

## Curriculum Intent & Overview

The aim of the mathematics curriculum is to show students that mathematics underpins every aspect of life, so numerical and problem solving skills will be extremely valuable and sought after in all future careers, hobbies and general activities. The curriculum empowers students to question and explore where and why each skill will be used in a modern society, whilst also allowing them the opportunity to be curious and combine different skills and methods to solve complex multi-step problems in real life scenarios. All topics are in line with the National Curriculum standards and the order is chosen to meet the needs of our diverse cohort and to ensure there is a logical "building block" approach.

Students are taught by a team of passionate teachers who focus on building up the mathematical competency of their pupils over their journey from Y7 to Y11. Following a Mastery approach throughout, the first year is focused on developing student's understanding of basic core skills, such as arithmetic, algebra and using mathematical equipment. This enables students to smoothly transition and bridge the gap between KS2 & KS3, whilst also getting them to question some of the core principles taught at primary school and start to develop a deep understanding of the subject. Y8 and Y9 builds on these core skills and allows students to apply them to more challenging problem solving questions - a big focus of the GCSE exam papers. Topics taught in Y7 & Y8 are the same across the different ability sets, with the main difference being more applied and multi-step problems used in the upper sets. Top sets in Y9 start to look at topics that only apply to the Higher GCSE papers, whilst the lower sets will look to cover these at GCSE. Our shared resources ensure that lessons are consistent across classes and that topics are shown to have applicability in other subjects across the school curriculum (mainly sciences, but also geography, technology, computer science, etc).

At GCSE, the skills and techniques learnt at KS3 are applied to more complex topics and questions. Students are in sets that focus on either the Foundation or Higher papers and, as such, must follow different schemes of work. Our curriculum is divided into three sections - Foundation (low sets), Cross-Over (middle sets) and Higher (top sets). Although each of the three sections has an overall theme (e.g. number work), there is a big difference between the type of question that can be asked at Foundation level compared to Higher, even if the type of question falls under the same theme. Teachers are professionals with vast amounts of experience, so are given flexibility with which areas they feel their group needs to work on but always follow an approach that enables their students to have no boundaries and push for the most advanced skills possible. The two year SoW acts as a checklist, where any topics not covered in Y10 can be taught/retaught in Y11. Higher tier classes are advised to check basic understanding before attempting more complex topics - the layout of the SoW makes it easy to do this. Students regularly get a flavour for the types of questions asked in the exams by sitting GCSE papers - termly in Y10 and fortnightly in Y11. This approach at GCSE has proved hugely successful over the years and means that students leave with the valuable and transferrable skills required to thrive in society.

By KS5, mathematics students are confident and successful with the topic but must now apply their knowledge to mechanical, statistical and more abstract problems. They are still able to use the core skills and techniques learnt in the lower school, but mathematics always follows a building block approach and, as such, students must further develop these skills to solve real world problems. Our scheme of work ensures students bridge the gap between GCSE and A level and allows them to see the connections across topics. Spiralling curriculum (revisiting and building blocks)

KS3 Course Overview - TERM 1 (7 weeks)		
Y7: Geometry, Number	Y8: Number, Probability	Y9: Number, Algebra
We start with geometry so the new Y7 immediately see the use for equipment, follows Integer to establish a solid base of number work - Introduction to make sure that everyone is at the same level which will allow connection with other areas of the curriculum ==> perimeter associated with sum, areas with multiplication. It also contains other key skills required in other subjects like tech, art and science	We start the year by revising number work so students consolidate their basis - Y7 finished with decimals, we link it with estimation - fraction leads into probabilities - Probability is a new topic which is a good topic to start the year.	Basic number work and algebraic manipulation are the foundations of all higher level mathematics. We like to start the year with this after a long summer break to ensure the students are confident with these basic skills and methods before moving onto the more challenging topics that rely on them (algebraic manipulation with a special focus on manipulation of simple algebraic fraction as a prep step for trigonometry)
<b>Geometry</b> <b>Integers</b>	<b>Number Revision: Estimating, Fractions</b> <b>Probability</b>	<b>Number</b> <b>Standard Form</b> <b>Algebraic Manipulation</b>
Key Words: Factor, Multiple	Key Words: Inequality (signs), Significant Figure	Key Words: Index, Estimation
<b>Assessment</b> Working with Maths Apparatus 2D Shapes Constructions Basic Number Work	<b>Assessment</b> Basic Number Work Fractions Rounding & Estimating	<b>Assessment</b> Basic Number Work Fractions Rounding, Estimating & Bounds Laws of Indices Algebra Standard Form

KS3 Course Overview: Term 2		
Y7: Fractions, decimals, ratio and percentage (BAR MODEL)	Y8: Algebra, Angles	Y9: Trigonometry, Area & perimeter, Transformations
Continuing with number work with more complex topics/calculations consolidating the learning from primary and fractions are a pillar of any topics (revisited in other domains of mathematics)	Laws of indices is a bridging topic between number work and algebra. After consolidating the number work in term 1, we extend the number to include the unknown (algebra) with algebraic manipulation and problem solving. Angle reasoning follows just after as a continuity of finding the unknown	The major topic of this term is trigonometry - followed by a time allocated to revisiting perimeter/area/volumes of rectilinear shapes as well as 2 and 3D with an introduction of circular measures - Transformations is the closing topic just before Christmas
<b>Fractions</b>	<b>Laws of Indices</b> <b>Algebraic Manipulation</b> <b>Angle reasoning</b>	<b>Trigonometry</b> <b>Area, Perimeter, Volume</b> <b>Transformations</b>
Key Words: Integer, Reciprocal	Key Words: Equation, Factorise	Key Words: Inverse, Prism
<b>Assessment</b> Fractions Basic Number Work	<b>Assessment</b> Rounding & Estimating Laws of indices Probability Algebra	<b>Assessment</b> Algebra Laws of Indices Functions Pythagoras Right Angle Trigonometry Area Angle Reasoning

