



The curriculum for this late stage of students' education has been designed to build upon their knowledge of similarity, algebra, geometry, proportional change, data and number. Students will be introduced to new formulae for calculating volumes of solids (substitution was studied previously). Students will focus on expanding and factorising with quadratics and then go on to solve quadratic equations later in the year. Students will look at trigonometry in triangles, which will be new to some but may have been covered in year 9 (during Covid online lessons). As will be the idea of simultaneous equations and vectors. Each unit, students will focus on one particular area of mathematics, allowing for a greater depth of that topic and allowing regular repetition of skills, as well as allowing students to make links between topics. Throughout the year, students will be exposed to regular exam questions and exam papers to prepare them fully for their mock exams and ultimately the GCSE examination. Underpinning the curriculum areas, will be the opportunity to explore how the skills they are developing can be used in real life situations and applied to problem solving questions.

<p><b>HALF TERM 1:</b> <b>STUDENTS MUST KNOW:</b> How to calculate volumes of prisms, curved solids and pyramids How to expand double brackets How to factorise a quadratic expression How to rearrange formulae and identities How to draw and interpret charts and diagrams How to obtain and use a sample from a population How to calculate simple and compound interest How to calculate the original amount, given the final amount after a known percentage increase or decrease.</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic.</p>	<p><b>HALF TERM 2:</b> <b>STUDENTS MUST KNOW:</b> How to draw and read values from quadratic graphs How to identify important points of a quadratic function graphically How to recognise and plot cubic and reciprocal graphs How to solve a quadratic equation by factorisation How to calculate lengths in a right-angled triangle using Pythagoras' Theorem</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic. All students will sit a mock GCSE exam in November.</p>	<p><b>HALF TERM 3:</b> <b>STUDENTS MUST KNOW:</b> How to use the three trigonometric ratios to calculate missing sides and missing angles in right-angled triangles How to work with trigonometric values for angles of 30°, 45°, 60° and 90° without a calculator How to solve simultaneous equations in two variables How to read two-way tables and use them to work out probabilities How to read and use frequency tree diagrams to work out probabilities How to read and use tree diagrams to work out probabilities</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic.</p>
<p><b>HALF TERM 4:</b> <b>STUDENTS MUST KNOW:</b> How to solve problems where two variables have a directly proportional relationship How to work out the constant of proportionality How to solve problems where two variables have an inversely proportional relationship How to add and subtract vectors How to multiply a vector by a scalar</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic. All students will sit a mock GCSE exam in March.</p>	<p><b>HALF TERM 5: REVISION/FORMAL EXAMINATION</b> <b>STUDENTS MUST KNOW:</b></p> <p><b>HOW THIS WILL BE ASSESSED:</b></p>	<p><b>HALF TERM 6: FORMAL EXAMINATION</b> <b>STUDENTS MUST KNOW:</b></p> <p><b>HOW THIS WILL BE ASSESSED:</b></p>

Embedding this knowledge will be supported at home by using HegartyMaths to consolidate learning that has taken place in class.  
Additional revision could be: attempting questions found online at [www.corbettmaths.com](http://www.corbettmaths.com), practising exam papers from the AQA website and [www.mathsgenie.co.uk](http://www.mathsgenie.co.uk).



The curriculum for this stage of students' education has been designed to prepare them for their final exam as well as providing the opportunity to access mathematics from the next stage of study. During the first term students will develop their graph interpretation skills by using distance and velocity time graphs to calculate speed, distance and acceleration. Students will also study transformations of graphs as well as iterations which are both fundamental aspects of A level mathematics. Throughout the year, students will be exposed to regular exam questions and exam papers to prepare them fully for their exam at the end of the year. Underpinning the curriculum areas, will be the opportunity to explore how the skills they are developing can be used in real life situations and applied to problem solving questions.

<p><b>HALF TERM 1: ALGEBRA</b></p> <p><b>STUDENTS MUST KNOW:</b> How to calculate angle and lengths of non-right-angled triangles including</p> <ul style="list-style-type: none"> <li>• Sine rule.</li> <li>• Cosine rule.</li> <li>• Area of a non-right-angled triangle.</li> </ul> <p>How to interpret a real-life graph including</p> <ul style="list-style-type: none"> <li>• Distance time graphs.</li> <li>• Velocity time graphs.</li> <li>• Calculating rates of change.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> A GCSE exam paper will be completed each week and feedback provided, as well as assessments at the end of each topic.</p>	<p><b>HALF TERM 2: ALGEBRA</b></p> <p><b>STUDENTS MUST KNOW:</b> How to manipulate algebraic fractions and functions including</p> <ul style="list-style-type: none"> <li>• The four operations with algebraic fractions.</li> <li>• Solving equations containing algebraic fractions.</li> <li>• Composite functions.</li> <li>• Inverse functions.</li> </ul> <p>The importance of vectors in describing mathematical movement including</p> <ul style="list-style-type: none"> <li>• Addition and subtraction of vectors.</li> <li>• Solving geometrical problems involving vectors.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> A GCSE exam paper will be completed each week and feedback provided, assessments at the end of each topic and a whole school mock exam.</p>	<p><b>HALF TERM 3: NUMBER AND ALGEBRA REVISION</b></p> <p><b>STUDENTS MUST KNOW:</b> The fundamental aspects of algebra including</p> <ul style="list-style-type: none"> <li>• Solving equations.</li> <li>• Rearranging equations.</li> <li>• Properties of graphs.</li> <li>• Algebraic fractions.</li> </ul> <p>The fundamental aspects of number including</p> <ul style="list-style-type: none"> <li>• Percentages including using multipliers to calculate interest.</li> <li>• The four operations with decimals and fractions including real life problems.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> A GCSE exam paper will be completed each week and feedback provided.</p>
<p><b>HALF TERM 4: GEOMETRY, STATISTICS AND RATIO REVISION</b></p> <p><b>STUDENTS MUST KNOW:</b> The fundamental aspects of geometry and statistics including</p> <ul style="list-style-type: none"> <li>• Trigonometry.</li> <li>• Circle theorems.</li> <li>• Similarity and congruence.</li> <li>• Histograms and cumulative frequency graphs.</li> <li>• Probability.</li> </ul> <p>The fundamental aspects of ratio and proportion including</p> <ul style="list-style-type: none"> <li>• Direct and inverse proportion.</li> <li>• Application of ratio to other areas of mathematics.</li> </ul> <p><b>HOW THIS WILL BE ASSESSED:</b> A GCSE exam paper will be completed each week and feedback provided and a whole school mock exam.</p>	<p><b>HALF TERM 5: TARGETED REVISION</b></p> <p><b>STUDENTS MUST KNOW:</b> How to apply their knowledge of the content learnt to exam style questions.</p> <p><b>HOW THIS WILL BE ASSESSED:</b> External examinations in May and June.</p>	<p><b>HALF TERM 6: TARGETED REVISION</b></p> <p><b>STUDENTS MUST KNOW:</b> How to apply their knowledge of the content learnt to exam style questions.</p> <p><b>HOW THIS WILL BE ASSESSED:</b> External examinations in May and June.</p>

