

## At-Home Investigation

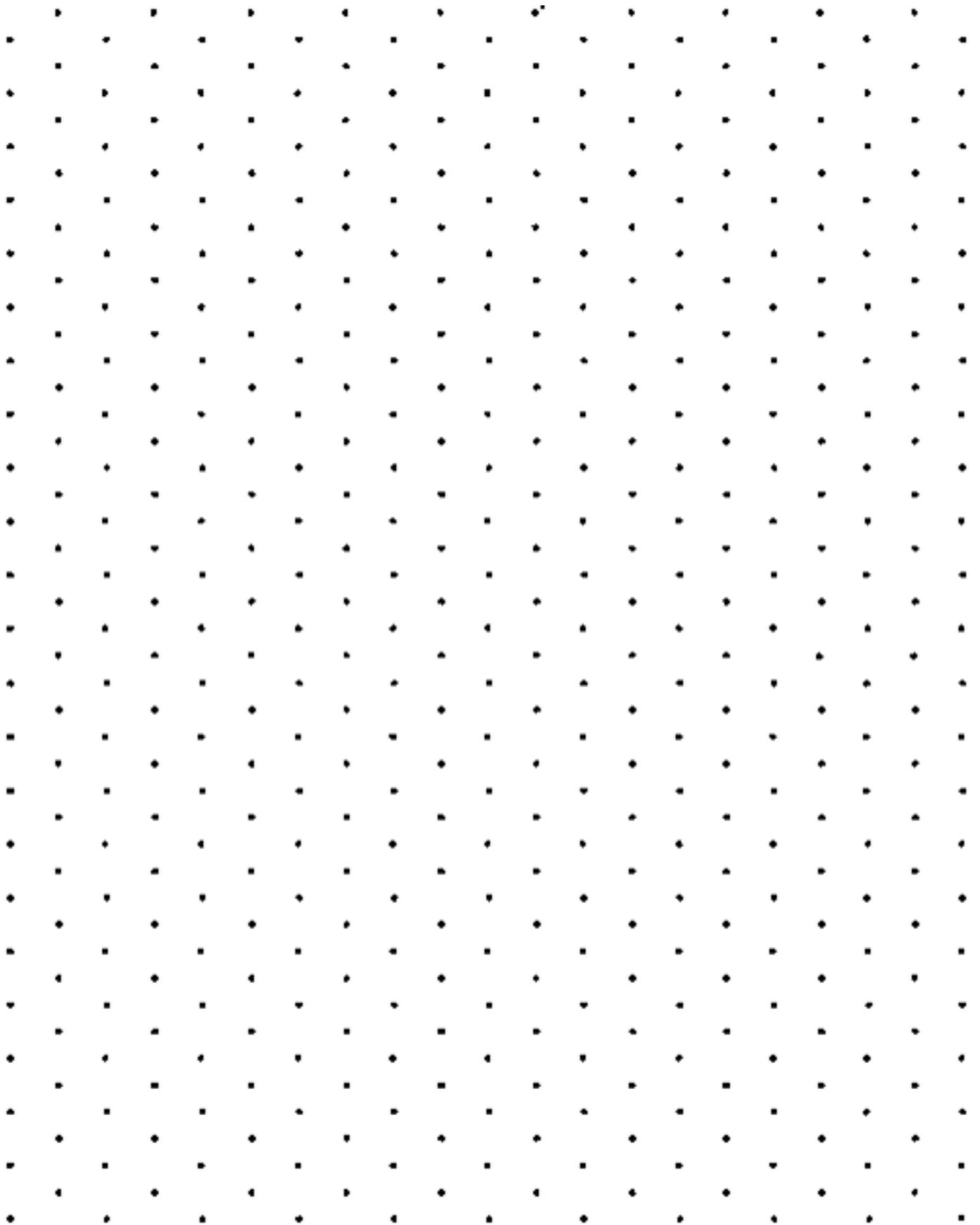
### ***Brainstorm: what different prisms could you build with 60 cubes?***

Use the space below to sketch any unique prisms (including single layer prisms) that you could build using 60 MAB cubes. How many can you find altogether? Isometric dot paper is included for you if that makes it easier.

