

11+ Maths Practice Paper

Year 4 · Foundation

Lesson 6.4: Surface area and volume

Read this with your child:

1. This paper has **20 questions** in two parts. Work through them in order. The questions get harder as you go.
2. **Part 1** is multiple choice. Choose **one** answer, A, B, C, D or E, and mark it on the separate answer sheet by drawing a firm line through the box next to its letter. If you change your mind, rub the line out completely and mark your new answer.
3. **Part 2** asks you to write your answer. Write it in the boxes on the answer sheet, **one digit in each box**, starting from the left.
4. If a question is hard, leave it and come back to it at the end.
5. You may use rough paper for working out. You may **not** use a calculator.
6. Suggested time: **25 minutes**.

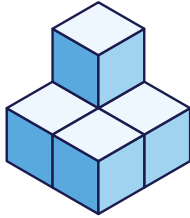
The answer sheet is after the questions. The answers, with a short explanation of each, are at the back for a parent to mark with.

These are original practice questions written by Elite Learners in the style of 11+ entrance tests. They are not produced by, or connected with, GL Assessment or Cambridge University Press & Assessment (CEM).

Example

The cubes stand on a table. Cubes cannot float, so there may be cubes hidden underneath.

How many cubes make this shape?



A 5

B 4

C 6

D 3

E 7

Answer: A The bottom layer has 4 cubes, one of them hidden under the top cube. The top layer has 1 cube. $4 + 1 = 5$.

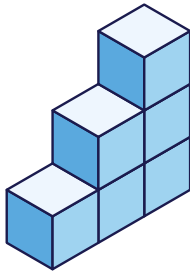
The answer, A, has already been marked on your answer sheet.

Now turn over and start Part 1.

Part 1: Multiple choice

1

How many cubes make this staircase?



A 5

B 3

C 6

D 7

E 4

2

Which of these is a unit of volume?

A cm^2

B cm

C kg

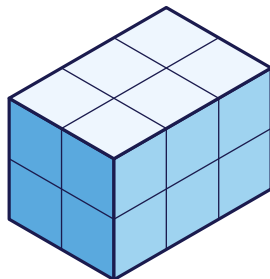
D km

E cm^3

3

This cuboid is made of 1 cm cubes.

What is its volume?



A 6 cm^3

B 12 cm^3

C 7 cm^3

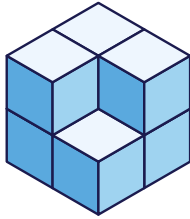
D 32 cm^3

E 10 cm^3

4

The cubes stand on a table. Cubes cannot float, so there may be cubes hidden underneath.

How many cubes make this shape?



- A 6 B 8 C 5 D 4 E 7

5

A cuboid is made of 2 layers of cubes. Each layer has 10 cubes.

How many cubes make the cuboid?

- A 12 B 10 C 30 D 20 E 22

6

A cube has edges 2 cm long.

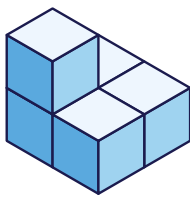
What is its volume?

- A 8 cm^3 B 6 cm^3 C 4 cm^3 D 24 cm^3 E 12 cm^3

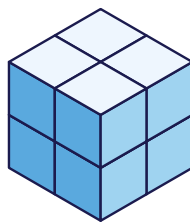
7

The cubes stand on a table. Cubes cannot float, so there may be cubes hidden underneath.

How many more cubes does Shape B have than Shape A?



Shape A



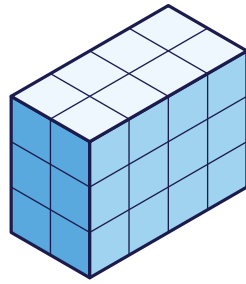
Shape B

- A 2 B 8 C 3 D 5 E 4

8

This cuboid is made of 1 cm cubes.

What is its volume?



