

## Number patterns

Some **sequences** can be shown as **number patterns**. For example:

$\times$   
 $\times \times \times$   
 4 crosses

$\times \times$   
 $\times \times \times \times$   
 6 crosses

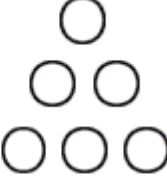
$\times \times \times$   
 $\times \times \times \times \times$   
 8 crosses

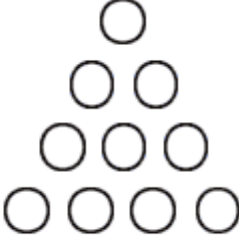
The difference between one term and the next is 2. So the next term in this sequence will be 10. (We don't need the pattern to work it out.)

**Example:** here the patterns are made from circles. This is called the **triangle number sequence** or pattern:

  
 1 circle

  
 3 circles

  
 6 circles


  
 10 circles

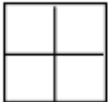
The differences between the terms are 2, 3 and 4. The next difference will be 5, so the fifth term is 15.

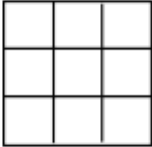
## Square numbers

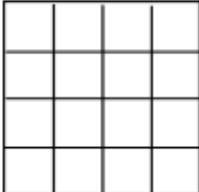
Square a number by multiplying the number by **itself**. For example, 5 squared is  $5 \times 5 = 25$  and not  $5 \times 2 = 10$ . It's an easy mistake to make.

The first four terms of the sequence of **square numbers** are 1, 4, 9 and 16. They are worked out by squaring the numbers 1, 2, 3 and 4 like this:

$1 \times 1 = 1$   


$2 \times 2 = 4$   


$3 \times 3 = 9$   


$4 \times 4 = 16$   


These can be written  $1^2$ ,  $2^2$ ,  $3^2$  and  $4^2$ . We say this as 'one squared', 'two squared' and so on. The tenth term will be 'ten squared', which is written  $10^2$ . That is:  $10 \times 10 = 100$ .

**For more about sequences have a look at the 'Sequences' factsheet.**