**Beware:** if one of your prisms can be rotated to make another one, that only counts as a single prism. Think about whether you already have each prism before you draw it.

### **Apply your learning:**

Look at the factors on the sides of each of your prisms. Multiply the length, width and height for each prism. What do you find? Explain any patterns.

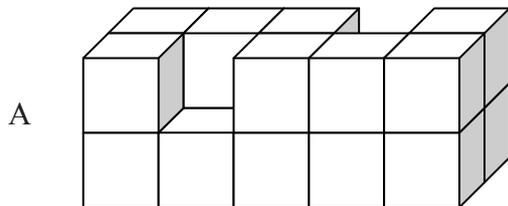


## E8. Measuring volume in cubic centimetres



Using the shape diagrams below:

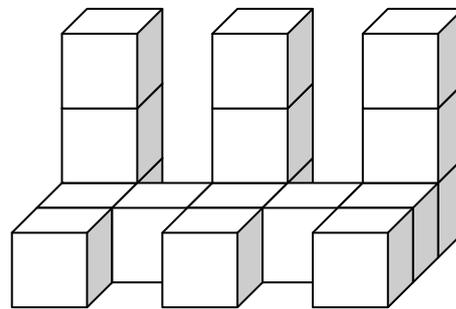
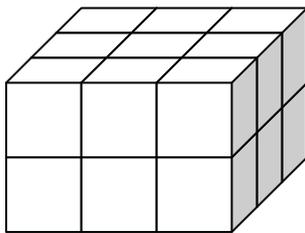
1. Estimate the number of cubes in each shape. Write the estimate beside the shape.
2. Make each shape from MAB or multilinks cubes. Count the number of cubes in each shape and write the number beside the shape.



Estimate =

Actual number =

B Estimate = Actual number =



C Estimate =

Actual number =

1. Which shapes above have the largest volume?
2. Which shape above has the smallest volume?
3. Which shapes above have the same volume? Write the letters of the shape and the volume in cubic centimetres.
4. If I made a cube with dimensions of 2cm x 2cm x 2cm what would the volume be in cubic centimetres? Draw it in the space below.

How did you work out the volume?

### **BACKWARDS QUESTION:**

If you doubled the size of your cube sides, would the volume double? Explain:

Multiplication and division practice grids:

x	2	6	4	3	9	7	8	5	10
2									
3									
4									
5									
6									
7									
8									
9									
10									

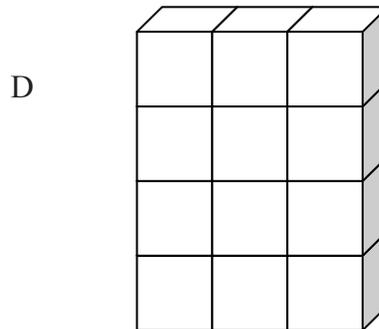
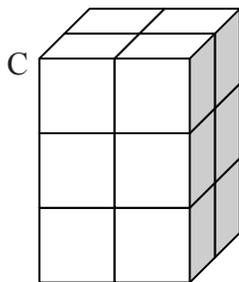
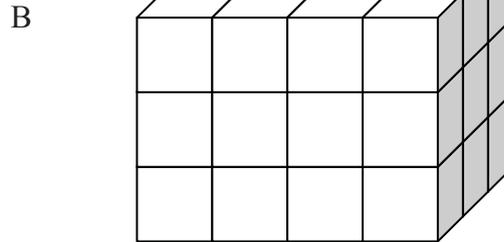
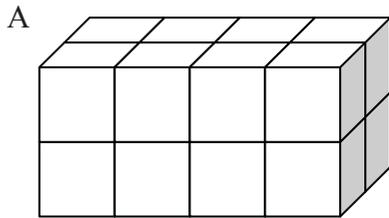
x	4	8	7	2	3	9	10	6	5
9									
3									
6									
5									
2									
7									
4									
8									
10									

