



## Curriculum Map for Higher Maths Year 11

YEAR 11	Autumn 1	Autumn 2
<b>Topics</b>	<b>Vectors &amp; Geometric Proof</b>	<b>Proportion &amp; Graphs</b>
<b>Substantive Knowledge – The Knowledge Taught By The Teacher</b>	<ul style="list-style-type: none"> <li>Students will learn about vectors, vector arithmetic and resultant vectors.</li> <li>Students will learn about parallel vectors and collinear points.</li> <li>Students will learn about geometric proof involving vectors.</li> </ul>	<ul style="list-style-type: none"> <li>Students will learn to draw and interpret reciprocal and exponential graphs.</li> <li>Students will learn how to estimate the gradient at a point on a curve.</li> <li>Students will learn how to estimate the area under graphs.</li> <li>Students will learn about the algebraic equations linked to direct and inverse proportion.</li> </ul>
<b>Disciplinary Knowledge – Concepts, Investigations, Conjecture, Proof, Problem Modelling and Problem Solving</b>	<ul style="list-style-type: none"> <li>Understand vectors have a link to algebra.</li> <li>Understand the difference between scalars and vectors.</li> </ul>	<ul style="list-style-type: none"> <li>Understand that <math>X</math> is inversely proportional to <math>Y</math> is equivalent to <math>X</math> is proportional to <math>1/Y</math>; construct and interpret equations that describe direct and inverse proportion.</li> <li>Understand the basic concepts of integration and differentiation.</li> </ul>
<b>Skills</b>	<ul style="list-style-type: none"> <li>Apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors; use vectors to construct geometric arguments and proof.</li> </ul>	<ul style="list-style-type: none"> <li>Recognise, sketch and interpret graphs of the reciprocal function <math>y=1/x</math> with <math>x \neq 0</math>, exponential functions <math>y = k^x</math> for positive values of <math>k</math>.</li> <li>Plot and interpret reciprocal graphs and exponential graphs.</li> <li>Interpret the gradient at a point on a curve as the instantaneous rate of change; apply the concepts of average and instantaneous rate of change (gradients of chords and tangents) in numerical, algebraic and graphical contexts (this does not include calculus).</li> </ul>
<b>Links To Prior Learning</b>	<ul style="list-style-type: none"> <li>Building on Pythagoras Theorem and Trigonometry in order to further develop vector notation, arithmetic notations, collinear work, ratio, algebraic and problem solving.</li> </ul>	<ul style="list-style-type: none"> <li>Building on drawing linear, quadratic and trigonometric graphs.</li> </ul>
<b>Literacy/ Numeracy</b>	<ul style="list-style-type: none"> <li>The language of vectors.</li> </ul>	<ul style="list-style-type: none"> <li>The language of proportion.</li> <li>The language of graphs.</li> </ul>
<b>Cross Curricular</b>	<ul style="list-style-type: none"> <li>Any areas which use vectors such as Engineering.</li> </ul>	<ul style="list-style-type: none"> <li>Any areas that use the basic concept of calculus such as Science and Engineering.</li> </ul>

		<ul style="list-style-type: none"> <li>Any areas which use direct and inverse proportion such as Science and Business.</li> </ul>
<b>Assessment</b>	<ul style="list-style-type: none"> <li>Learning checks throughout with low stakes questioning and starters.</li> <li>Summative assessment at the end of the topic.</li> </ul>	<ul style="list-style-type: none"> <li>Learning checks throughout with low stakes questioning and starters.</li> <li>Summative assessment at the end of the topic.</li> </ul>

<b>YEAR 11</b>	<b>Spring 1 &amp; 2 - Summer 1</b>
<b>Topics</b>	<p><b>This time is used to catch up on topics that have not been finished by the end of Autumn 2.</b></p> <p><b>A structured revision programme is then put in place for each class based on gaps analysis from the Year 11 Mock Exams and in class assessments.</b></p>
<b>Substantive Knowledge</b>	
<b>Disciplinary Knowledge</b>	
<b>Problem Solving</b>	
<b>Skills</b>	
<b>Links To Prior Learning</b>	
<b>Literacy/Numeracy</b>	
<b>Cross Curricular</b>	
<b>Assessment</b> – GCSE Exams in May & June	