Mathematics at Coombe Wood School

Subject Vision Statement

Mathematics is a universal language that enables us to model, analyse, and predict changes in the world around us. It underpins many disciplines, including science, engineering, computing, geography, and product design. As well as having instrumental use and application, mathematics also has an inherent logic, beauty and elegance about it. ***Our curriculum is designed to develop students' mathematical fluency, reasoning, and problem-solving skills*** so they can confidently apply mathematical knowledge in a range of real-world and academic contexts.

We prepare all of our students, irrespective of their starting point, to be aspirational and successful within our subject. For some, success may mean being able to make informed financial decisions and navigate the everyday demands of adult life. For others, it may involve progressing to further study in mathematics or related fields and using maths to solve problems from day to day. Whatever success looks like for each learner, we are committed to supporting and challenging them to aim high and realise their aspirations.

Key Stage 3 (ages 11–14)

Students ***build a strong foundation in key mathematical concepts*** through a carefully sequenced, spiral curriculum. Emphasis is placed on developing deep conceptual understanding, procedural fluency and problem solving in number, algebra, geometry, ratio, probability, and statistics.

Key Stage 4 (ages 14–16)

Students ***consolidate and extend their understanding, applying knowledge*** to more complex and abstract problems. Whether studying the foundation or higher tier, all students engage with real-world applications, mathematical modelling, and data analysis, preparing them for further study or practical life beyond school.

Key Stage 5 (ages 16–18)

Students ***explore advanced mathematical concepts*** such as calculus, complex numbers, mechanics and statistics. The curriculum ***equips them with the skills and knowledge needed for higher education and a range of careers requiring mathematical proficiency***. We currently offer both Maths and Further Maths A Levels for those pursuing a pathway requiring a higher level of mathematics study. We also offer a Core maths AS level for those who do not want to study the A Level but also want to continue in a mathematical field with interests in business and finance.

Assessment is embedded at every stage and includes a mix of problem-solving tasks, and exam-style questions, ensuring students are both supported and challenged in their mathematical journey.

Curriculum Map: Long Term Plan						
	Autumn		Spring		Summer	
	Term 1	Term 2	Term 1	Term 2	Term 1	Term 2
7	7.1 Number sense 7.2 Factors, Multiples and Primes	7.3 Algebra Basics 7.4 Representing and interpreting data	7.5 Fractions 1 7.6 Shapes, Measures and Angles	7.7 Averages and range 7.8 Equations	7.9 Fractions 2 7.10 Fractions, Decimals and Percentages	7.11 Ratio and Proportion Introduction 7.12 Coordinates Introduction 7.13 Probability Introduction
8	8.1 Percentages 8.2 Indices 8.3 Algebra basics and equations continued	8.4 Sequences 8.5 Perimeter and Area	8.6 Circles + Compass work 8.7 Standard Form 8.8 Probability continued	8.8 Probability continued 8.9 Venn Diagrams and set notation 8.10 Ratios continued	8.11 Using equations of lines and tables to draw lines 8.12 Fractions consolidation or Algebraic fractions 8.13 Surface area	8.14 Data handling 8.15 Problem solving with Angles 8.16 Inequalities
9	9.1 Money calculations + Real life graphs 9.2 Rounding, estimation and introduction to bounds 9.3 Probability continued 9.4 Equations of lines	9.5 Quadratics 9.6 Pythagoras 9.7 Ratio in context	9.8 Percentage Calculator work * 9.9 Proportion recap 9.10 Surds *	9.11 Volume 9.12 Similar and congruent shapes 9.13 Trigonometry	9.14 Algebraic fractions and rearranging harder formulae 9.15 Transformations	9.16 Averages and range continued 9.17 Sectors and arcs
10 Foundation	10F.1 Units and compound measures 10F.2 Algebra recap 10F.3 Quadratics recap 10F.4 Number recap	10F.5 Conditional Probability 10F.6 Sequences recap 10F.7 Proportion Recap	10F.8 Indices recap 10F.9 Graphs and equations continued 10F.10 Inequalities recap	10F.11 Fractions, Decimals and Percentage recap 10F.12 Sectors and arcs recap 10F.13 Data handling recap, sampling and bias	10F.14 Angles and bearings 10F.15 Ratio in context recap	10F.16 Pythagoras and Trigonometry recap 10F.17 Vectors 10F.18 Combining Transformations
10 Higher	10H.1 Units and compound measures 10H.2 Simultaneous equations 10H.3 Further Quadratics	10H.5 Conditional Probability and forming quadratics 10H.6 Sequences including quadratics 10H.7 Proportion	10H.8 Further indices 10H.9 Functions and Iteration 10H.10 Graphs and equations including circles	10H.12 Surds Rationalise the denominator 10H.13 Circle theorems	10H.14 Higher Data handling content 10H.15 Trig graphs and Further trigonometry	10H.16 Recurring decimals to fractions 10H.17 Vector Geometry 10H.18 Similar areas and volumes

		equations	10H.11 Inequalities including quadratics			10H.19 Using ratio to form equations
11F	11F.1 Solving equations recap 11F.2 Simultaneous equations 11F.3 Error intervals Number/ratio + worded problems	11F.4 Constructions and Loci 11F.5 Similar areas and volumes	Interior and exterior angles Graphs and Equations of lines	Individual class plans based on areas of weakness from mocks	Individual class plans based on areas of weakness from mocks	
11H	11H.1 Quadratic Simultaneous equations 11H.2 Proof 11H.3 Error intervals, bounds and round to appropriate degree of accuracy	11H.4 Constructions, Loci and Bearings 11H.5 Transformations of graphs	Interior and exterior angles Histograms with unequal class widths	Individual class plans based on areas of weakness from mocks	Individual class plans based on areas of weakness from mocks	
12	Pure 1	Pure 1 Stats 1	Pure 1 Stats 1 +2 Mechanics 1	Pure 2 Mechanics 1	Pure 2 Stats 1 Mechanics 1	Pure 2 Stats 2
13	Pure 2	Pure 2	Pure 2 Mechanics 2	Stats 2 Mechanics 2	Mechanics 2	

Core Maths (1 year course equivalent to As Level)						
12 or 13	Collecting and Representing Data. Numerical Calculations and Estimation.	Income Tax and National Insurance. APR and AER Calculations. Correlation and Regression.	Normal Distribution. Critical Analysis.	Confidence Intervals. Financial Problems - Exchange Rates, Use of Price Index.	Revision and Exam Preparation	

Further Maths A Level						
12	Core Pure 1 Decision	Core Pure 1 Decision	Core Pure 1 Decision	Core Pure 1 Decision	Core Pure 1	Core Pure 2
13	Core Pure 2	Core Pure 2	Further Mechanics	Further Mechanics	Core Pure 2	