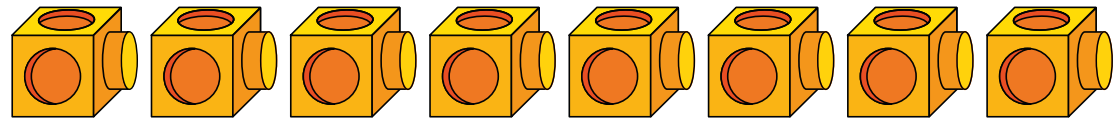


Cube numbers



1 a) Fit 8 multilink cubes together to make a larger cube.

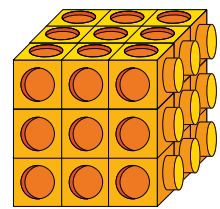


b) Is it possible to fit 9 multilink cubes together to make a larger cube? No

Explain your answer.

There will be one cube sticking out.

2 Filip makes a cube using some smaller cubes.



a) How many cubes make up this cube? 27

b) How did you work out the number of cubes?

$3 \times 3 \times 3 = 27$

c) This number is an example of a cube number.
Why do you think it is a cube number?



3 a) Complete the table of cubed numbers.

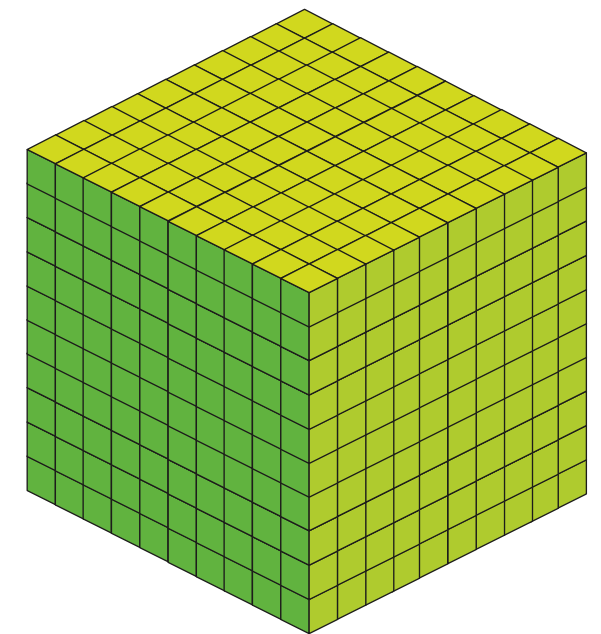
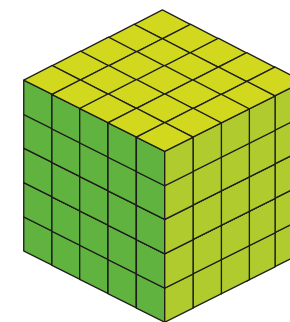
2^3	$2 \times 2 \times 2$	8
3^3	$3 \times 3 \times 3$	27
4^3	$4 \times 4 \times 4$	64

b) What would the next cube number in the table be?

$$\boxed{5}^3 = \boxed{5} \times \boxed{5} \times \boxed{5} = \boxed{125}$$

4 Complete the statements.

Use the cubes to help you.



a) $5^3 = \boxed{125}$

5 cubed = $\boxed{125}$

$5 \times 5 \times 5 = \boxed{125}$

b) $10^3 = \boxed{1,000}$

10 cubed = $\boxed{1,000}$

$10 \times 10 \times 10 = \boxed{1,000}$

5 a) Which calculation is the same as 6^3 ?

Tick your answer.

6×3

$6 + 6 + 6$

$6 \times 6 \times 6$

b) Kim has worked out 6^3 using this method.

$$\begin{aligned} 6^3 &= (6 \times 6) \times 6 \\ &= 36 \times 6 \\ &= 216 \end{aligned}$$

	30	6
6	$30 \times 6 = 180$	$6 \times 6 = 36$
	$180 + 36 = 216$	

Is Kim's method correct? Yes

How do you know?

She has correctly calculated 6×6 then multiplied her answer by 6

c) Match the cube numbers to the calculations.

One has been done for you.

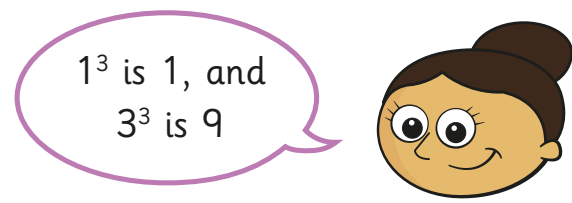
4^3	4×2
5^3	9×3
2^3	16×4
3^3	25×5

(Note: In the image, blue lines connect 4^3 to 16×4 , 5^3 to 25×5 , and 2^3 to 4×2 . A black line connects 3^3 to 9×3 .)

6 Calculate 7^3

343

7



What mistake has Dora made?

Why might she have made this mistake?

She has calculated 3×3 because the power is 3 rather than $3 \times 3 \times 3$

8

Scott's age is a cube number.

His sister is 2 years younger than him.

Her age is a square number.

In 3 years, Scott's age will be a multiple of 10

How old is Scott?

Scott is 27 years old.