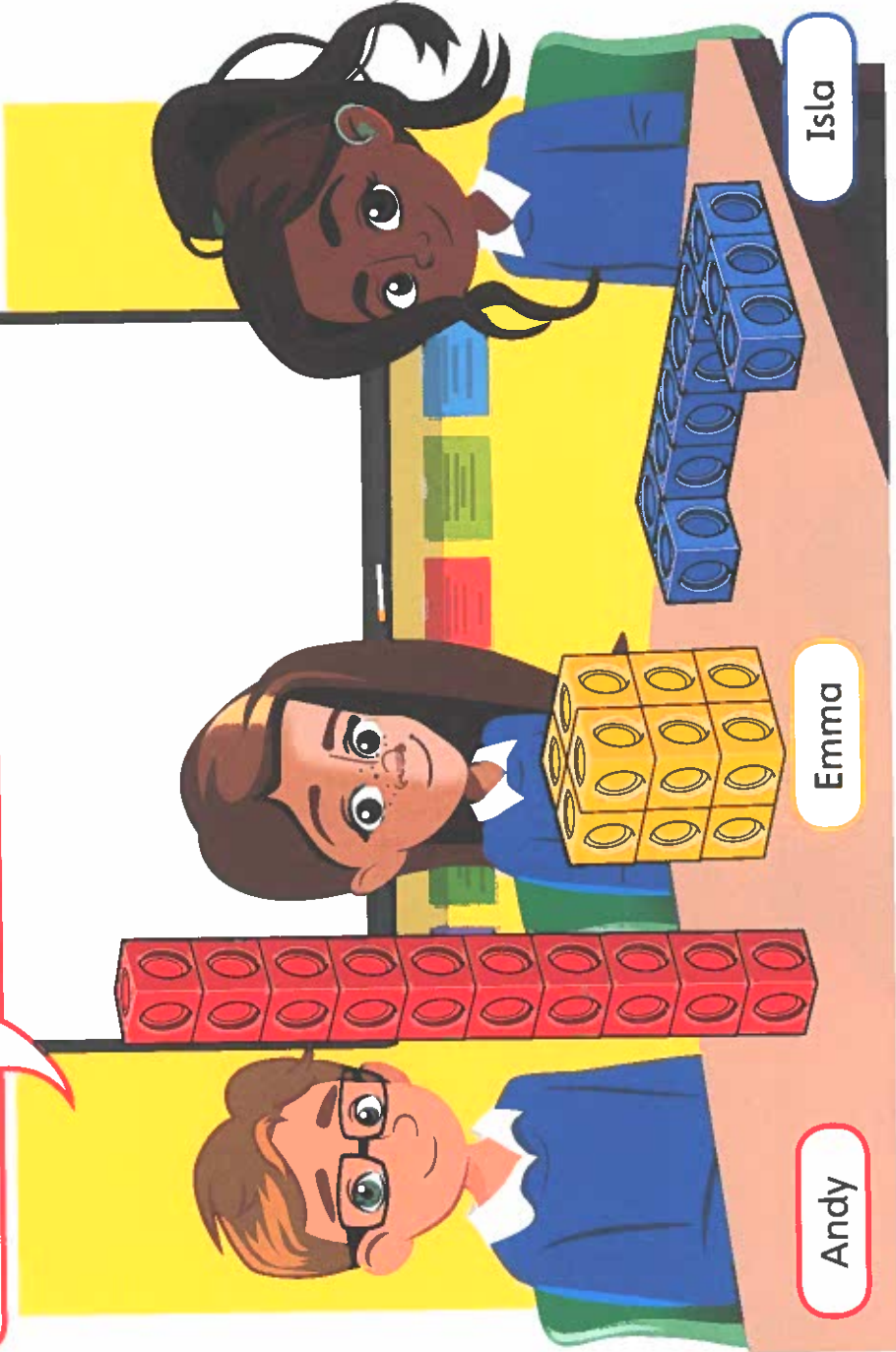


Comparing volumes

Discover

My shape is the tallest, so it must have the greatest volume.

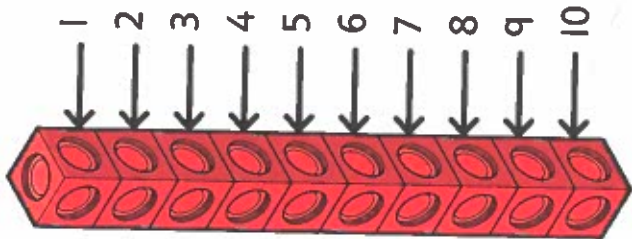


- 1 a) Who has built the 3D shape with the greatest volume?
b) Isla adds more cubes to her shape so that it has the same volume as Emma's shape.
What could Isla's shape look like now?

