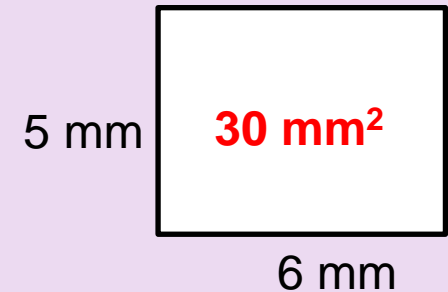
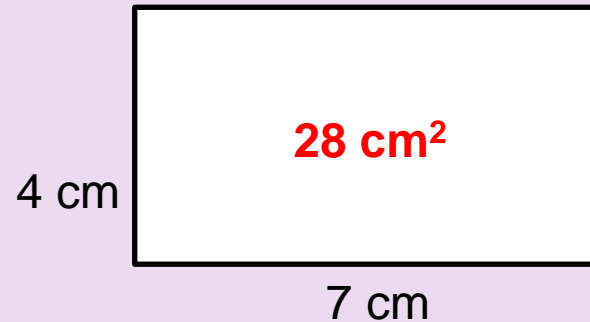
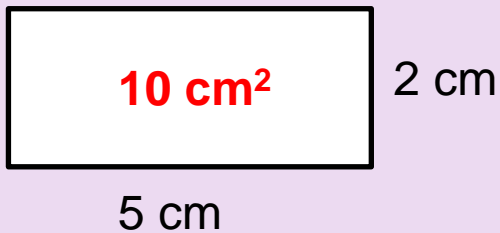
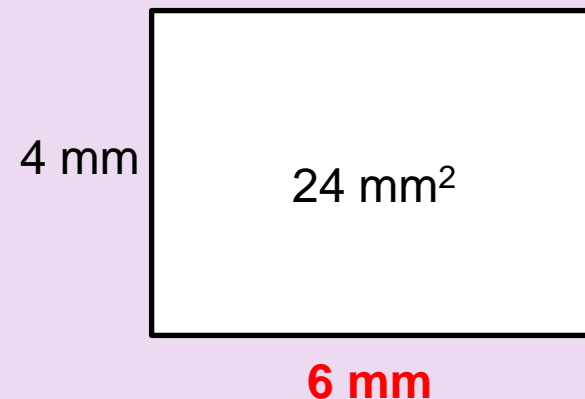
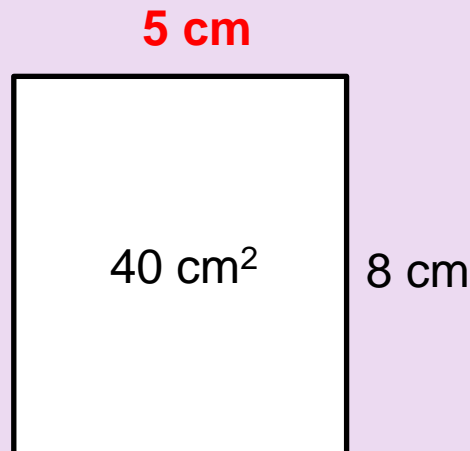
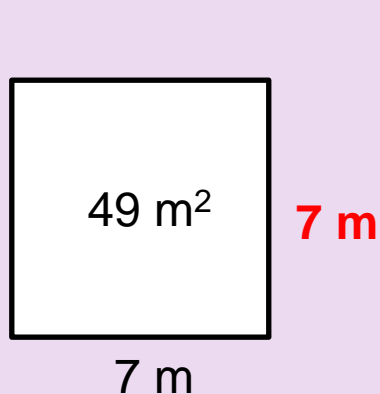


### Starter

Calculate the areas of the following rectangles.



Calculate the missing side lengths.



