

## Rainford High School – Department: Maths

Year 11 Curriculum						
	Term 1		Term 2		Term 3	
Topic	<b>Foundation</b> Quadratics Quadratic, cubic and reciprocal graphs Simultaneous equations Kinematics Reflections and rotations Translation and enlargements Similarity and congruence Vectors Probability Probability trees Venn diagrams	<b>Higher</b> Quadratics Quadratic graphs Quadratic inequalities Simultaneous equations Circle theorems Kinematics Other functions Numerical methods Functions Construction and loci Plans and elevations	<b>Foundation</b> Volume and Surface Area Compound measures Real life graphs Collecting data Statistical measures Representing data Scatter graphs Construction and loci Plans and elevations Function machines	<b>Higher</b> Collecting data Statistical measures Representing data Scatter graphs Probability Probability trees Venn diagrams Transforming functions Vectors Algebraic proof	<b>Foundatio n</b> Revision and exam practice	<b>Higher</b> Revision and exam practice
Essential knowledge, skills and understanding	<ul style="list-style-type: none"> <li>Factorise and solve quadratics</li> <li>Solve quadratics when rearranging is needed</li> <li>Recognise and factorise difference of 2 squares</li> <li>Draw graphs of quadratic functions</li> <li>Use quadratic graphs to solve equations</li> <li>Identify turning points graphically</li> <li>Plot, sketch and recognise cubic and reciprocal graphs</li> <li>Set up and solve linear simultaneous equations</li> <li>Use kinematics formulae</li> <li>Reflect shapes on a grid</li> <li>Rotate shapes on a grid</li> </ul>	<ul style="list-style-type: none"> <li>Draw graphs of quadratic functions</li> <li>Use quadratic graphs to solve equations</li> <li>Identify turning points graphically</li> <li>Solve quadratic equations using the formula and completing the square</li> <li>Identify turning points and roots of quadratics algebraically</li> <li>Solve ratio and fraction problems which involve quadratic equations</li> <li>Set up and solve linear simultaneous equations</li> <li>Solve linear and quadratic simultaneous equations including graphically</li> <li>Understand and use circle theorems to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>Calculate and solve problems related to the surface area and volume of 3D shapes</li> <li>Convert between units of volume</li> <li>Conversion graph problems</li> <li>Solve problems relating to compound measures- speed, pressure, density</li> <li>Real life graphs- currency conversion, cost relationship graphs</li> <li>Types of data</li> <li>Samples and populations</li> </ul>	<ul style="list-style-type: none"> <li>Discrete and continuous data</li> <li>Averages from tables</li> <li>Pie charts, bar charts, time series, misleading graphs</li> <li>Histograms</li> <li>Cumulative frequency graphs and box plots</li> <li>Plot and interpret Scatter graphs using lines of best fit</li> <li>Understand and use the probability scale</li> <li>Solve various probability problems involving mutually exclusive events, sample spaces, listing strategies, two way tables, frequency trees, theoretical and experimental probability.</li> </ul>	Revision and exam practice	Revision and exam practice

	<ul style="list-style-type: none"> <li>• Translate shapes given a vector</li> <li>• Enlarge shapes with positive and fractional scale factors</li> <li>• Describe Reflections, rotations, translations and enlargements</li> <li>• Invariant points</li> <li>• Similar shape- find missing angles and sides</li> <li>• Recognise and identify congruent triangles</li> <li>• Represent column vectors</li> <li>• Add and subtract column vectors</li> <li>• Multiply vectors by a scalar</li> <li>• Understand and use the probability scale</li> <li>• Solve various probability problems involving mutually exclusive events, sample spaces, listing strategies, two way tables, frequency trees, theoretical and experimental probability.</li> <li>• Use probability trees to solve problems for dependent and independent events.</li> <li>• Know what is meant by a set and solve problems involving sets venn diagrams and probability</li> </ul>	<ul style="list-style-type: none"> <li>• Prove the circle theorems</li> <li>• Interpret gradient as a rate of change</li> <li>• Solve SUVAT equation problems</li> <li>• Solve problems using velocity time graphs</li> <li>• Solve problems of repeated proportional change including compound interest</li> <li>• Solve exponential growth and decay problems</li> <li>• Solve problems using exponential graphs</li> <li>• Solve problems through sign change methods</li> <li>• Draw graphs of cubic and reciprocal functions from tables</li> <li>• Solve problems with cubic, reciprocal, and circle graphs</li> <li>• Recognise and solve problems with the equation of a circle and related features</li> <li>• Understand and use function machines</li> <li>• Interpret an expression using a function machine and vice versa</li> <li>• Solve problems with composite and inverse functions</li> <li>• Construct and recognise nets of 3D shapes</li> <li>• Plans and elevations</li> <li>• Construct perpendicular bisectors and angle bisectors</li> <li>• Construct loci to solve problems</li> </ul>	<ul style="list-style-type: none"> <li>• Use tables and charts to collect and record data</li> <li>• Averages from a list of data and from tables</li> <li>• Estimate the mean from grouped data</li> <li>• Compare distributions</li> <li>• Pie charts, bar charts, time series</li> <li>• Misleading graphs</li> <li>• Plot and interpret scatter graphs</li> <li>• Use lines of best fit to estimate</li> <li>• Construct triangles, perpendicular bisectors, angle bisectors</li> <li>• Loci problems</li> <li>• Plans and elevations</li> <li>• Understand and use function machines</li> <li>• Interpret an expression using a function machine and vice versa</li> </ul>	<ul style="list-style-type: none"> <li>• Use probability trees to solve problems for dependent and independent events. Including those which lead to quadratic or linear equations</li> <li>• Know what is meant by a set and solve problems involving sets venn diagrams and probability</li> <li>• Solve more complex and algebraic Venn diagram problems</li> <li>• Translate and reflect graphs</li> <li>• Understand and use vector notation to solve problems</li> <li>• Solve problems involving parallel and perpendicular vectors</li> <li>• Solve vector problems involving ratio</li> <li>• Prove points are colinear</li> <li>• Decide with a reason if a statement is true or false</li> <li>• Use a counter example</li> <li>• Use identities by equating coefficients</li> <li>• Use step by step deduction to solve problems</li> <li>• Derive algebraic proofs through reasoning</li> </ul>		
Assessments and assessment focus	Topic test 1 Topic test 2 Mock Papers 1,2 and 3		Topic Test 3 Topic Test 4 Topic Test 5		GCSE Exams	