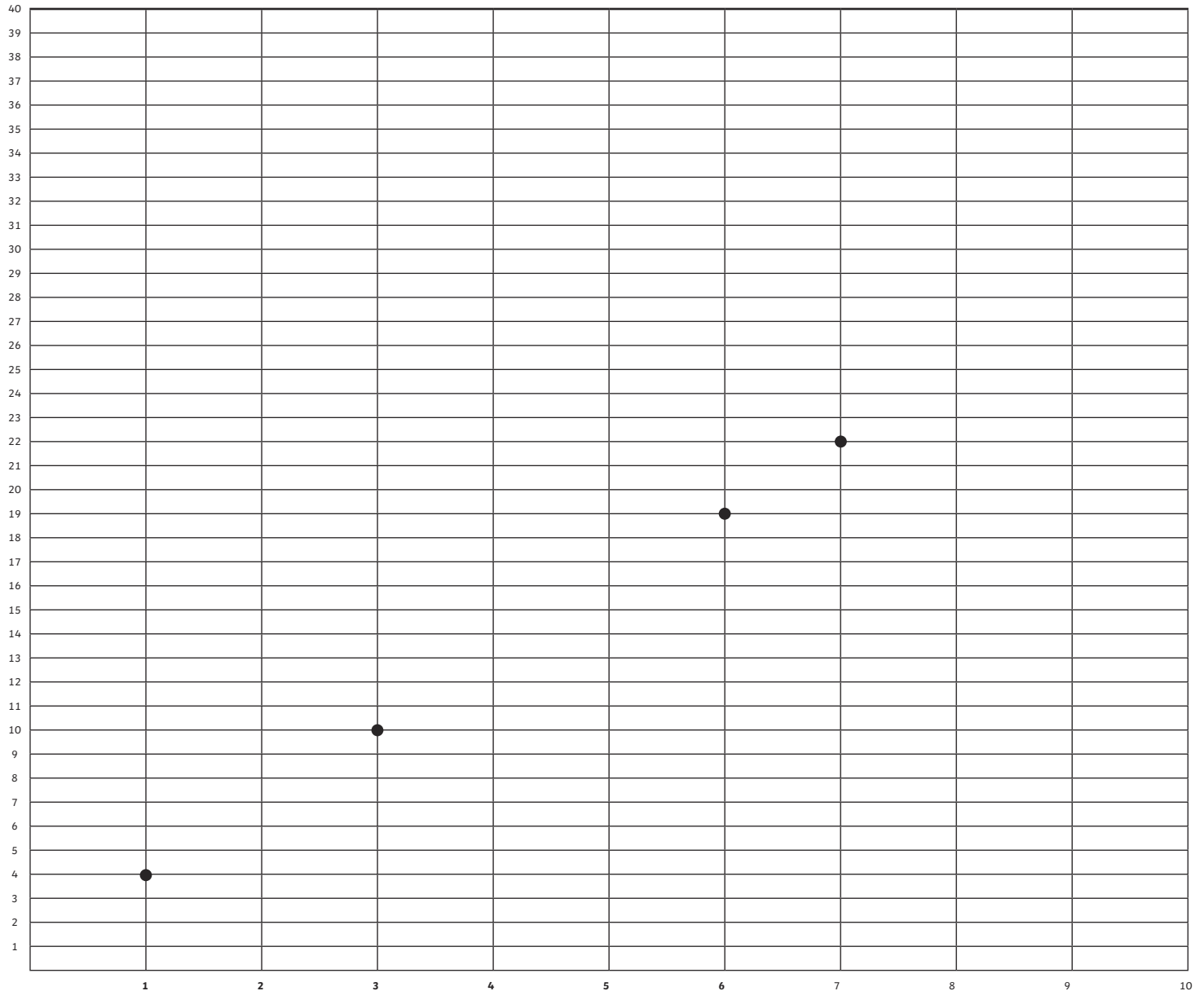# Super Sequences Extra Challenge

I can find the term to term rule to extend a sequence of numbers.

This graph shows a linear sequence.

There are three terms missing from the sequence. Can you plot them on the graph?

Add the next three terms to the sequence on the graph.

The graph shows the first ten terms of the sequence. If we wanted to find the 41st term in the sequence, we could continue plotting points on the graph by adding the same amount each time. However, it would take a long time! Can you think of a more efficient way to find any term in this sequence without using continued addition? See if you can find the 41st term.

Have a go by yourself, then look at the hints and tips on the next page if you need to.

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The method for working out any term in the sequence is known as 'finding the nth term'. The nth term is a formula for working out any term in a sequence.

First of all, we need to find the term to term rule for the sequence.

In this case, it is +3.

So, our formula will start off '3n'. This means 3 multiplied by whichever term you want to find.

This is not enough information to help us find any term though. For example, if we used this formula to find the 2nd term, we would do 3 multiplied by 2. This would give us 6. Using the graph above, we know the 2nd term is actually 7.

Our next step is to compare the actual terms with the 3 times table.

Complete the table below and look for patterns.

3 times table	Sequence
3	
6	
9	
12	
15	
18	
21	
24	
27	
30	

Do you notice the pattern?