Lesson  
Objectives:

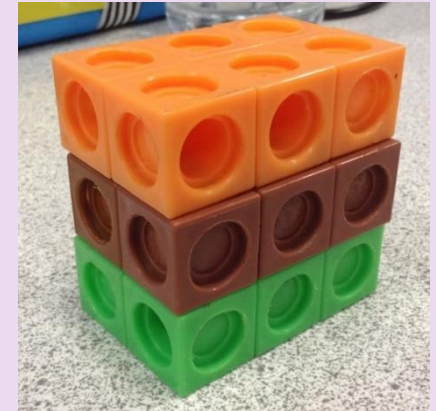
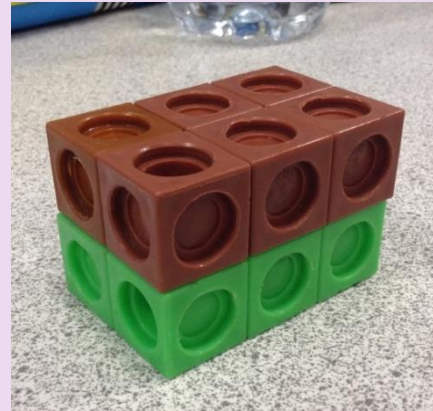
Developing students will be able to calculate area of rectangles.

Secure students will be able to calculate the surface area of cubes and cuboids.

Excelling students will be able to calculate the surface area of compound shapes made up of cuboids.

**Think – Pair – Share**

What's the same and what's different??



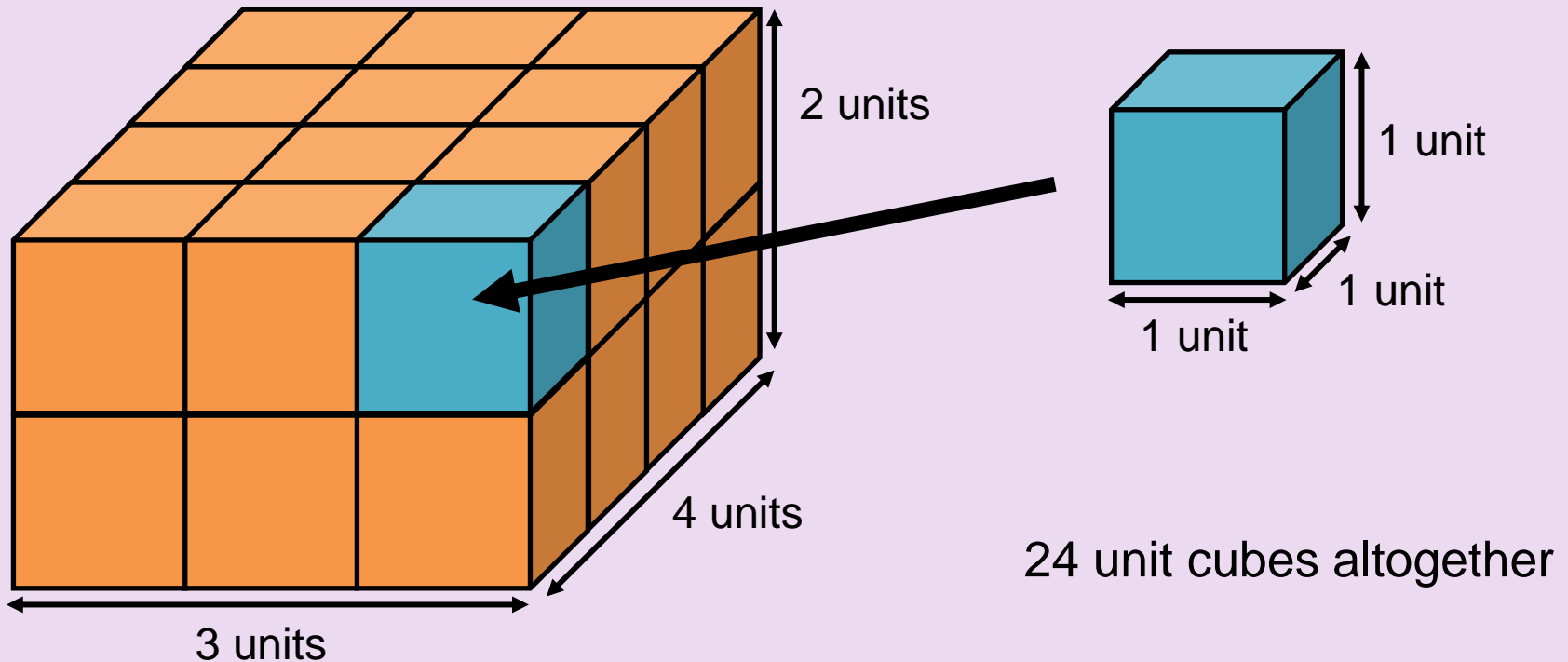
**Keywords**

Surface area, height, width, length, depth, total, cube, cuboid

The volume of a solid is the amount of space occupied by the solid.