Embedding this knowledge can be supported at home by using Dr Frost Maths website to consolidate learning that has taken place in class, attempting questions which can be found online at [www.corbettmaths.com](http://www.corbettmaths.com), practising exam papers from the AQA website and [www.mathsgenie.co.uk](http://www.mathsgenie.co.uk) and using revision guides and the CGP workbook provided.

The curriculum for this late stage of students' education has been designed to build upon their knowledge of similarity, algebra, geometry, proportional change, data and number. Students will be introduced to new formulae for calculating volumes of solids (substitution was studied previously) and formulae for trigonometry and the quadratic formula also. Students will focus on expanding and factorising with quadratics and then go on to solve quadratic equations later in the year. Students will look at trigonometry in triangles, which will be new to some but may have been covered in year 9 (during Covid online lessons). As will be the idea of simultaneous equations and vectors. Each unit, students will focus on one particular area of mathematics, allowing for a greater depth of that topic and allowing regular repetition of skills, as well as allowing students to make links between topics. Throughout the year, students will be exposed to regular exam questions and exam papers to prepare them fully for their mock exams and ultimately the GCSE examination. Underpinning the curriculum areas, will be the opportunity to explore how the skills they are developing can be used in real life situations and applied to problem solving questions.

<p><b>HALF TERM 1: STUDENTS MUST KNOW:</b> How to calculate volumes of prisms, curved solids and pyramids How to expand double brackets How to factorise a quadratic expression How to change the subject of a formula where the subject occurs more than once How to draw and interpret histograms How to obtain and use a sample from a population How to solve problems where two variables have a directly proportional relationship How to work out the constant of proportionality How to solve problems where two variables have an inversely proportional relationship</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic.</p>	<p><b>HALF TERM 2: STUDENTS MUST KNOW:</b> How to find the output and inverse of a function How to find the composite of two functions How to find an approximate solution for an equation using iterative processes How to draw and read values from quadratic graphs How to recognise and plot cubic, reciprocal, circle and trigonometric graphs How to solve a quadratic equation by factorisation How to solve a quadratic equation using the quadratic formula How to solve a quadratic equation by completing the square How to identify significant points of a quadratic function graphically and algebraically How to use Pythagoras' Theorem to solve problems in two and three dimensions</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic. All students will sit a mock GCSE exam in November.</p>	<p><b>HALF TERM 3: STUDENTS MUST KNOW:</b> How to use the three trigonometric ratios to calculate missing sides and missing angles in right-angled triangles How to work with trigonometric values for angles of 30°, 45°, 60° and 90° without a calculator How to solve simultaneous equations in two variables:</p> <ul style="list-style-type: none"> <li>• Linear/linear</li> <li>• Linear/quadratic</li> </ul> <p>How to use the sine rule and the cosine rule to find missing sides and angles in any triangle How to work out the area of a triangle if you know two sides and the included angle</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic.</p>
<p><b>HALF TERM 4: STUDENTS MUST KNOW:</b> How to work out the size of angles in circles How to use circle theorems to solve problems including missing angles and lines How to add and subtract vectors How to multiply a vector by a scalar How to use vectors to solve geometric problems</p> <p><b>HOW THIS WILL BE ASSESSED:</b> Assessments will be completed at the end of each topic. All students will sit a mock GCSE exam in March.</p>	<p><b>HALF TERM 5: REVISION/FORMAL EXAMINATION</b></p> <p><b>STUDENTS MUST KNOW:</b> How to simplify algebraic fractions How to solve equations containing algebraic fractions How to transform a graph How to read information from distance-time or velocity-time graphs How to use areas of rectangles, triangles and trapeziums to estimate the area under a curve How to draw a tangent at a point on a curve and use it to work out the gradient at a point on a curve</p> <p><b>HOW THIS WILL BE ASSESSED:</b></p>	<p><b>HALF TERM 6: FORMAL EXAMINATION</b></p> <p><b>STUDENTS MUST KNOW:</b></p> <p><b>HOW THIS WILL BE ASSESSED:</b></p>

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