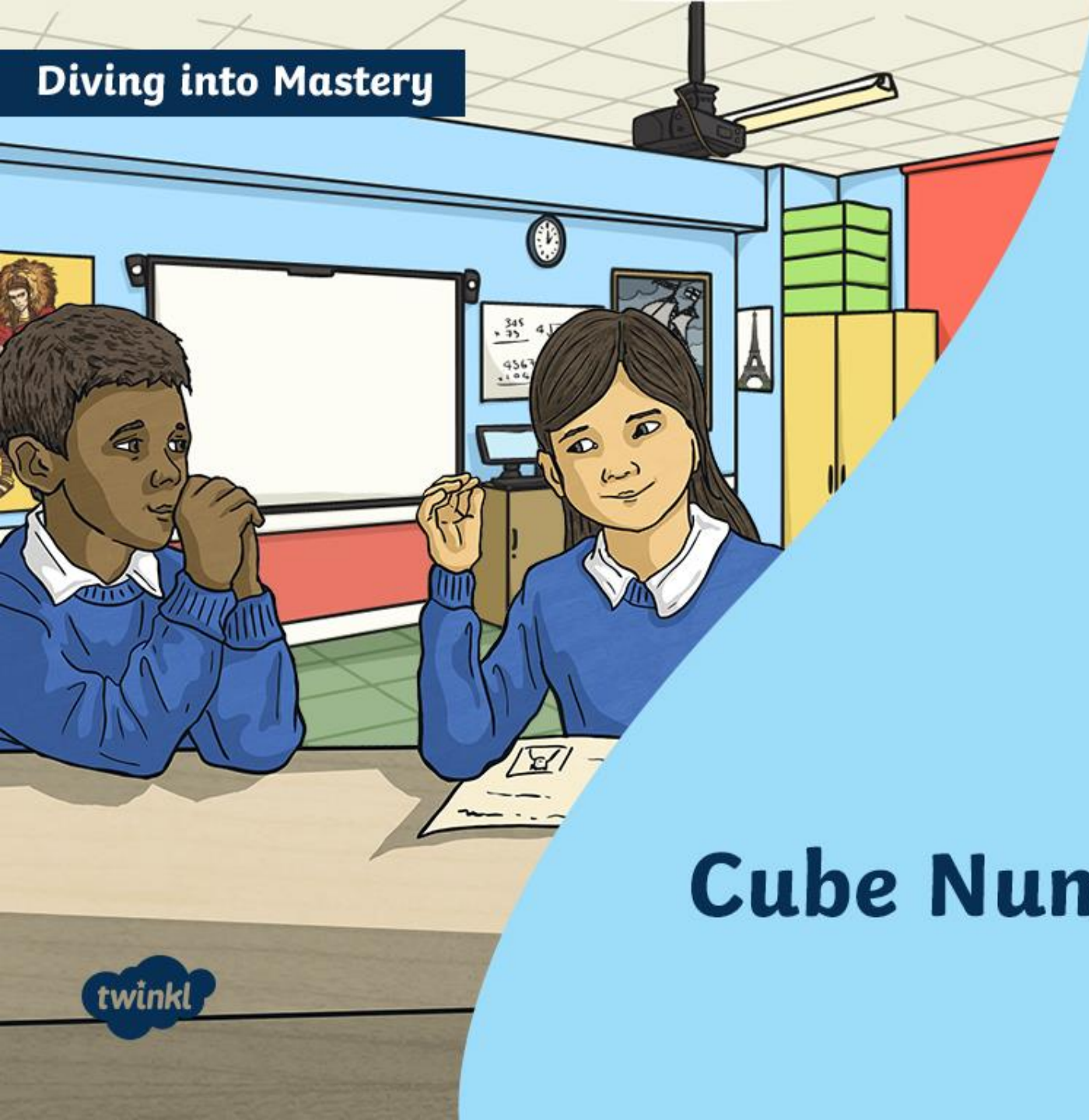


Diving into Mastery



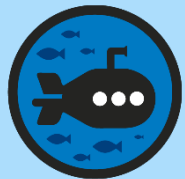
Cube Numbers

Diving into Mastery Guidance for Educators

Each activity sheet is split into three sections, diving, deeper and deepest, which are represented by the following icons:



