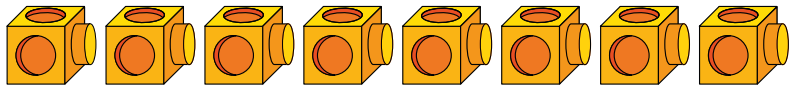
Cube numbers

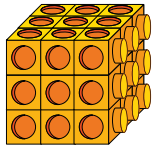
1 **a)** Fit 8 multilink cubes together to make a larger cube.



b) Is it possible to fit 9 multilink cubes together to make a larger cube?

Explain your answer.

2 Filip makes a cube using some smaller cubes.



a) How many cubes make up this cube?

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

c) This number is an example of a cube number.

Why do you think it is a cube number?

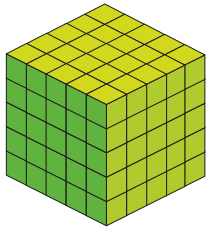
3 **a)** Complete the table of cube numbers.

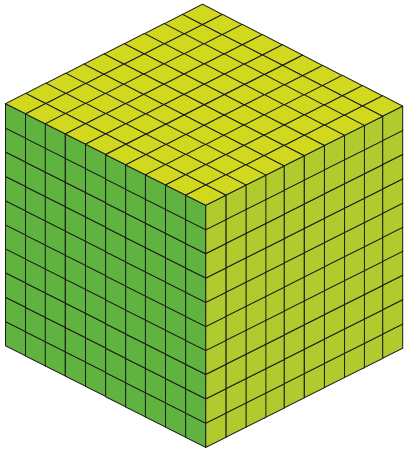
2^3	$2 \times 2 \times 2$	8
3^3	$3 \times 3 \times 3$	
4^3	$4 \times 4 \times 4$	

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

4 Complete the statements.

Use the cubes to help you.





a)

$5^3 =$ ☐

5 cubed = ☐

$5 \times 5 \times 5 =$ ☐

b)

$10^3 =$ ☐

10 cubed = ☐

$10 \times 10 \times 10 =$ ☐

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

6×3 $\quad$ $6 + 6 + 6$ $\quad$ $6 \times 6 \times 6$

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

$6^3 = (6 \times 6) \times 6$

$= 36 \times 6$

$= 216$

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

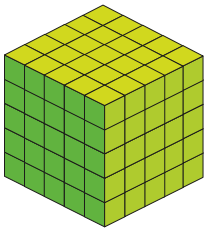
$180 + 36 = 216$

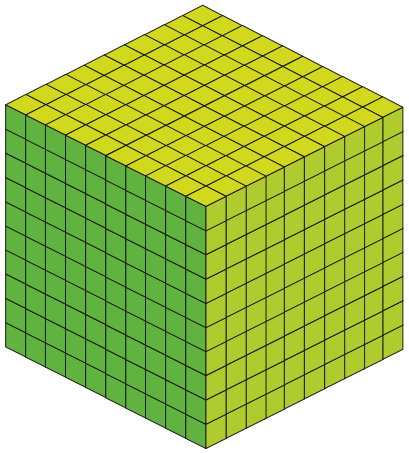
Is Kim's method correct?

How do you know?

4 Complete the statements.

Use the cubes to help you.





a)

5^3 = ☐

5 cubed = ☐

5 × 5 × 5 = ☐

b)

10^3 = ☐

10 cubed = ☐

10 × 10 × 10 = ☐

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

6 × 3 6 + 6 + 6 6 × 6 × 6

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

$6^3 = (6 \times 6) \times 6$

$= 36 \times 6$

$= 216$

	30	6
6	30 × 6 = 180	6 × 6 = 36

180 + 36 = 216

Is Kim's method correct?

How do you know?

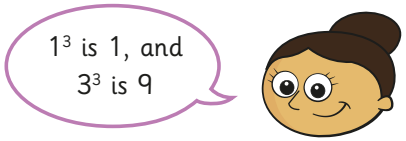
c) Match the cube numbers to the calculations.

One has been done for you.

4^3	4 × 2
5^3	9 × 3
2^3	16 × 4
3^3	25 × 5

6 Calculate 7^3

7



What mistake has Dora made?

Why might she have made this mistake?

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?