The greater the volume of a solid the more space it takes up.

The volume of a solid is the number of unit cubes that the solid can be divided into.



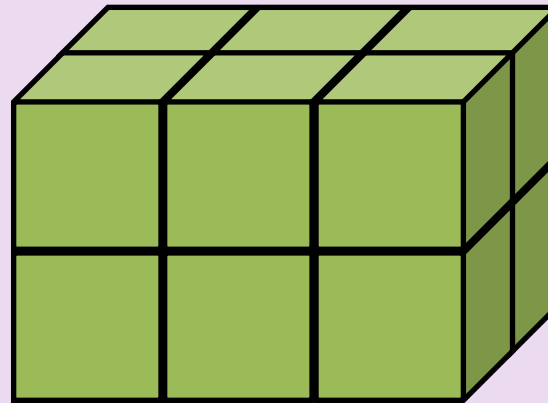
Lesson  
Objectives:

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This cuboid is made up of centimetre cubes ( $\text{cm}^3$ ). What is its volume?



$12 \text{ cm}^3$

Keywords

Surface area, height, width, length, depth, total, cube, cuboid

Lesson  
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What is the volume of this cuboid?



$100 \text{ cm}^3$

Keywords

Surface area, height, width, length, depth, total, cube, cuboid

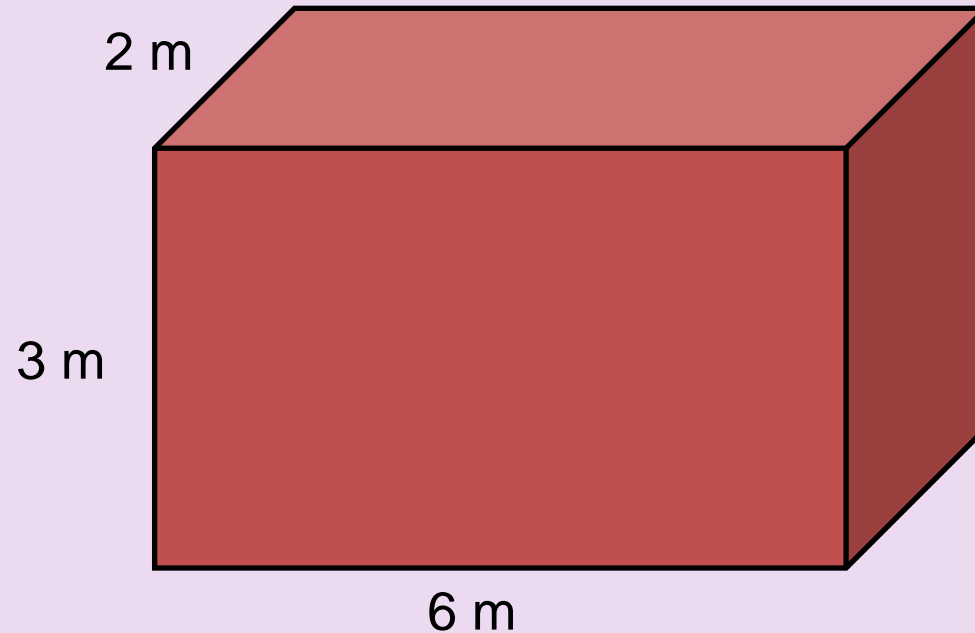
Lesson  
Objectives:

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Excelling students will be able to calculate the surface area of compound shapes made up of cuboids.

What is the volume of this cuboid?



