


Subject	Year	Month	
Mathematics	9	December	

Topic:

FIBONACCI AND QUADRATIC SEQUENCES 4 LESSONS

Content (Intent)

<p>Prior Learning</p> <p>Y7</p> <ul style="list-style-type: none"> Continue any given sequence Finding the nth term of a linear sequence <p>Y8</p> <ul style="list-style-type: none"> Generate a linear sequence from its nth term Find the nth term for linear sequence Square positive and negative numbers 	<p>Future Learning</p> <ul style="list-style-type: none"> Finding the nth term of a quadratic sequence Compound Interest and Depreciation using Geometric Sequences
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<p>Objectives</p> <ul style="list-style-type: none"> Recognise and use the Fibonacci sequence Generate Fibonacci type sequences and find the next two terms Generate terms of a quadratic sequence from a written rule (and continue a given quadratic sequence) Generate terms of a quadratic sequence from its nth term 	<p>For teaching purposes</p> <p>Possible Questions</p> <ul style="list-style-type: none"> A sequence has the first two terms 1, 2, ... Show me a way to continue this sequence. And another. And another ... A sequence has nth term $3n^2 + 2n - 4$. Jenny writes down the first three terms as 1, 12, 29. Kenny writes down the first three terms as 1, 36, 83. Who do agree with? Why? What mistake has been made? What is the same and what is different: 1, 1, 2, 3, 5, 8, ... and 4, 7, 11, 18, 29, ... <p>Misconceptions</p> <ul style="list-style-type: none"> may think that it is possible to find an nth term for any sequence. A Fibonacci type sequence would require a recurrence relation instead. may think that the word 'quadratic' involves fours. may substitute into ax^2 incorrectly, working out $(ax)^2$ instead.
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Pedagogical notes (implementation)	How will understanding be assessed & recorded (Impact)
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<p>NCETM: Departmental workshops: Sequences NCETM: Glossary</p> <p>The Fibonacci sequence consists of the Fibonacci numbers (1, 1, 2, 3, 5, ...), while a Fibonacci type sequence is any sequence formed by adding the two previous terms to get the next term.</p> <p><i>'Fibonacci solver'</i>.</p>	<p>End of term Assessment in December Exams in May 9BAM6 Sequences</p> <p>How can parents help at home?</p> <p>MathsWatch clips (Qualification KS3) A22, A23b</p>
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Further reading/discussion

<p>Reading / Enrichment</p> <p>KM: Forming Fibonacci equations</p> <p>KM: Mathematician of the Month: Fibonacci</p> <p>KM: Leonardo de Pisa</p> <p>KM: Fibonacci solver. Students can be challenged to create one of these.</p> <p>KM: Sequence plotting. A grid for plotting nth term against term.</p> <p>KM: Maths to Infinity: Sequences</p> <p>NRICH: Fibs</p>	<p>Literacy</p> <p>Term</p> <p>Term-to-term rule</p> <p>Position-to-term rule</p> <p>nth term</p> <p>Generate</p> <p>Linear</p> <p>Quadratic</p> <p>First (second) difference</p> <p>Fibonacci number</p> <p>Fibonacci sequence</p>	<p>Numeracy Links</p>	<p>Careers Links</p> <p>Artist</p> <p>Biologist</p>
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