÷									
		16				6			
			21	15					
					8		40		
	20		30						
			42						54
				35		21			
		64		48					
	36								81
					20		100		

÷									
		27							30
			6				4		
	40							25	
				24		36			
	56			28					
					63			45	
						60			100
		36					8		
			48		56				

## Eq. Volume of a rectangular prism

 Build the following shapes out of cubic centimetre blocks (eg MAB units) and count the blocks to calculate the volume. Use the table below to help you find a pattern between the number of blocks in each layer, the number of layers and the volume.



Rectangular prism	No. blocks in the bottom layer	No. layers in the shape	Volume (cu cm)	Is there a pattern?
A				
B				
C				
D				

What is the rule for finding the volume of a rectangular prism?

**BACKWARDS QUESTION:**

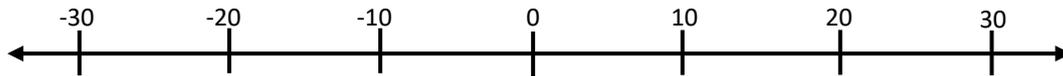
If the volume of a rectangular prism was  $100\text{cm}^3$ , what could its sides be?

## Interleaved practise

Year 6, week 6

Number:

1. Write 0.35 as a fraction and a percentage.
2. Show where these numbers would go on the number line: -6, 12, -24, 9, -15



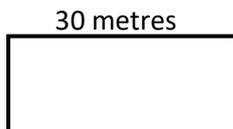
3. How many pizzas will I need to buy if my friend eats  $\frac{3}{4}$  of a pizza and I eat  $\frac{5}{8}$  of a pizza?  
How much pizza will I have left over?

4.  $36 \div 10 = \boxed{\phantom{000}}$        $36 \div 100 = \boxed{\phantom{000}}$

5.  $8^2 = \boxed{\phantom{000}}$  Show how you worked it out.

Measurement/Geometry:

6. What units of measurement would you use to measure the following:  
Water left in a bucket \_\_\_\_\_ Length of rope needed to tie up your dog \_\_\_\_\_  
Butter for a cake recipe \_\_\_\_\_ The amount of carpet needed for a room \_\_\_\_\_
7. Name the 3D objects that have the following faces:  
Six square faces \_\_\_\_\_  
Two square faces and four rectangular faces \_\_\_\_\_  
One square face and four triangular faces \_\_\_\_\_
8. This rectangle has a perimeter of 86 metres and a length of 30 metres. What is its area?



Chance/Data:

9. I rolled a 6-sided dice 40 times and these are the numbers that I rolled:  
1, 3, 2, 5, 6, 3, 5, 3, 4, 1, 2, 1, 2, 3, 6, 4, 1, 6, 3, 5,  
5, 1, 2, 4, 4, 4, 3, 3, 4, 2, 6, 3, 4, 3, 2, 3, 3, 3, 1, 2

Use the blank graph to show the results of my experiment. Each square represents 2 rolls of the dice.

1	2	3	4	5	6

## Connecting Volume and Capacity

This week we have been working on calculating the volume of rectangular prisms. This is fairly easy, as you have already worked out. Some objects are much more difficult to calculate by length, width or height, so we need to think about connections between volume (solids) and capacity (liquids) to determine how to measure them. The image below shows an egg. How could we use the cup with water in to determine the volume of the egg? Come up with a plan, carry out your plan, and explain what you found.



### My Plan:

### What happened:

Carry out your plan. Draw and describe what happened.

### My Findings:

What did you find, and how can you use that to determine the volume of the item in cubic centimetres?