

Subject:	Mathematics Intent:
<b>MATHEMATICS</b> [Secure pathway]	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 7	Year 8	Year 9
<p><b>September-December:</b></p> <ul style="list-style-type: none"> <li>- Do the key number skills work with larger, smaller and more complex numbers? What is the most appropriate way to estimate a number? Can a compass be used to draw a perpendicular line? How does algebra help us find unknown values? How many ways can you express the same number?</li> </ul> <p><b>January-April:</b></p> <ul style="list-style-type: none"> <li>- How do you compare different quantities? What is the relationship between unknowns in a formula? How do speed, distance and time interact with each other? What are the formulae for calculating the area and volume of common shapes? How do you find the size of angles in a polygon?</li> </ul> <p><b>May-July:</b></p> <ul style="list-style-type: none"> <li>- What part do coordinates play when drawing a graph? What is the most appropriate way to collect and display data? What is the most appropriate average to use given a certain situation? How do you calculate the length of a side of a right-angled triangle? What is the likelihood of something happening?</li> </ul>	<p><b>September-December:</b></p> <ul style="list-style-type: none"> <li>- Can every number in the world be written as the product of a set of prime numbers? Does algebra still work with negative numbers and indices? How many different shapes can you construct with a compass and ruler? How does one value relate to another if they in proportion? How many different types of sequence are there? What information can be derived from the angles in a polygon?</li> </ul> <p><b>January-April:</b></p> <ul style="list-style-type: none"> <li>- Can every equation be solved? What is a prism? How do you compare length, area or volume of two similar shapes? What does it mean if two graphs have the same coordinate? What is the likelihood of two events happening?</li> </ul> <p><b>May-July:</b></p> <ul style="list-style-type: none"> <li>- Given the final price what was the original price? How much money will you owe if you borrow money over several years? How many lengths and angles can you find in a right-angle triangle?</li> </ul>	<p><b>September-December:</b></p> <ul style="list-style-type: none"> <li>- How many ways are there to find the size of an angle? Who still uses bearings and how do they work? How do you know if two lines are parallel or perpendicular? What impact do the limits of accuracy have on a measurement? How is pressure measured? How do mass, density and volume relate to each other? What is a histogram or a box plot and why are they used?</li> </ul> <p><b>January-April:</b></p> <ul style="list-style-type: none"> <li>- What is the difference between a linear and quadratic sequence? Can the measures of circles or spheres be stated exactly? What do reciprocal and exponential graphs tell us? How do we know if a triangle is right-angled? Can every quadratic equation be solved? What is the likelihood of events happening in a certain order?</li> </ul> <p><b>May-July:</b></p> <ul style="list-style-type: none"> <li>- What is the best way to manipulate very large and very small numbers? What is bivariate data and what can it tell us? How do we calculate missing angles in a right-angle triangle?</li> </ul>

#### What skills will I develop?

A sound understanding of Mathematics will develop the logical thinking skills that enable the solving of more complex problems. Mathematics underpins much of the world around us and forms the basis of the knowledge needed to be successful both in education and beyond. 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.

#### What great resources can I use?

- <https://www.mymaths.co.uk/> - on-line lessons on every Maths topic with linked practice questions. Marked on-line so students get instant feedback. (Often used for homework)
- <https://www.mathsworkout.co.uk/> - lots of practice on all the key topics in years 7-9, useful for practising those new skills.

#### How will I be assessed?

Each week homework will be set, with details on SMHW. At the end of some topics there will be a Topic Assessment. Students will know in advance and will be expected to prepare well. The assessments are open book and students are encouraged to use their classwork or revision notes in these tests. End of year exams will take place in every year to assess progress and provide specific areas for improvement for every student. This gives everyone the opportunity to achieve their best.

#### Three ways that parents/carers can help...

1. Ensure your child has all the Maths equipment that may be needed at all times. At any point a calculator, ruler, compass, protractor, pencil or rubber could be required in a Maths lessons.
2. Encourage your child to approach their Maths homework as an opportunity to ensure they have a good understanding of that specific topic, completing it with plenty of time to get help before the due date.
3. Students are encouraged to select areas for improvement following every topic assessment. Ask your child what topics they have chosen and let them describe what they have done to ensure their understanding has improved. This should involve 'doing' some Maths.