KS3 Course Overview: Term 3		
Y7: Algebra (BAR MODEL)	Y8: Ratio & proportions, Percentages (emphasise bar model and links)	Y9: Fractions, Ratio & proportions, Percentages (Emphasise bar model and links)
Extending the number work to include the unknown (Algebra) - Algebra is central to KS3 and 4 curriculum and must be introduced early with the focus on deep understanding	After the Christmas break students come back to a new topic significant for secondary school with with proportional reasoning. Year 8 focuses on developing an understanding of ratios introduced by the visualisation of the bar model.	This is the part 2 of proportional reasoning objectives - it is purposely sync with the Y8 studying proportional reasoning part 1
<b>Algebra</b>	<b>Ratio &amp; Proportion</b> <b>Percentages</b> <b>Using calculators</b>	<b>Fractions</b> <b>Ratio Proportions</b> <b>Percentage</b>
Key Words: Term, Expression	Key Words: Multiplier, Ratio	Key Words: Proportion, Compound (interest)
<b>Assesment</b> Functions Basic Algebra Ratios Fractions Basic Number Work	<b>Assesment</b> Fractions Angle reasoning Algebra	<b>Assesment</b> Rounding Standard Form Transformations Right Angle Trigonometry Area Algebra

parallel topics ==> well being of the team

KS3 Course Overview: Term 4		
NUMERACY WEEK – CROSS CURRICULAR APPLICATIONS OF MATHEMATICS		
Y7: Geometry	Y8: Algebra	Y9: Algebra
Geometry after algebra ==> use of substitution into formulae + number work (incl fractions) - now that algebra has been introduced it is revisited in the context of term 1 and 2.	Graph and sequences are two topics that compliment each other, hence taught in the same term (basic algebra manipulation havng been seen in term 2 but also revisited with functions), extending the introduction from Y7 by looking at more types of sequences yet focusing on the arithmetic ones	Here again Y9 topics is a continuation of Y8 topic taught as the same time with the uplevelling to simultaneous equation and the introduction of quadratic equation and graphs
<b>Geometry</b>	<b>Linear Inequalities</b> <b>Functions</b> <b>Graphs</b> <b>Sequence</b>	<b>Linear graphs &amp; Equation of a line</b> <b>Simultaneous equations</b> <b>Quadratic Equations</b>
Key Words: Perpendicular (height), Sum	Key Words: Intersection, Gradient	Key Words: Quadratic, Roots
<b>Assesment</b> Basic Number Work Angles Reasoning Area of 2D Shapes Basic Algebra Ratios	<b>Assesment</b> Percentages Straight Line Graphs Rounding & Estimating Ratio & Proportion Inequalities	<b>Assesment</b> GCSE Foundation Paper

KS3 Course Overview: Term 5		
Y7: Algebra	Y8: Data handling, Geometry	Y9: Geometry, Surds
Following from geometry, we link the two domains through the study of coordinate geometry - introducing the notion of equation of lines and extending to sequences.	After Easter break learners are introduced to the 3 measures of central tendency (mode/mean/median) before revisiting geometrical measures - this time introducing measures of 3D surface area and volume	The core of this term included the study of compound measures and consolidation of all angle work, while students preparing for the higher are stretched by the introduction of the first circle theorems as well as surds.
<b>Coordinates</b> <b>Sequences</b> <b>Equation of a line</b>	<b>Data Handling</b> <b>Perimeter, Area, Volume</b>	<b>Measures</b> <b>Surds</b> <b>Geometrical Reasoning</b>
<b>Key Words:</b> Sequence, Nth Term	<b>Key Words:</b> Frequency, Discrete vs Continuous Data	<b>Key Words:</b> Surd, Bearing
<b>Assesment</b> Basic Number Work Basic Algebra Function Machines Patterns & Sequences Coordinates & Table of Values	<b>Assesment</b> Inequalities Functions Sequences Straight Line Graphs Averages Statistical Graphs Basic Number Work Fractions	<b>Assesment</b> GCSE Foundation Paper

KS3 Course Overview: Term 6		
Y7: Transformations, Decimals	Y8: Measures, Construction, Transformations	Y9: Construction, Probability, Data handling
Transformations ==> more practical topic, perfect for the EOY - we are closing of the year 7 cycle by revisiting number work but adding the context of decimals	Y8 finish their learning with a more applied topics linked with construction and mathematical drawing which require revisiting units - a natural follow up is to finish the year with transformations	To finish the KS3 programme this term students focus on combined events of probability tree, we also complete the topic of construction while the students on the higher stream can accelerate to higher content of the data handling (box plot and cumulative frequency)
<b>Decimals</b> <b>Transformations</b>	<b>Measures</b> <b>Construction</b> <b>Transformations (creating, describing)</b>	<b>Construction</b> <b>Probability (combined events)</b> <b>Probability (combined events)</b> <b>Data Handling</b> <b>Data Project</b>
<b>Key Words:</b> Vector, Scale Factor	<b>Key Words:</b> Bisector, Enlargement	<b>Key Words:</b> Sample Space, Quartile
<b>Assesment EOY</b> Basic Number Work Ratio & Proportion Basic Algebra Linear Graphs Fractions Sequences Angle Reasoning Area Fractions & Percentages	<b>Assesment EOY</b> Basic Number Work Laws of Indices Fractions Algebra Ratio & Proportion Probability Angle Reasoning Inequalities Straight Line Graphs	<b>Assesment EOY</b> GCSE Foundation Paper