

Special number sequence 1



Using and applying
mathematics in
real-world contexts

Challenge

Look at this sequence of numbers:

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ...

Describe how the sequence is created.

What is the name given to this special number sequence?

What is 'special' about this number sequence?

Write the next 10 numbers in the sequence.



Think about ...

What patterns do you notice? What is the rule for describing this sequence?



What makes this number sequence so special?

What if?

Add together the first 5 numbers in the sequence. Write down the answer.

Then add the first 6 numbers and write down the answer.

Next, add the first 7 numbers and write down the answer.

Finally, add the first 8 numbers and write down the answer.

Look at the four answers you have just written down.

Compare these with the numbers of the sequence above.

What do you notice?

Can you predict what the sum of the first 9, 10, 11, ... numbers are?

When you've finished, turn to page 80.



Special number sequence 2



Using and applying
mathematics in
real-world contexts

Challenge

Look at the ten numbers in the number sequence on page 56.

Choose four consecutive numbers in the sequence.

Find the products of the first and last numbers, and the second and third numbers.

Now work out the difference between the two products.

Choose four more consecutive numbers in the sequence and repeat the above.

What do you notice?



Think about ...

Remember, consecutive numbers are numbers that follow each other in order, without gaps. For example, 10, 11, 12 and 13 are consecutive counting numbers; whereas 2, 4, 6 and 8 are consecutive even numbers.



You will probably need to use a written method to work out the products of pairs of 2-digit numbers.

What if?

Choose three consecutive numbers from the sequence.

Multiply the first and last numbers together, and square the second number.

Now work out the difference between the two products.

Choose three more consecutive numbers from the sequence and repeat the above.

What do you notice?

When you've finished, turn to page 80.

