

Unit 17

Measure – volume and capacity



In this unit we will ...

- ⚡ Learn what the volume of a shape is
- ⚡ Find volumes of shapes by counting unit cubes
- ⚡ Draw shapes with different volumes
- ⚡ Compare the volume of different shapes
- ⚡ Estimate the capacity of different shapes



How many unit cubes are used to make this cube?



We will need some maths words.
Which of these are new?

volume cube cuboid 3D shape
solid capacity calculate
estimate unit cubes
least greatest



Which container do you think has the greatest capacity? Why?

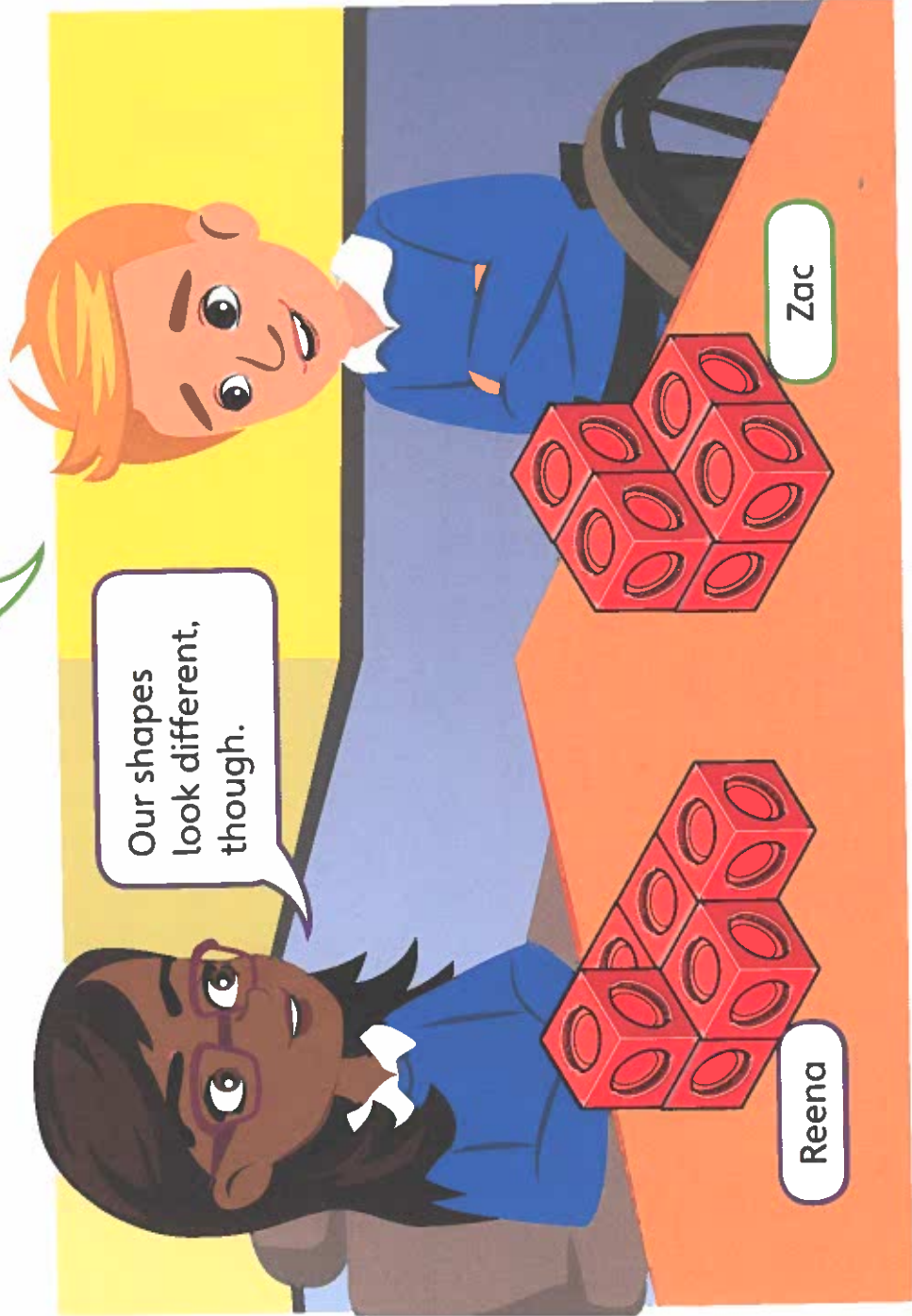


What is volume?

Discover

I think our cubes have the same volume.

Our shapes look different, though.



1 a) Is Zac correct?