Diving



Deeper



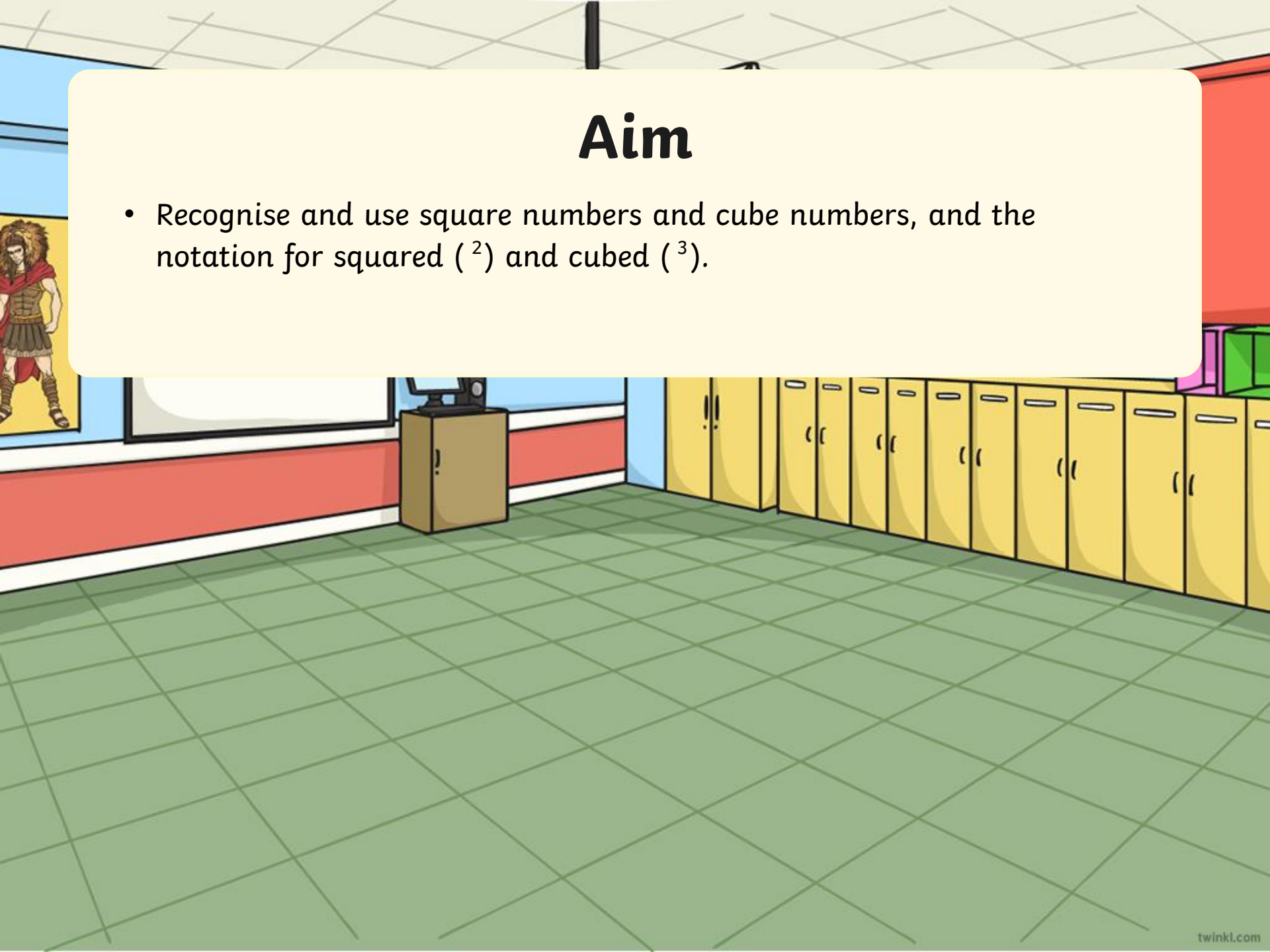
Deepest

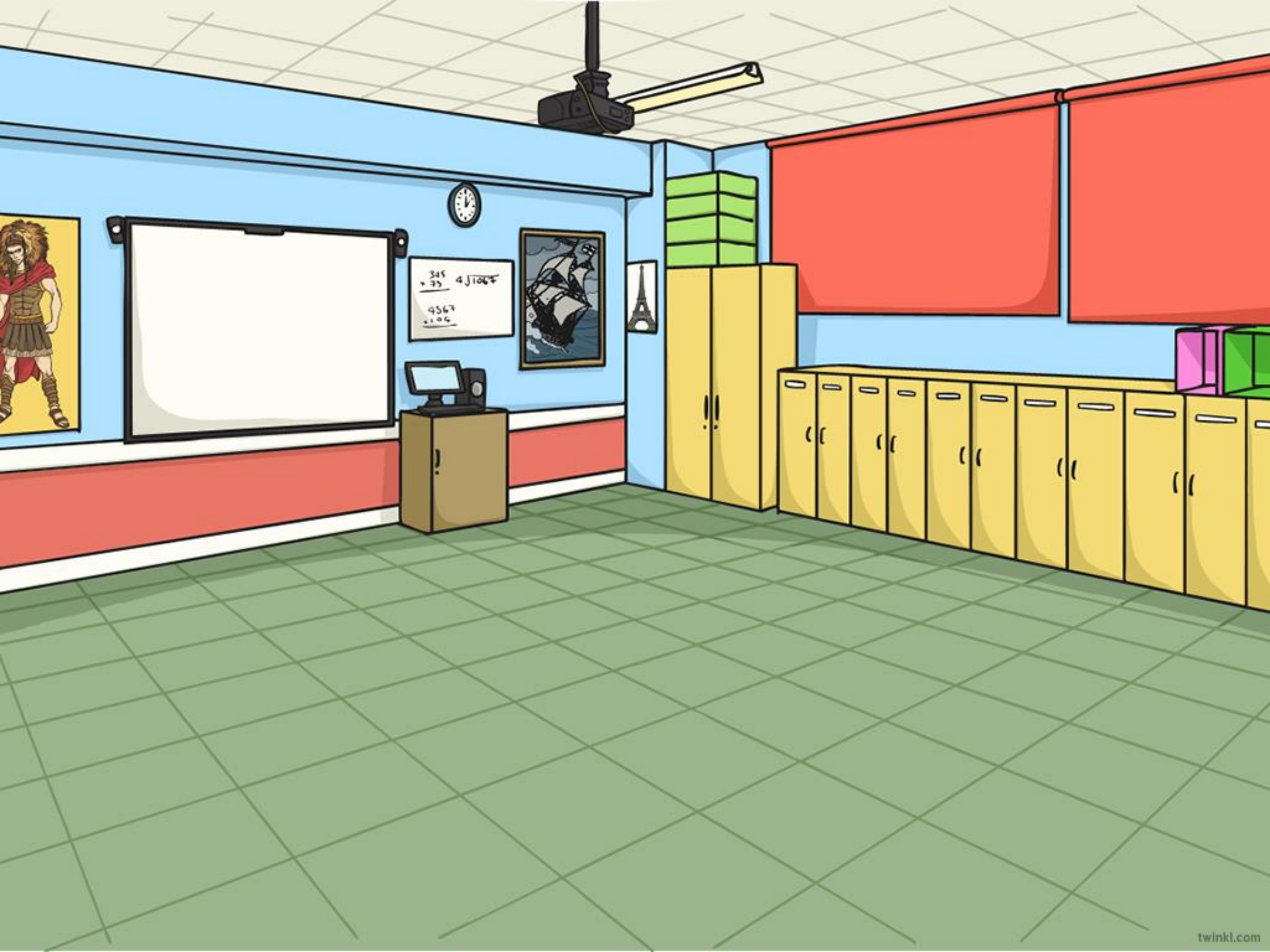
These carefully designed activities take your children through a learning journey, initially ensuring they are fluent with the key concept being taught; then applying this to a range of reasoning and problem-solving activities.

