Sequences:

A *sequence* is an ordered list of numbers. The numbers in the list are called the *terms* of the sequence.
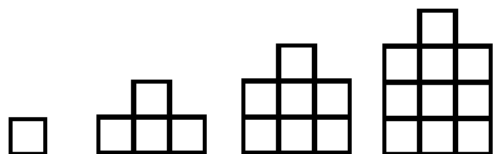
Here we have a pattern of figures.

Each figure is made up of squares.

Moving from left to right, each figure has 3 more squares than the figure before it.

We can represent this pattern by a sequence of numbers: 1, 4, 7, 10 . . .

Each term (number) in the sequence is 3 greater than the number before it.

This is an example of what's called an *arithmetic sequence*.

In an **arithmetic sequence** you get from one term to the next by always adding the *same* number.

2, 5, 8, 11, 14 . . . is another arithmetic sequence that is formed by always adding 3, but we start with 2 this time, instead of 1.

1. What is the next term in each of these arithmetic sequences:

   2, 6, 10, 14, 18, _____   3, 11, 19, 27, 35, _____

   2, 9, 16, 23, 30, _____   4, 9, 14, 19, 24, _____

A **geometric sequence** goes from one term to the next by always *multiplying* by the same number.

1, 2, 4, 8, 16 . . . is a geometric sequence. To get from one term to the next, you multiply by 2.

2. What is the next term in each of these geometric sequences:

   2, 6, 18, 54, _____   3, 6, 12, 24, _____

Sometimes, you won't know what kind of sequence you have. You will have to figure it out. Try the ones on the back →

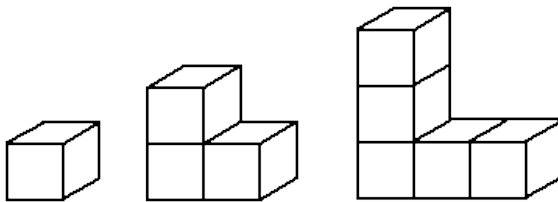**3.** Find the next term in each of these sequences:

1, 3, 9, 27, _____   1, 5, 9, 13, _____

4, 4, 4, 4, _____   1, 10, 19, 28, _____

4. Draw the next figure that continues the pattern below:

The number of blocks in each figure of this continuing pattern can be represented by a sequence of numbers. Write the first 6 terms of the sequence:

_____, _____, _____, _____, _____, _____ . . .

What type of sequence is this?

What do you do to get from one term of the sequence to the next?

5. Sometimes, you get form one term in a sequence to the next term by subtracting or dividing instead of adding or multiplying. Fill-in the next two terms in each of these sequences:

103, 99, 95, 91, _____, _____

32, 16, 8, 4, _____, _____