The terms of the sequence are all 1 higher than the corresponding number in the 3 times table.

We can show this information in the formula like this: **3n + 1**

We can now use this formula to find any term in the sequence.
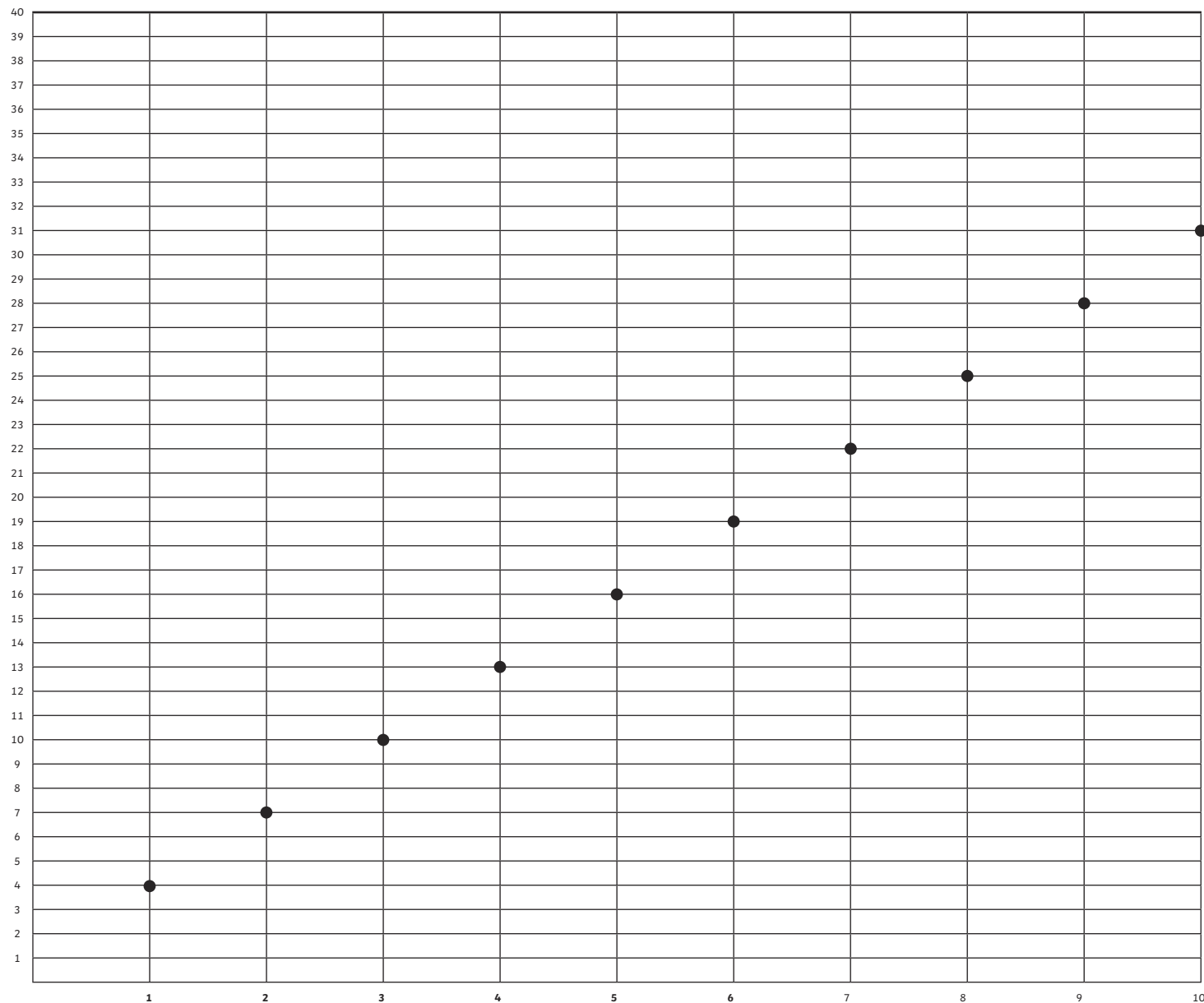
Can use use it to find the 41st term?

_____

_____

Super Sequences Extra Challenge – Answers

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Mathematics I Year 6 I Number and Algebra I Patterns and Algebra I Super Sequences I Lesson 1 of 3: What's the Rule?

The method for working out any term in the sequence is known as 'finding the nth term'. The nth term is a formula for working out any term in a sequence.

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Our next step is to compare the actual terms with the 3 times table.

Complete the table below and look for patterns.

3 times table	Sequence
3	**4**
6	**7**
9	**10**
12	**13**
15	**16**
18	**19**
21	**22**
24	**25**
27	**28**
30	**31**

Do you notice the pattern?

The terms of the sequence are all 1 higher than the corresponding number in the 3 times table.

We can show this information in the formula like this: 3n + 1

We can now use this formula to find any term in the sequence.

Can use use it to find the 41st term?

The 41st term can be found using the formula 3n + 1:

3 x 41 = 123   123 + 1 = 124   The 41st term is 124.

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