A 8 cm³

B 9 cm³

C 12 cm³

D 24 cm³

E 52 cm³

9

A cuboid is 5 cm long, 2 cm wide and 1 cm high.

What is its volume?

A 10 cm³

B 8 cm³

C 7 cm³

D 34 cm³

E 15 cm³

10

A cube has edges 1 cm long. Each face is a square of 1 cm².

What is its surface area?

A 1 cm²

B 4 cm²

C 12 cm²

D 6 cm²

E 8 cm²

11

How many faces does a cuboid have?

A 4

B 6

C 5

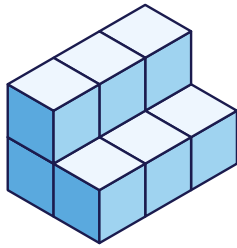
D 8

E 12

12

The cubes stand on a table. Cubes cannot float, so there may be cubes hidden underneath.

How many cubes make this shape?



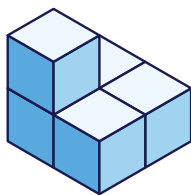
- A 7 B 6 C 8 D 12 E 9

13

The cubes stand on a table. Cubes cannot float, so there may be cubes hidden underneath.

More cubes are added to make this shape into a cube 2 cubes long, 2 cubes wide and 2 cubes high.

How many more cubes are needed?

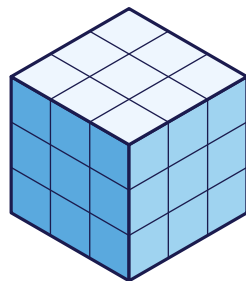


- A 3 B 5 C 8 D 2 E 4

14

This cube is made of 1 cm cubes.

What is its volume?



- A 9 cm^3 B 27 cm^3 C 18 cm^3 D 54 cm^3 E 26 cm^3

15

Which of these cuboids has a volume of 12 cm^3 ?

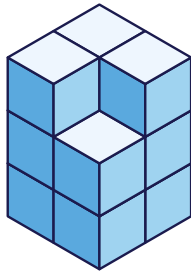
- A 2 cm long, 3 cm wide and 4 cm high
- B 3 cm long, 3 cm wide and 3 cm high
- C 2 cm long, 2 cm wide and 3 cm high
- D 6 cm long, 2 cm wide and 4 cm high
- E 5 cm long, 2 cm wide and 1 cm high

Part 2: Write your answer

16

The cubes stand on a table. Cubes cannot float, so there may be cubes hidden underneath.

How many cubes make this shape?

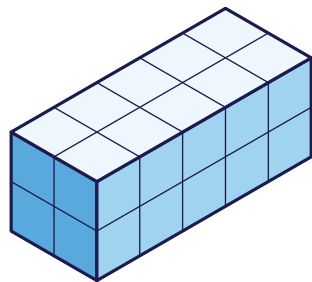


Write your answer in the boxes on the answer sheet, one digit in each box.

17

This cuboid is made of 1 cm cubes.

What is its volume, in cm^3 ?



Write your answer in the boxes on the answer sheet, one digit in each box.

18

A tower is built from 1 cm cubes. It has 4 layers, and each layer has 6 cubes.

What is the volume of the tower, in cm^3 ?

Write your answer in the boxes on the answer sheet, one digit in each box.

19

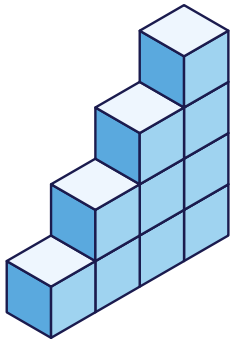
A cube has edges 3 cm long.

What is its volume, in cm^3 ?

Write your answer in the boxes on the answer sheet, one digit in each box.

20

How many cubes make this staircase?



Write your answer in the boxes on the answer sheet, one digit in each box.

Answer sheet

11+ Maths Practice Paper · Year 4 · Lesson 6.4: Surface area and volume

Name

Draw a firm line through the box next to your answer, like the example.

