

# Mathematics

## Year 11F Curriculum Map

Unit One	Unit Two	Unit Three
<p><b>Topic: Standard Form</b></p> <p><b>Key Learning:</b> Calculating in standard form and reviewing the laws of indices</p> <p><b>Assessment:</b> PPE</p>	<p><b>Topic: Sequences</b></p> <p><b>Key Learning:</b> Continuing, describing and generalising sequences.</p> <p><b>Assessment:</b> PPE</p>	<p><b>Topic: Straight line graphs</b></p> <p><b>Key Learning:</b> Equations of lines and parallel lines, comparing gradients and intercepts and finding midpoints.</p> <p><b>Assessment:</b> PPE</p>
Unit Four	Unit Five	Unit Six
<p><b>Topic: Trigonometry</b></p> <p><b>Key Learning:</b> Using the trigonometric ratios to find missing sides and angles</p> <p><b>Assessment:</b> PPE</p>	<p><b>Topic: Percentages</b></p> <p><b>Key Learning:</b> Using simple and compound interest and reverse percentages to solve complex problems.</p> <p><b>Assessment:</b> PPE</p>	<p><b>Topic: Simultaneous Equations</b></p> <p><b>Key Learning:</b> Solving simultaneous equations by substitution, elimination and graphically</p> <p><b>Assessment:</b> PPE</p>



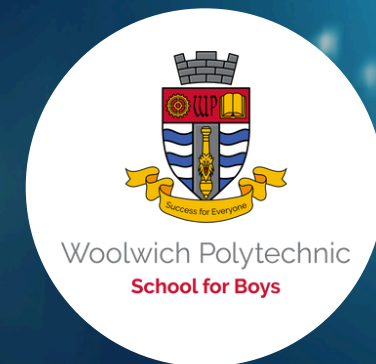
# Mathematics

## Year 11F Curriculum Map

Unit Seven	Unit Eight	Unit Nine
<p><b>Topic: Quadratic Equations</b></p> <p><b>Key Learning:</b> Expanding and factorising quadratics, solving where <math>a=1</math> and drawing quadratic graphs.</p> <p><b>Assessment:</b> PPE</p>	<p><b>Topic: Similarity and Congruence</b></p> <p><b>Key Learning:</b> Following the rules of similar shapes and angles to solve problems.</p> <p><b>Assessment:</b> PPE</p>	<p><b>Topic: Vectors</b></p> <p><b>Key Learning:</b> Using vectors to move points, shapes and lines and simple column vector arithmetic.</p> <p><b>Assessment:</b> PPE</p>

# Mathematics

## Year 12 Curriculum Map



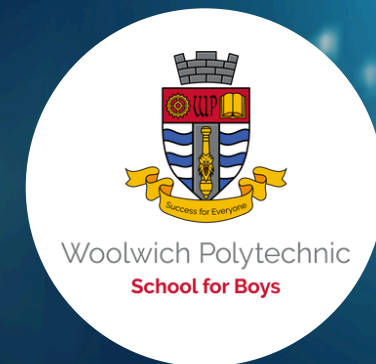
Woolwich Polytechnic  
School for Boys



	Autumn One	Autumn Two	Spring One
TEACHER ONE	<p><b>Unit:</b> Algebra and functions</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Algebraic expressions – basic algebraic manipulation, indices and surds</li> <li>Quadratic functions – factorising, solving, graphs and the discriminants</li> <li>Equations – quadratic/linear simultaneous</li> <li>Inequalities – linear and quadratic (including graphical solutions)</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Unit:</b> Differentiation</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Definition, differentiating polynomials</li> <li>Second derivatives</li> <li>Gradients, tangents, normal</li> <li>Maxima and minima</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Unit:</b> Trigonometry</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Trigonometric ratios</li> <li>Trigonometric graphs</li> <li>Trigonometric identities</li> <li>Trigonometric equations</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>
TEACHER TWO	<p><b>Unit:</b> Coordinate geometry in the (x, y) plane</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Straight-line graphs, parallel/perpendicular, length and area problems</li> <li>Circles – equation of a circle, geometric problems on a grid</li> <li>Graphs – cubic, quartic and reciprocal</li> <li>Transformations – transforming graphs – <math>f(x)</math> notation</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Unit:</b> Kinematics</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Graphical representation of velocity, acceleration and displacement</li> <li>Motion in a straight line under constant acceleration; suvat formulae for constant acceleration; Vertical motion under gravity</li> <li>Variable force; Calculus to determine rates of change for kinematics</li> <li>Use of integration for kinematics problems i.e.</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Unit:</b> Forces &amp; Newton's laws</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Newton's first law, force diagrams, equilibrium,</li> <li>Introduction to i, j system</li> <li>Newton's second law, '<math>F = ma</math>', connected particles (no resolving forces or use of <math>F = \mu R</math>);</li> <li>Newton's third law: equilibrium, problems involving smooth pulleys</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>

# Mathematics

## Year 12 Curriculum Map



	Spring Two	Summer One	Summer Two
TEACHER ONE	<p><b>Unit:</b> Further algebra</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Algebraic division</li> <li>Factor theorem</li> <li>Proof</li> <li>The binomial expansion</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Unit:</b> Vectors (2D)</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Definitions, magnitude/direction,</li> <li>Addition and scalar multiplication</li> <li>Position vectors</li> <li>Distance between two points, geometric problems</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Unit:</b> Exponentials and logarithms</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Exponential functions</li> <li>Natural logarithms</li> <li>Transformations – transforming graphs</li> <li>Derivatives and integrals</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>
TEACHER TWO	<p><b>Topic:</b> Data presentation and interpretation</p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Calculation and interpretation of measures of location;</li> <li>Calculation and interpretation of measures of variation;</li> <li>Understand and use coding</li> <li>Interpret diagrams for single-variable data; Interpret scatter diagrams and regression lines; Recognise and interpret outliers;</li> <li>Draw simple conclusions from statistical problems</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Topic:</b></p> <p><b>Key Learning:</b></p> <ul style="list-style-type: none"> <li>Use discrete distributions to model real-world situations; Identify the discrete uniform distribution</li> <li>Calculate probabilities using the binomial distribution (calculator use expected)</li> <li>Language of hypothesis testing; Significance levels</li> <li>Carry out hypothesis tests involving the binomial distribution</li> </ul> <p><b>Assessment:</b> Weekly exam questions; end of unit exam</p>	<p><b>Revision/Exam Preparation</b></p> <p>Paper 1: Pure Mathematics 62.5%, 2 hours, 100 marks</p> <p>Paper 2: Statistics and Mechanics 37.5%, 1 hour 15 minutes, 60 marks</p>