Subject:	Mathematics Intent:	Our Exam Board is: AQA
Mathematics	The Maths department aims to challenge and inspire students to build logical, independent thinking skills, enabling a strong mathematical foundation to develop for every student, supporting success throughout the curriculum and throughout life.	

The Big Questions…

Year 12	Year 13
September-December: - Can you prove whether a line crosses a curve there a quick way to draw more complex graphs? How do you find the gradient at any point of a curve? What is the minimum surface area of a box that ensures the maximum volume? Do all trigonometric formulae work with all triangles? **January-April:** - How do you calculate the area under the curve? Can area ever be a negative value? What are logarithms and why do we use them? How is the growth of a virus measured? What is the displacement of points on a plane? How do you represent motion on a graph? What does a regression line tell you? Can your data be trusted? **May-July:** - Can you prove a mathematical fact by disproving it? How do you know if a particle is in equilibrium? What impact does the force of one object have on another? What impact does the modulus have on a graph? What is the difference between a geometric and an arithmetic sequence? Is there a quick way to find factors of polynomials? Is there a way to restructure a complex fraction and simplify calculations? How effective can a trapezium be in calculating area under a curve?	**September-December:** - Why is the binomial expansion useful? What is a radian and what is its significance? How do you calculate the rate a function changes? Can you use calculus with composite functions? How do you calculate the rate of change of related quantities? When working with the sum and difference of two angles what trigonometric functions can be used? Can a curve only be described in terms of x and y values? Can you find an approximate solution if an equation cannot be solved by algebraic rearrangement? **January-April:** - Can you represent constant acceleration with vectors? Can projectiles be modelled in two dimensions? How do you determine the acceleration of a particle moving on an inclined plane? What is rotational equilibrium used for? Can the Normal distribution be used to model data that is discrete? What evidence do you need to define correlation from a set of bivariate data? **May-July:** - Revision and preparation for Mathematics A Level.

What skills will I develop?

In addition to the key Mathematical knowledge that students will master, a sound understanding of Mathematics will also develop logical thinking skills that enable the solving of the more complex problems that life throws at us. The Mathematics studied at A Level constitutes the broader basis of knowledge needed to be successful when studying higher level mathematics in scientific and engineering disciplines Students are coached on techniques to break a problem into smaller more manageable parts and encouraged to transfer the skill they have learnt in the Maths class to other areas of the curriculum.

How will I be assessed?

Each week homework will be set, with details on SMHW. Students' knowledge of a topic will be assessed using the results of this work. Every student's understanding of the key topics will also be tested at the end of each chapter End of year exams will take place in Year 12 and mock exams in the January and March of Year 13. These will help students focus their time on topics that most need their attention.

Examination: The A level course is 100% exam-based. Three 2 hour papers cover key aspects of Pure Mathematics, Statistics and Mechanics.

What great resources can I use?

- https://www.mathsgenie.co.uk/alevel.html – selection of revision resources including past A Level questions sorted by Maths topic, with worked answers – excellent for final exam preparation.
- https://www.physicsandmathstutor.com/ - A Selection of revision notes and exam questions
- https://www.drfrostmaths.com/ - A series of revision resources including teaching PowerPoints often used in lessons
- https://www.mymaths.co.uk/ - on-line lessons on every Maths topic in the A Level syllabus with linked practice questions. Marked on-line so students get instant feedback.
- https://www.aqa.org.uk/subjects/mathematics/as-and-a-level - exam board website with the full Mathematics GCSE specification.

Three ways that parents/carers can help…

1. A Level Maths students must work on Maths for 5 hours each week, outside lessons, to ensure they have a full understanding of the topics being covered. Discuss with your child how they are spending this time and encourage them to get into a good routine from the start. This time should be spent finishing classwork/doing homework or revising using exam resources.
2. Encourage your child to approach their Maths homework as an opportunity to ensure they have an excellent understanding of that specific topic, rather than a task to tick to say it is done.
3. Help is available to all A Level Maths students every Wednesday after school in C2.6. It is important that students seek help and tackle misunderstandings at the earliest opportunity.