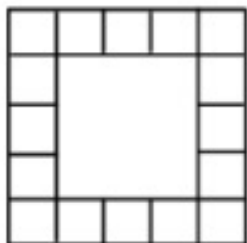


SQUARES PATTERN

This square of squares pattern has edge length 5 squares. You could make this pattern with 48 matchsticks.



Work out the number of edge squares and the number of lines (matchsticks) needed to make the pattern with:

- side length 6
- side length 25
- side length 100
- side length n

HELP

This is an easier good pattern to start with:

SEVEN SQUARES

This pattern is made from matchsticks.

How many squares are there?

How many matchsticks are needed?

How would you draw it?



What about a line of 8 squares?

What about a line of 25 squares?

What about a line of 100 squares?

What about a line of n squares?

NEXT

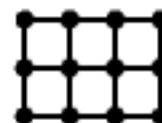
Here are some patterns that are a bit more challenging. Each time the challenge is to extend the pattern from 5 to 6 and then to 25 and then 100 and then to n and to find the sequences and formulas that arise. Choose for yourself one or two of the patterns to work on. There are four different tasks and you may want to start with the Seven Squares task given in the HELP section. You could work with a partner, but do different patterns, then each explain to the other what you have discovered. That way you will develop your communication skills which are very important in the world of work where workers often have to write reports and explain their work to others.

RECTANGLE

This rectangle has height 2 and width 3.

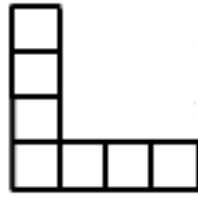
Work out the perimeter, the number of dots, and the number of lines needed to draw a rectangle with:

- * height 2 and width 6
- * height 2 and width 25
- * height 2 and width 100
- * height 2 and width n



L SHAPE

This L shape has height 4 and width 4.

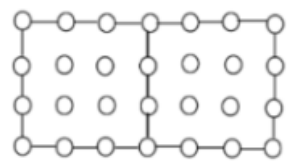


Work out the perimeter, the number of squares, and the number of lines needed to draw an L shape with:

- * height 6 and width 6
- * height 25 and width 25
- * height 100 and width 100
- * height n and width n

TWO SQUARE PATTERN

This pattern is made from two joined squares with side length 3.



Work out the number of lines and the number of dots needed to draw the pattern of joined squares with:

- * side length 6
- * side length 25
- * side length 100
- * side length n