Edward Peake Church of England Middle School		
Topic: Sequences	**Year: 8**	**NC Strand: Algebra**

What should I already know?
• I can describe and continue a sequence given diagrammatically • I can predict and check the next term(s) of a sequence • I can represent sequences in tables and graphs • I can recognise the difference between a linear and non-linear sequence • I can continue numerical sequences • I can continue non-numerical sequences • I can explain the term to term rule of numerical sequences in words • I can find missing numbers within sequences

What will I know by the end of the unit?
• How to generate sequences given a rule in words • How to generate sequences given a simple algebraic rule • How to generate sequences given a complex algebraic rule • How to find the rule for an nth term of a linear sequence

Vocabulary			
Sequence	Fibonacci	Integer	Rule
Position	Difference	Non-integer	Position to term
Term	Constant	Substitute	Coefficient
Linear	Term to Term	Bracket	
Non-linear	Algebraic	Expand	

Investigate/Homework tasks
● Homework will be set by your teacher using google classroom ● You should complete at least 30 minutes of maths tasks using the website and log in provided by your teacher. Please attend help sessions if you do not have access to the internet at home ● Additional work you could complete: ○ Find out more about the meaning of the vocabulary list using http://www.amathsdictionaryforkids.com/ ● To challenge yourself: Answer the key questions to deepen your knowledge

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Key Information/Diagrams

Write the first five terms of the sequence that has an *n*th term of $6n + 7$

Step 1: Build a table

Position	1	2	3	4	5
Term					

Step 2

Fill in the table using the position numbers.

Position	1	2	3	4	5
Term	13				

To find the *first* term in the sequence, substitute 1 for *n*.

$6n + 7$
$6(1) + 7$
$6 + 7 = 13$

Step 2 (continued)

Fill in the table using the position numbers.

Position	1	2	3	4	5
Term	13	19			

To find the *second* term in the sequence, substitute 2 for *n*.

$6n + 7$
$6(2) + 7$
$12 + 7 = 19$

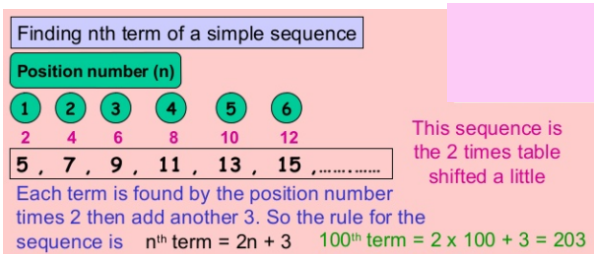
Step 2 (continued)

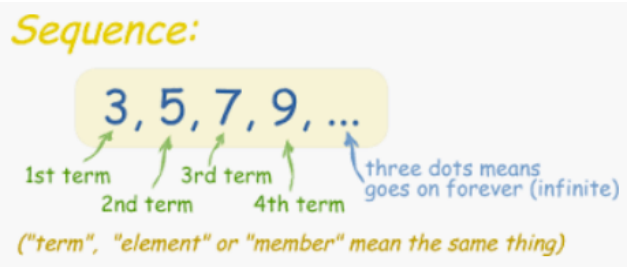
Fill in the table using the position numbers.

Position	1	2	3	4	5
Term	13	19	25	31	37

To find the *fifth* term in the sequence, substitute 5 for *n*.

$6n + 7$
$6(5) + 7$
$30 + 7 = 37$





Key Questions

What's the name for a sequence where there is a constant difference between successive terms?
What would the graph of such a sequence look like?
What information do you need to give to fully describe a sequence? Why is e.g. 'it goes up in 3s' not enough?

How can you tell by looking at the rule for the nth term of a sequence whether it is linear or not?
Is it possible for n to take non-integer values? Why or why not?
How can we form an equation to see if the number is in the sequence?

What is the difference between how we work out e.g. $3n^2$ and $(3n)^2$? How do you know?

Do we need to expand the brackets first in order to

What does n represent here?
How can you tell the sequence is linear?
What is the constant difference in this sequence?
How does this relate to the coefficient of n?

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