Part 1: Multiple choice

Ex	A ☒	B ☐	C ☐	D ☐	E ☐
1	A ☐	B ☐	C ☐	D ☐	E ☐
2	A ☐	B ☐	C ☐	D ☐	E ☐
3	A ☐	B ☐	C ☐	D ☐	E ☐
4	A ☐	B ☐	C ☐	D ☐	E ☐
5	A ☐	B ☐	C ☐	D ☐	E ☐
6	A ☐	B ☐	C ☐	D ☐	E ☐
7	A ☐	B ☐	C ☐	D ☐	E ☐
8	A ☐	B ☐	C ☐	D ☐	E ☐
9	A ☐	B ☐	C ☐	D ☐	E ☐
10	A ☐	B ☐	C ☐	D ☐	E ☐
11	A ☐	B ☐	C ☐	D ☐	E ☐
12	A ☐	B ☐	C ☐	D ☐	E ☐
13	A ☐	B ☐	C ☐	D ☐	E ☐
14	A ☐	B ☐	C ☐	D ☐	E ☐
15	A ☐	B ☐	C ☐	D ☐	E ☐

Part 2: Write your answer, one digit in each box

16		
17		
18		
19		
20		

Answers

For a parent to mark with. One mark for each question: the paper is out of 20. Talk through any your child got wrong, using the explanation.

Q	Answer	How to get it
1	C 6	Count each column: $1 + 2 + 3 = 6$ cubes.
2	E cm^3	Volume is measured in cubes, so its units are cubed: cm^3 (cubic centimetres). cm^2 is for an area, cm and km for a length, and kg for a mass.
3	B 12 cm^3	One layer is $3 \times 2 = 6$ cubes, and there are 2 layers: $6 \times 2 = 12 \text{ cm}^3$.
4	E 7	The bottom layer has 4 cubes (one at the back is hidden). The top layer has 3 cubes. $4 + 3 = 7$.
5	D 20	2 layers of 10 cubes: $10 \times 2 = 20$.
6	A 8 cm^3	$2 \times 2 \times 2 = 8 \text{ cm}^3$.
7	C 3	Shape A has $4 + 1 = 5$ cubes. Shape B has $4 + 4 = 8$ cubes. $8 - 5 = 3$ more.
8	D 24 cm^3	One layer is $4 \times 2 = 8$ cubes, and there are 3 layers: $8 \times 3 = 24 \text{ cm}^3$.
9	A 10 cm^3	$5 \times 2 \times 1 = 10 \text{ cm}^3$.
10	D 6 cm^2	A cube has 6 faces, each 1 cm^2 : $6 \times 1 = 6 \text{ cm}^2$.
11	B 6	The top and the bottom, the front and the back, and the two ends: 6 faces.
12	E 9	The bottom layer has 6 cubes. The top layer has 3 cubes, along the back. $6 + 3 = 9$. Two of them are hidden.
13	A 3	The big cube needs $2 \times 2 \times 2 = 8$ cubes. The shape has $4 + 1 = 5$. $8 - 5 = 3$ more.
14	B 27 cm^3	One layer is $3 \times 3 = 9$ cubes, and there are 3 layers: $9 \times 3 = 27 \text{ cm}^3$.
15	C 2 cm long, 2 cm wide and 3 cm high	$2 \times 2 \times 3 = 12 \text{ cm}^3$. The others are 24, 27, 48 and 10 cm^3 .
16	11	Bottom layer: 4 cubes. Middle layer: 4 cubes. Top layer: the 3 columns that are 3 high. $4 + 4 + 3 = 11$.
17	20	One layer is $5 \times 2 = 10$ cubes, and there are 2 layers: $10 \times 2 = 20 \text{ cm}^3$.
18	24	4 layers of 6: $6 \times 4 = 24 \text{ cm}^3$.
19	27	$3 \times 3 \times 3 = 27 \text{ cm}^3$.
20	10	Count each column: $1 + 2 + 3 + 4 = 10$ cubes.

Score: out of 20