$36 \text{ m}^3$

Keywords

Surface area, height, width, length, depth, total, cube, cuboid



## Volume and Surface Area of Cubes and Cuboids

Friday, 27 November 2020

### Lesson Objectives:

Developing students will be able to calculate area of rectangles.

Secure students will be able to calculate the surface area of cubes and cuboids.

Excelling students will be able to calculate the surface area of compound shapes made up of cuboids.

How **confident** do you feel with this topic?

Write **red**, **amber** or **green** in your book!

**Complete the corresponding activity** 😊

### Keywords

Surface area, height, width, length, depth, total, cube, cuboid



## Volume and Surface Area of Cubes and Cuboids

Friday, 27 November 2020

### Answers

#### Question 1

a)  $84 \text{ cm}^3$

b)  $60 \text{ mm}^3$

c)  $54 \text{ cm}^3$

#### Question 2

a) 4 cm

b) 3 cm

c) 7 m

#### Question 3

231 seconds, or 3 minutes and 51 seconds

#### Question 4

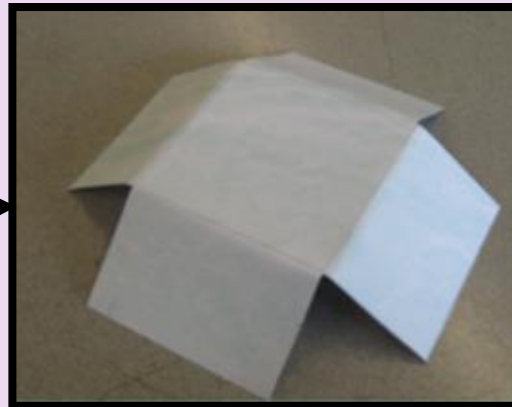
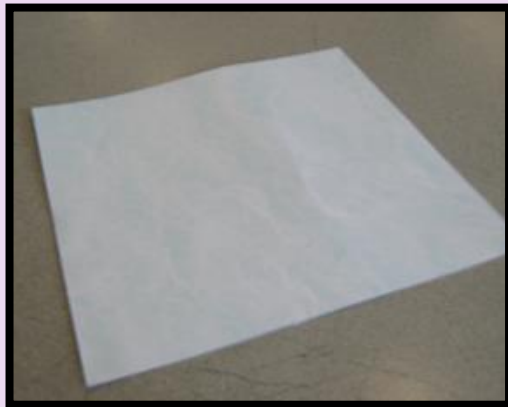
150 boxes



### Pair Activity

Chris is having a birthday party! He wants to make boxes of sweets to give to his guests.

He starts with a square piece of paper that measures  $20\text{ cm} \times 20\text{ cm}$ . How big should the squares be that he cuts out of the corners to **maximise** the volume of the box?





## Volume and Surface Area of Cubes and Cuboids

Friday, 27 November 2020

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Secure students will be able to calculate the surface area of cubes and cuboids.

Excelling students will be able to calculate the surface area of compound shapes made up of cuboids.

### Pair Activity

Record your results in the table provided.

Don't forget your units of measurements!

width	length	height	volume

### Keywords

Surface area, height, width, length, depth, total, cube, cuboid



## Volume and Surface Area of Cubes and Cuboids

Friday, 27 November 2020

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### Extension questions

1. What if the square you cut out doesn't have to use **whole number measurements** (e.g. 2.4 cm)? Would this change your answer?
2. What if you started from a **10 cm × 20 cm** rectangle instead? What would the **biggest volume** be?

### Keywords

Surface area, height, width, length, depth, total, cube, cuboid

Lesson  
Objectives:

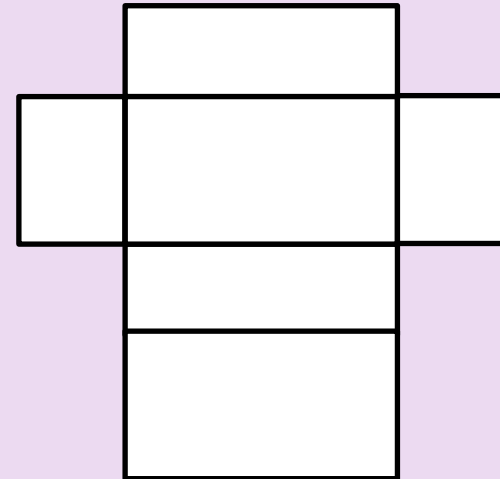
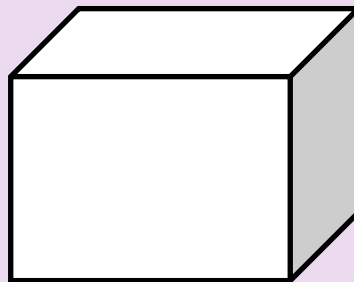
Developing students will be able to calculate area of rectangles.

Secure students will be able to calculate the surface area of cubes and cuboids.

Excelling students will be able to calculate the surface area of compound shapes made up of cuboids.

The surface area of a shape is the total area of all of its faces.

To calculate the total surface area, work out the areas of every face and add them together.



Keywords

Surface area, height, width, length, depth, total, cube, cuboid

Lesson  
Objectives:

Developing students will be able to calculate area of rectangles.

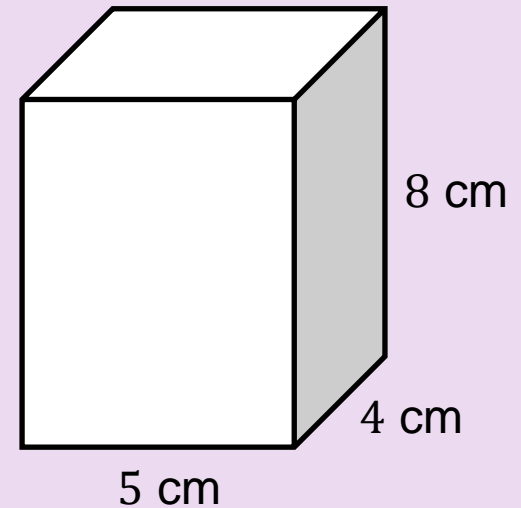
Secure students will be able to calculate the surface area of cubes and cuboids.

Excelling students will be able to calculate the surface area of compound shapes made up of cuboids.

Example

Calculate the surface area of the cuboid.

$$\begin{array}{r}
 \text{Front: } 5 \times 8 = 40 \text{ cm}^2 \\
 \text{Back: } 5 \times 8 = 40 \text{ cm}^2 \\
 \text{Left: } 4 \times 8 = 32 \text{ cm}^2 \\
 \text{Right: } 4 \times 8 = 32 \text{ cm}^2 \\
 \text{Top: } 5 \times 4 = 20 \text{ cm}^2 \\
 \text{Bottom: } 5 \times 4 = 20 \text{ cm}^2 \quad + \\
 \hline
 \text{Total: } \qquad \qquad 184 \text{ cm}^2
 \end{array}$$



Keywords

Surface area, height, width, length, depth, total, cube, cuboid



## Volume and Surface Area of Cubes and Cuboids

Friday, 27 November 2020

### Lesson Objectives:

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How **confident** do you feel with this topic?

Write **red**, **amber** or **green** in your book!

**Complete the corresponding activity 😊**

### Extension question

A cuboid has a volume of  $125 \text{ cm}^3$  and a total surface area of  $160 \text{ cm}^2$ . Is it possible that this cuboid is a cube? Give a reason for your answer.

### Keywords

Surface area, height, width, length, depth, total, cube, cuboid



## Volume and Surface Area of Cubes and Cuboids

Friday, 27 November 2020

### Answers

#### Question 1

a) 122 cm<sup>2</sup>

b) 94 mm<sup>2</sup>

c) 90 cm<sup>2</sup>

#### Question 2

5 tubes of paint

#### Question 3

188 cm<sup>2</sup>

#### Question 4

384 cm<sup>2</sup>



## Volume and Surface Area of Cubes and Cuboids

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## Plenary

2 stars (★) and a wish (🕯)

★ I am brilliant at...

★ I am good at...

🕯 Something I need to work on is...

### Keywords

Surface area, height, width, length, depth, total, cube, cuboid