


## Group B – Maths

W/b 08.02.21

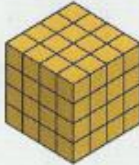
### TUESDAY – Can I calculate the volume of cuboids?

**Challenge 1** 1 Each cube is made with  $1\text{ cm}^3$  cubes. Calculate the volume of these cubes using the rule  $V = lbh$ .

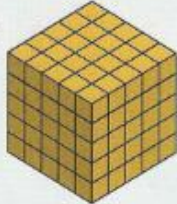
**A**




**B**



**C**



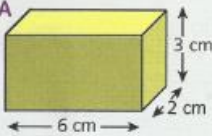
**Example**



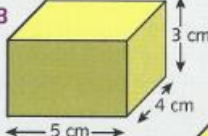
$V = lbh$   
 $= 2 \times 2 \times 2$   
 $= 8\text{ cm}^3$

2 The arrows show the length, breadth and height of each cuboid. Calculate the volume of these cuboids using the rule  $V = lbh$ .

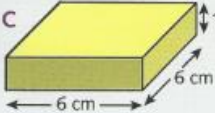
**A**



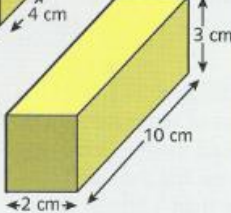
**B**



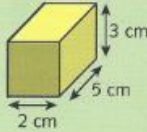
**C**



**D**

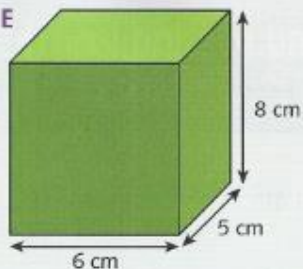


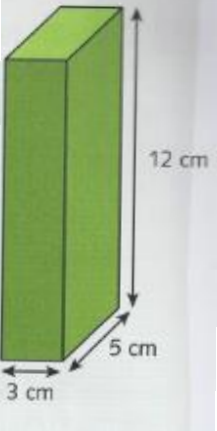
**Example**



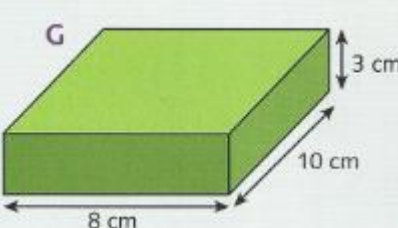
$V = lbh$   
 $= 5 \times 2 \times 3$   
 $= 30\text{ cm}^3$

**E**


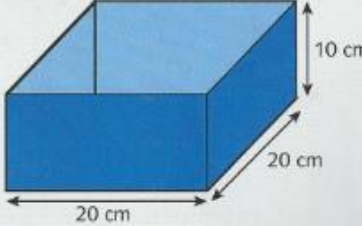




**G**



**Challenge 3** 1 A normal 1–6 dot dice has edges of 2 cm. Work out how many dice will fit into this box.

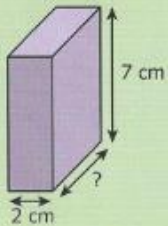
2 A cube has edges of 4 cm. Draw a diagram of a cuboid that will hold 100 of these cubes. Label the dimensions to show its length, breadth and height.

# WEDNESDAY – Can I solve problems involving volume?

Challenge  
2

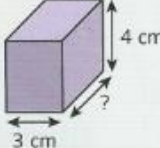
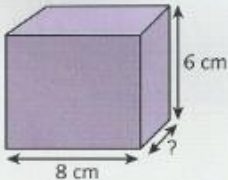
1 The volume is shown for each cuboid below. Calculate the missing length for each cuboid.

**Example**

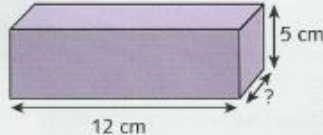
$$\begin{aligned} \text{Length} &= V \div (bh) \\ &= 70 \div (7 \times 2) \\ &= 70 \div 14 \\ &= 5 \text{ cm} \end{aligned}$$


Volume = 70 cm<sup>3</sup>

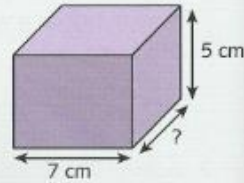
**A** Volume = 72 cm<sup>3</sup>

**B** Volume = 144 cm<sup>3</sup>



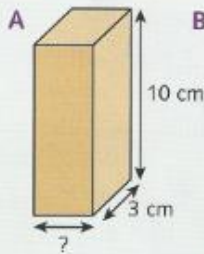
**C** Volume = 180 cm<sup>3</sup>



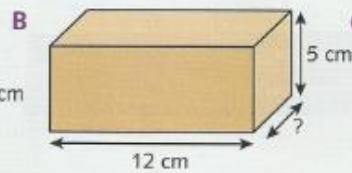
**D** Volume = 245 cm<sup>3</sup>

2 Each cuboid below has a volume of 120 cm<sup>3</sup>. Find the missing dimension for each cuboid.

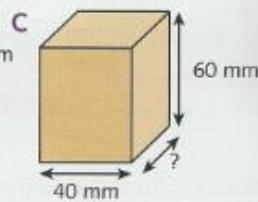
**A**



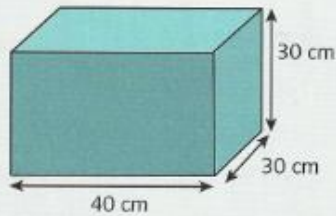
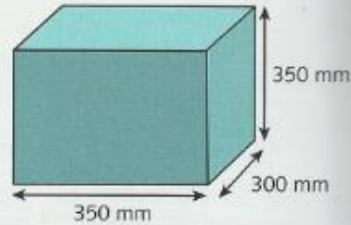
**B**