These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Aim

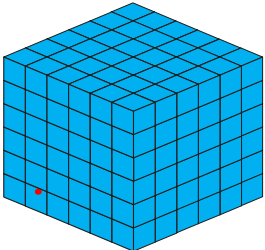
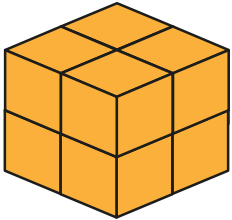
- Recognise and use square numbers and cube numbers, and the notation for squared (2) and cubed (3).





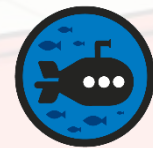


Complete the table by giving the cube numbers shown by each representation. In the blank boxes, use the $<$, $>$ and $=$ symbols to compare the numbers.

6^3 216	=	 216	<	9^3 729
 8	<	8^3 512	<	$10 \times 10 \times 10$ 1000

Cube Numbers

Deeper



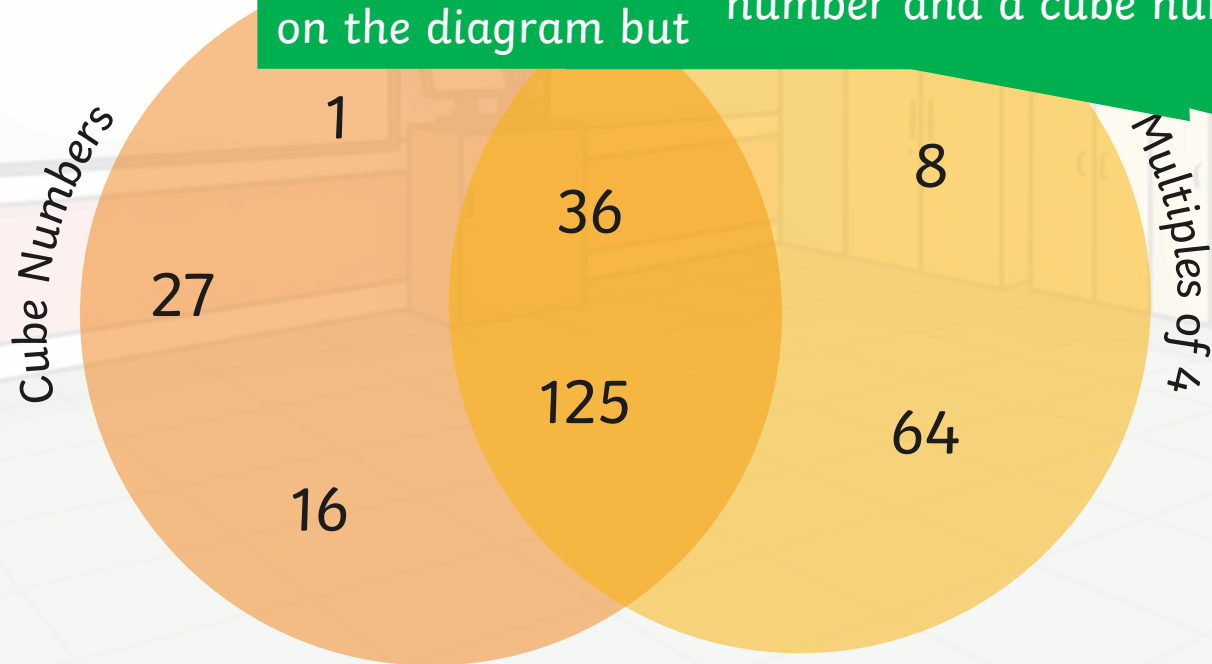
Are these numbers correct or false?

Which numbers have been put in the wrong place?

My Venn diagram contains a number which is both a square number and a cube number.

