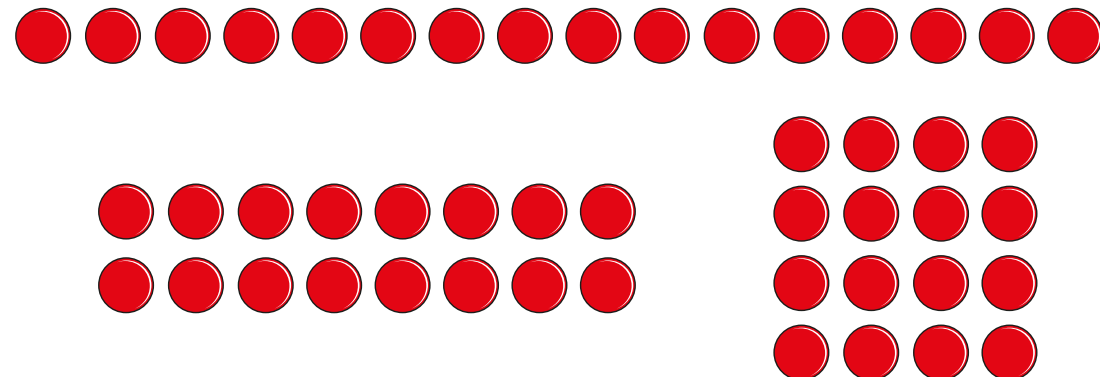


Square numbers



- 1 a) Use 16 counters to make these arrays.



- b) What do you notice about the shape of one of the arrays?

It's a square.

- c) Is 16 a square number? How do you know?

- 2 a) Is it possible to make a square array with 8 counters? No

- b) Is it possible to make a square array with 9 counters? Yes

- c) Which number is a square number?

9

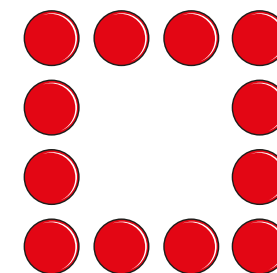
How do you know?

You can make a square array using
9 counters.

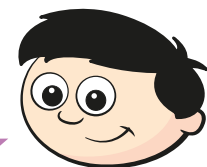
- 3 Which of these numbers are square numbers?
Circle your answers.

4 10 18 25

- 4 Dexter makes a square using 12 counters.



12 is a
square number as I
can make the counters
into a square.



What mistake has Dexter made?

His square is incomplete.

- 5 Whitney is working out a calculation.

$$8 \times 8 = 16$$

What mistake has Whitney made?

She has done $8 + 8$

It should be 64



6 The arrays below show a sequence.

a) Complete the number sentences. Use the arrays to help you.

$1 \times 1 = 1$ $2 \times 2 = 4$ $3 \times 3 = 9$ $4 \times 4 = 16$

b) What do these numbers have in common?

They're all square numbers.

c) Draw the next two numbers in the sequence and write a number sentence for each.

$5 \times 5 = 25$ $6 \times 6 = 36$

d) What would the next four numbers in the sequence be?

49, 64, 81, 100

7 Complete the statements.

a) $6^2 = 36$ d) $0^2 = 0$
 b) $12^2 = 144$ e) $10^2 = 100$
 c) $81 = 9^2$ f) $64 = 8^2$

8 a) Write the numbers in the table.

	0	3	4	11	49
	Factor of 24		Not a factor of 24		
Square number	4		0 49		
Prime number	3		11		

b) Write a different number in each part of the table.

9 Dani is thinking of a square number with 2 digits.
The digits add together to make another square number.
What could the number be?

36

10 Huan is celebrating his birthday.
His age is a square number.
Last year he was a multiple of 12
Next year he will be a multiple of 10
How old is Huan?

49