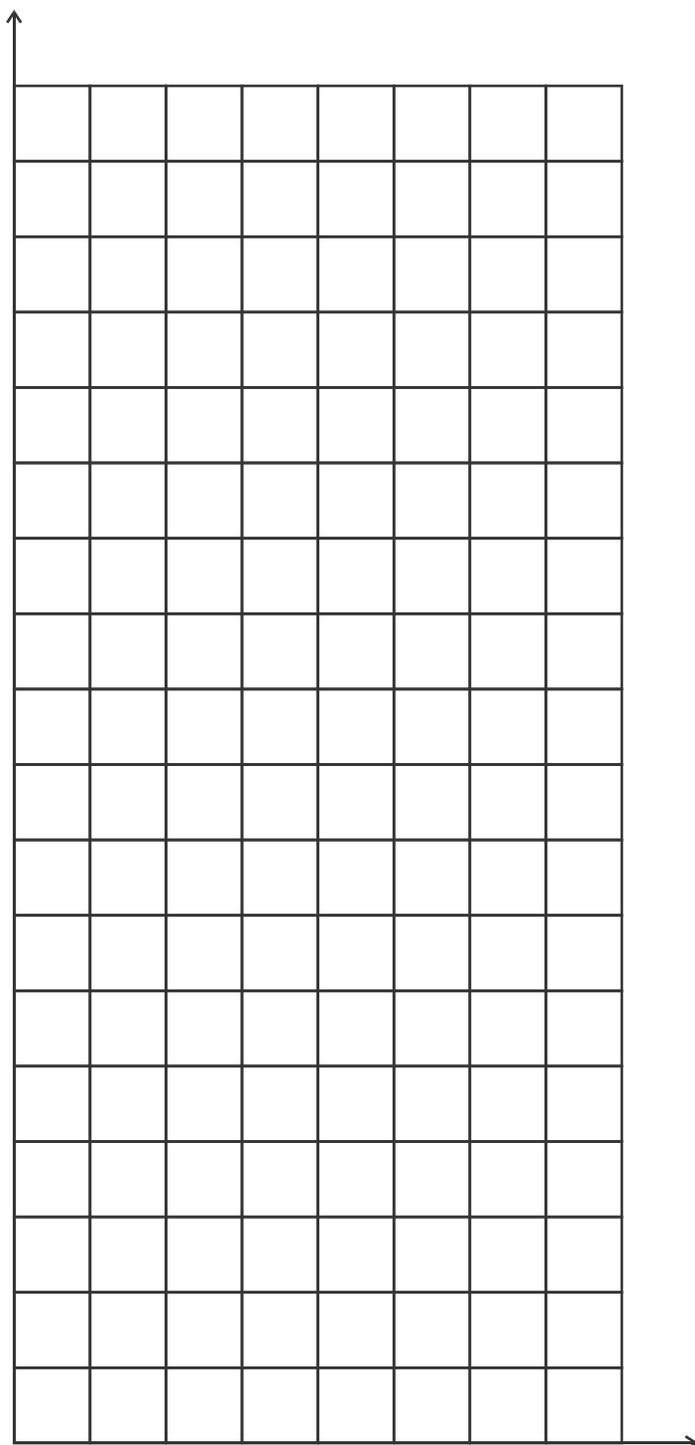


Square Numbers

Investigation Guide

There are two sets of numbers in this problem.

The size of the square and the number of unit squares need to make it.



When mathematicians find two sets of numbers together, they make them into pairs:

(1, 1) (2, 4), (3, 9), (4, 16), (5, 25), (6, 36)

The numbers in each of these pair are in an order.

- First is the size number.
- Second is the unit squares number.

When the order matters in a pair of numbers they are called Ordered Pairs.

- What would be the ordered pair for the Size 7 square?

Ordered pairs can be shown as points (dots) on a graph.

So that everyone knows the order, the first number is along the bottom of the graph and the second number is up the left side.

- Write the ordered pair for the Size 8 square.

You are going to make a graph of these ordered pairs. You can ask for help.

Firstly predict what you think the graph might look like if the dots were joined. Sketch your prediction in your journal.

Now plot the points on this grid.

Join the dots. Try to make a smooth curve. Just do the best you can. A clue is to turn the paper so your hand is inside where the curve is going to be.

Try to extend the curve to about where it would be for the Size 9 square. Do you come close to the value you expect for nine? When you extend a graph like this to predict date it is called 'extrapolating the curve'.

(Actually we have to be a bit conscious of what we are doing here. When we join the dots we are implying, for example, that there could be a Size 3.5 square on each side. Is that possible??)