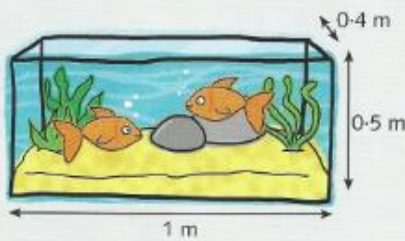
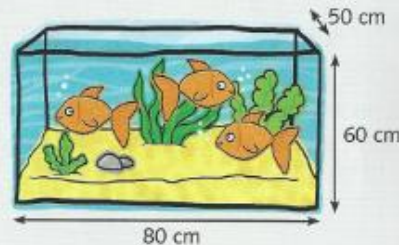
**C**



3 Find the difference in volume between these cuboids.

4 Find the difference in volume between these fish tanks.

## Challenge 1

Challenge  
3

Read each puzzle then find the values for the missing measurements for each shape described.

a My height is 5 m. My volume is  $165 \text{ m}^3$ . What is my length and breadth if they are prime numbers?

b My volume is  $273 \text{ mm}^3$ . All my measurements are odd numbers. What are they?

c One of my edges is 6 cm. My volume is  $216 \text{ cm}^3$ . My other two edges are equal in length. What do they measure?

d My volume is  $336 \text{ cm}^3$ . My measurements are three 1-digit consecutive numbers. What are they?

## Challenge 2

Which of these cuboids would make the best dice? Explain your answer.

Cuboid A: Length: 9 cm Width: 6 cm Height: 7 cm

Cuboid B: Length: 18 cm Width: 4 cm Height: 4 cm

Cuboid C: Length: 7 cm Width: 7 cm Height: 7 cm

## Challenge 3

The volume of a cuboid is  $900 \text{ cm}^3$ .

1) What could its length, width and height be? Find three different answers.

2) If the length and width were the same, what could the height be? Find three different answers.

## Challenge 4

Taking as much care as possible, sketch as many **different** rectangular prisms as you can that have a volume of  $24 \text{ cm}^3$ . Write the length, width and height on each model.

# Arithmetic Code Breaker

Use the code breaker to reveal some anagrams of WW2 key words.

a	b	c	d	e	f	g	h	i	j	k	l	m
72	7.86	1/10	6.7	12	19	300	100	49	3	8.01	24	99

n	o	p	q	r	s	t	u	v	w	x	y	z
121	81	1	1001	6	9	69	2308	3/10	5/6	2610	2	3744

	Answer	Letter
$0.6 \times 10$		
$0.072 \times 1000$		
$1210 \div 10$		
$0.69 \times 100$		
$8.1 \times 10$		
$3^2$		
$4900 \div 100$		

	Answer	Letter
$2/5 \div 4$		
$3/5 \times 1/2$		
$3 \times 23$		
$3/4$ of 96		
$3208 - 900$		
$9^2$		
$1008 \div 14$		
$7^2$		
$11^2$		
40 % of 30		

	Answer	Letter
$252 \div 21$		
$1656 \div 23$		
$135 \div 15$		
$9800 \div 200$		
75 % of 32		
4% of 600		

	Answer	Letter
$3/5$ of 115		
$786 \div 100$		
$156 \times 24$		
$288 \div 12$		
20 % of 245		

	Answer	Letter
$58 \times 45$		
$387 \div 43$		
$7877 - 7828$		
9% of 800		

**FRIDAY – See separate sheet**

**Answers- Tuesday & Wednesday**

**TUESDAY**

- 1 a)  $3 \times 3 \times 3 = 27\text{cm}^3$       b)  $4 \times 4 \times 4 = 64\text{cm}^3$       c)  $5 \times 5 \times 5 = 125\text{cm}^3$   
2 a)  $36\text{cm}^3$       b)  $60\text{cm}^3$       c)  $36\text{cm}^3$       d)  $60\text{cm}^3$   
e)  $240\text{cm}^3$       f)  $180\text{cm}^3$       g)  $240\text{cm}^3$   
3 500 dice

**WEDNESDAY**

- 1 a) 6    b) 3    c) 3    d) 7  
2 a) 4cm    b) 2cm    c) 50mm  
3  $42,875\text{cm}^3 - 36,000\text{cm}^3 = 6,875\text{cm}^3$   
4.  $240,000\text{cm}^3 - 200,000\text{cm}^3 = 40,000\text{cm}^3$

**Challenge 1**

- a) 3m x 11m      b) 3mm x 7mm x 13 mm  
c) 6cm x 6cm x 6cm      d) 6cm x 7cm x 8cm

**Challenge 2 – Cuboid C (It is a cube)**

**Challenge 3**

- a) Any three numbers so long as multiplied together they make 900.  
E.g.  $9 \times 10 \times 10$        $100 \times 3 \times 3$        $50 \times 6 \times 3$        $25 \times 12 \times 3$     .....
- b) Any height so long as when multiplied by a squared number it makes 900.  
e.g.  $9 \times 10 \times 10$        $100 \times 3 \times 3$        $25 \times 6 \times 6$        $36 \times 5 \times 5$  ....