False. Numbers with
of cube number or n
on the diagram but

True. 64 is both a square
number and a cube number.



Cube Numbers**Deepest**

Read the statements carefully to help you work out which cube number is represented by each of the letters.

A	B	C	D	E
125	343	512	1000	1

10^3 is the greatest number.

Only one of these cube numbers has a single digit.

B starts and ends with the same digit.

A and C both have a 2 as one of their digits.

D and E have the same digit sum.

E is the smallest possible cube number.

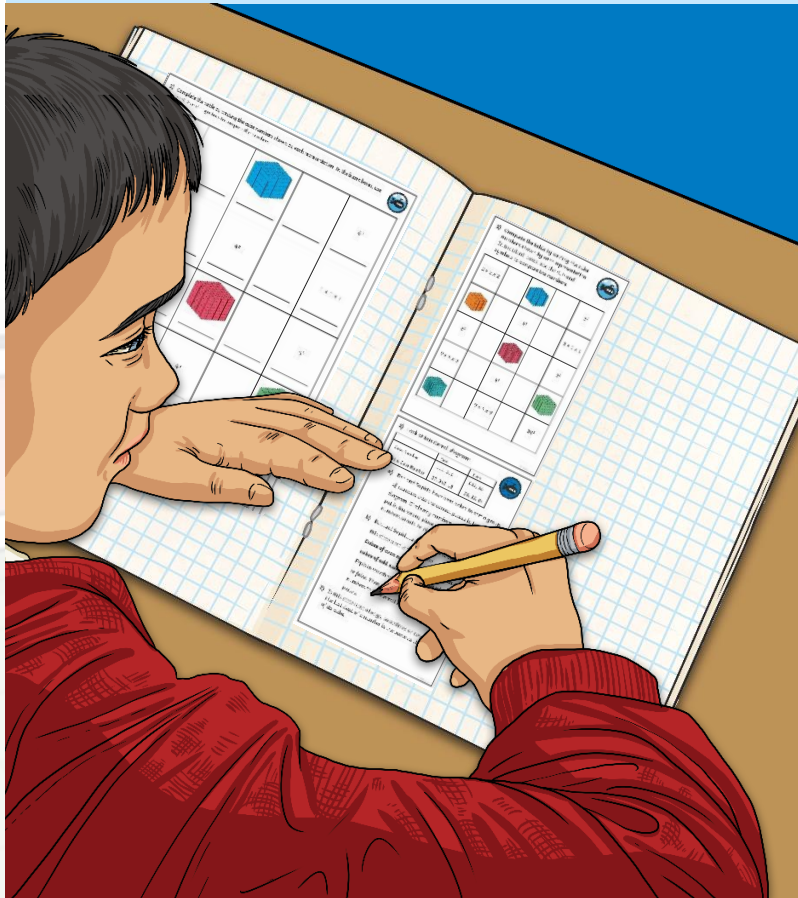
The greatest and smallest numbers are next to each other.

The numbers A to D are ordered in size from smallest to greatest.

A and C have the same digit sum.

Cube Numbers

Dive in by completing your own activity!



1) Look at this Carroll diagram:

Cube Number
Not a Cube Number

- a) Ben and Sophia have been
Circle any numbers which
- b) Ben and Sophia are then asked
Cubes of even numbers are
Explain whether you think
more cube numbers to the

2) Is this statement always, sometimes or never true?
The last digit of a number is the

3) Read the statements carefully and
the letters.






A B

All of these numbers are cube numbers.
The greatest number here is 64.
A multiplied by itself equals B.
The digit sum of E is equal to A.
The 2 largest cube numbers are
3 of these cube numbers are even.
3 cubed lies between the only

4) Investigate what is the smallest

5) Investigate if there are any

1) Complete the table by writing the cube numbers shown by each representation. In the blank boxes, use the <, = and > symbols to compare the numbers.

$2 \times 2 \times 2$		6^2
	4^2	$1 \times 1 \times 1$
8^2		5^2
$9 \times 9 \times 9$	4^3	
	$9 \times 9 \times 9$	10^3