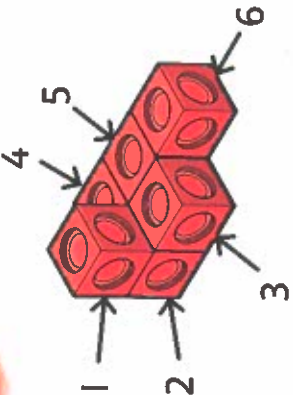
What do you think is meant by **volume**?

b) Build three other 3D shapes using cubes that have the same volume as Zac and Reena's shapes.

Share

a)

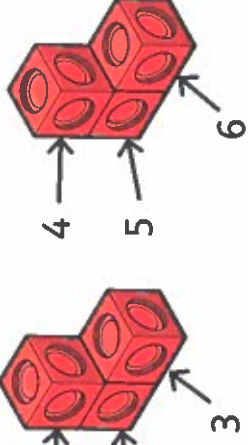
Volume means the amount of space that an object fills. We can use **unit cubes** as a way to measure volume.



Reena's cube uses 6 cm cubes.
It has a volume of 6 unit cubes.

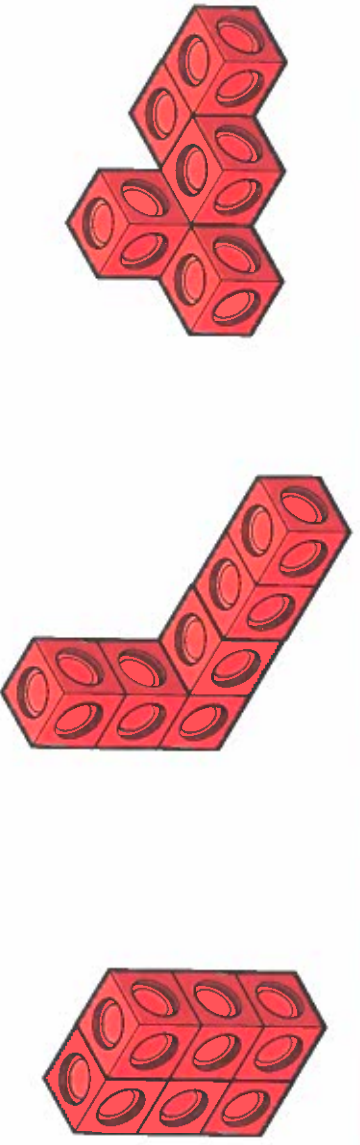
I am going to count the number of unit cubes in each shape.

I think one of the cubes in Zac's shape is hidden.



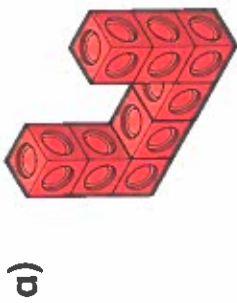
Zac's shape also uses 6 unit cubes. It has the same volume as Reena's shape.

b) Each of these shapes has a volume of 6 unit cubes, the same volume as Reena's and Zac's shapes.



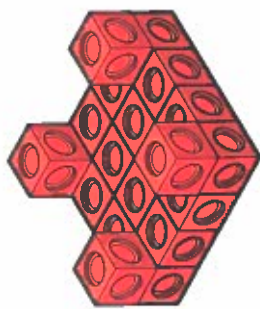
Think together

1 What is the volume of each shape?



a)

Volume = unit cubes



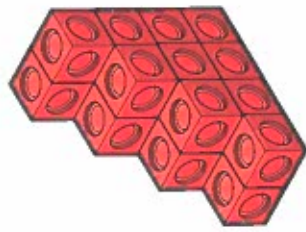
c)

Volume = unit cubes



b)

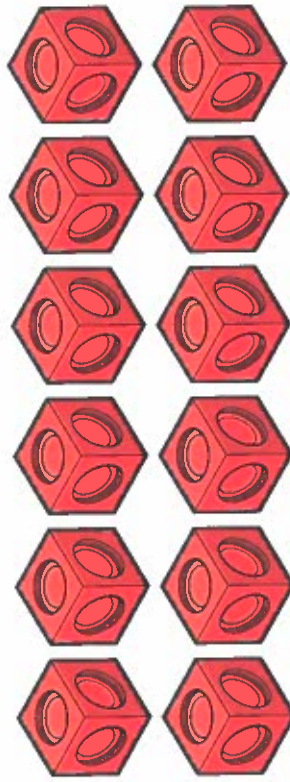
Volume = unit cubes



d)

Volume = unit cubes

2 Using 12 cubes, build three different 3D shapes.



I am going to try to make a cuboid.



3

Drawing 3D shapes is challenging.



Reena

We can use isometric paper. It makes it a bit easier.



Zac

CHALLENGE

a) On isometric paper, draw more cubes like this one.



b) Draw the following 3D shapes on isometric paper.

What is the volume of each of your shapes?



These look difficult to draw. I may need to make a few attempts. I know I will be able to do it though.



That is a great attitude to have.

