ☐ cubic units

3.



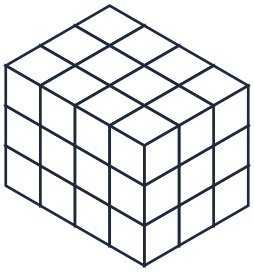
One layer: ☐ cubes
Layers: ☐
Volume: ☐ cubic units

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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Compare and build

Name _____ Date _____

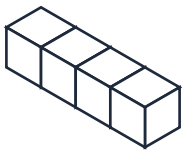
I can compare volumes.

1 Which box has the greater volume? Circle it.

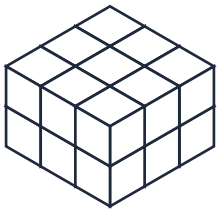
Count, then compare.

1.

A



B

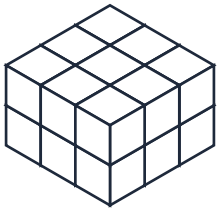


2.

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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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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