

# Maths



**Department Intent:** To provide mathematics instruction that will encourage students to become accurate, efficient, and flexible problem solvers with the skills to apply that core knowledge, to a variety of situations that are known and unknown to us at this time.

## Intention Overview:

<b>Curriculum Knowledge</b>	
<p>All students study GCSE Mathematics. Mathematics is the cornerstone of many careers and integrates into many other disciplines within school. Across Key Stage 4, mathematics fosters and develops students' resilience and problem-solving. The focus in the mathematics curriculum is on mastering the mathematical knowledge and then being able to apply that knowledge to both calculator and non-calculator GCSE questions including multi-stage problem solving questions, as they would encounter in the real world.</p>	
<p><b>Year 9:</b> Students learn how to:</p> <ul style="list-style-type: none"> <li>● Use number, including factors and multiples, rounding and estimation, fractions, ratio, percentages and surds.</li> <li>● Use algebra, including expanding brackets, factorising, solving equations, nth term and straight line graphs.</li> <li>● Use geometry, including area and volume, congruence, similarity, angles and bearings and Pythagoras' theorem and trigonometry.</li> <li>● Use data handling, including sampling, bias, averages and measures of spread, charts and probability.</li> </ul>	
<p><b>Year 10:</b> Students learn how to apply the above key concepts into multifaceted areas of maths:</p> <ul style="list-style-type: none"> <li>● Use number, including fractional and negative indices, surds, further percentages, compound interest, iterative methods and revision of year 10- topics.</li> <li>● Use algebra, including solving equations, expanding, factorising and solving and using quadratic equations, transformations of graphs, inequalities of graphs and simultaneous equations.</li> <li>● Use geometry, including transformations, Pythagoras' theorem and trigonometry in 3D, volume and surface areas of cones, spheres and cuboids, loci and circle theorems.</li> <li>● Use data handling, including tree diagrams, Venn diagrams, probability, histograms, frequency diagrams, cumulative frequency diagrams and comparing box-plots.</li> </ul>	
<p><b>Year 11:</b> Students target topics that have been found to need a greater amount of mathematical maturity, as well as new topics from previous A level content. This includes:</p> <ul style="list-style-type: none"> <li>● Transforming functions</li> <li>● Growth and Decay</li> <li>● Differentiation</li> <li>● Area under a curve</li> </ul>	
<b>Skill Development</b>	
<p><b>Subject Specific Skills:</b></p> <ul style="list-style-type: none"> <li>● Problem solving</li> <li>● Use of money and finances</li> </ul>	<p><b>Wider Academic Skills / Attributes:</b></p> <ul style="list-style-type: none"> <li>● Real-life application to all other disciplines.</li> </ul>
<b>Personal Development - SMSC and Cultural Capital (opportunities/experiences)</b>	
<ul style="list-style-type: none"> <li>● Ability to make use of key mathematical skills and understanding in wider society.</li> <li>● UKMT Team challenges</li> <li>● PGL Trips</li> <li>● University Trips maths department</li> <li>● Financial module</li> <li>● Alternative Qualifications</li> <li>● Escape Rooms</li> </ul>	