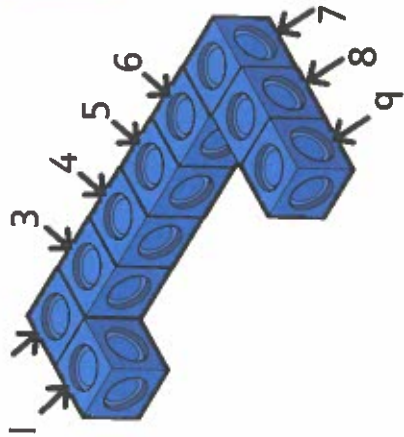
Share

- a) Andy and Emma have made cuboids. Isla's shape is irregular.

Andy's shape

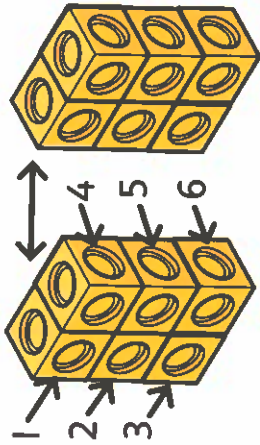


Isla's shape



I counted the cubes in each shape.

Emma's shape



I split Emma's shape into 2 layers. There are 6 cubes in each layer.
 $6 \times 2 = 12$ unit cubes.

- Andy's shape has a volume of 10 unit cubes.
Isla's shape has a volume of q unit cubes.
Emma's shape has a volume of 12 unit cubes.

$$q < 10 < 12$$

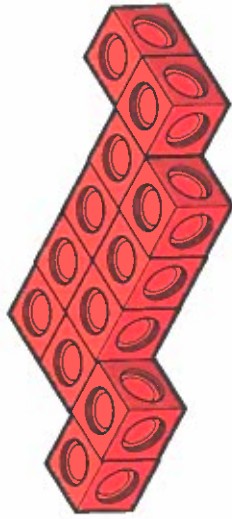
Emma has built the shape with the greatest volume.

- b) Isla's shape has q cubes.
Emma's shape has 12. Isla needs to add 3 more cubes for her shape to have the same volume as Emma's. It might look like one of these two shapes.



Think together

- 1 Isla and Emma make another two shapes. Whose shape has the smaller volume?



Emma's shape



Isla's shape

Emma's shape is made of unit cubes.

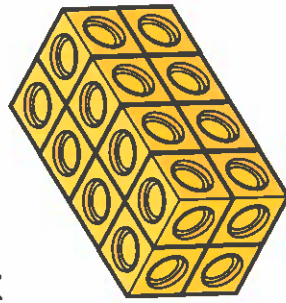
Isla's shape is made of unit cubes.



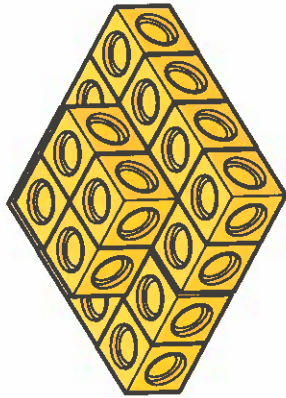
_____ shape has the smaller volume.

- 2 Order these shapes from least to greatest volume.

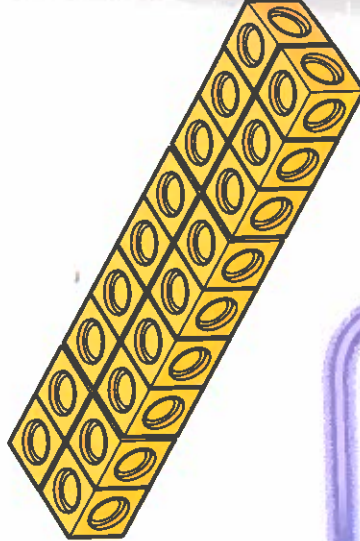
A



B



C



I will count all the cubes. I wonder if there is a different method I could also use.



CHALLENGE

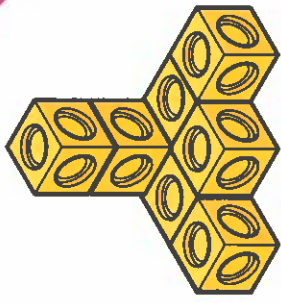
- 3 a) Andy and Emma have made some more 3D shapes.

I think my shape has a larger volume as I have used more cubes.



Andy

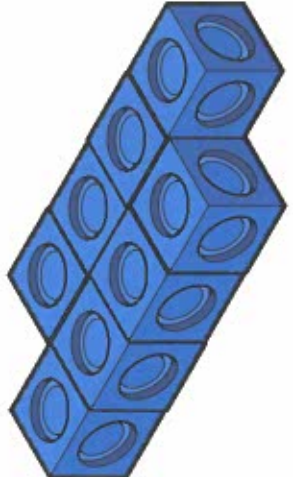
Are you sure? I think our shapes have the same volume.



Emma

Who is correct? Explain your answer.

- b) Isla makes the following shape, using bigger cubes.



Does Isla's shape have the same volume as Andy's?

They must have the same volume as they have the same number of cubes.



They have the same number of cubes, but Isla's cubes do not look the same size as Andy's.

