



Maths

“Pure mathematics is, in its way, the poetry of logical ideas.”

Albert Einstein

Our Purpose and Vision:

Studying Mathematics gives you an understanding that is essential to the modern world. It is critical to science, technology and engineering; necessary for financial literacy and most forms of employment. Mathematics, however, provides those who study it with an ability to reason, identify patterns and solve complex problems through the application of logic. It is a creative and highly interconnected discipline that has been developed over centuries, providing the solution to some of history’s most intriguing problems.

We want our students to be engaged, to be challenged, to be confident, to be independent and to be curious. A maths education enables students to be all of these allowing them to realise the power of Mathematics.

Our Attainment Trend

We are proud of our students’ performance over time as results indicate an upward trend especially our 5+/B grades with a +10% from the previous year.

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	2015	2016	2017
A*-C/ 9-4	67%	67%	69%
A*-B/ 9 -5	35%	38.8%	49%
A*/A 9 - 7	18%	22.2%	12.4%

KS3:

We follow the pioneering Mathematics Mastery programme developed by ARK Schools. It is an evidence-based approach derived from the principles of mathematics teaching in Singapore, one of the highest performing nations in mathematics, and adapted to the needs of our pupils. The Mathematics Mastery programme focuses on ‘depth before breadth’, ensuring that all concepts are consolidated and mastered before new ones are introduced. Students are

encouraged to become independent learners who can appreciate a range of approaches to various questions. The curriculum is designed to ensure that students can make connections between different areas of mathematics and apply their skills and knowledge to solve problems in real life contexts.

KS4:

In Year 10 and Year 11, students begin their GCSE course in full, following the Edexcel GCSE Mathematics (9-1) Specification. Students study units from either the Higher or Foundation specification, with each unit lasting between 2-3 weeks. Throughout the GCSE course, students are assessed using exam-style questions in order to best prepare them for the GCSE paper. Students are also regularly exposed to rich problems, encouraging them to become independent mathematicians, make connections and ask questions – all skills we believe are essential to successfully study mathematics at A-level and beyond.

KS5:

At KS5 we study Edexcel Maths.

Programme of Study:

Year 7					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Solve word problems (add and subtract) <ul style="list-style-type: none"> Place value (inc. decimals) Add and subtract (inc. decimals) Estimation Perimeter Word problems 	Explain and investigate (multiply and divide) <ul style="list-style-type: none"> Factors, HCF, multiples, LCM Multiply and divide (inc. decimals) Area of rectangle and triangle Calculate the mean 	Geometry <ul style="list-style-type: none"> Draw, measure and name acute and obtuse angles Find unknown angles (straight lines, at a point, vertically opposite) Properties of triangles and quadrilaterals 	Fractions <ul style="list-style-type: none"> Equivalent fractions Compare and order fractions and decimals Change mixed numbers to improper fractions and vice versa Fraction of a quantity Multiply and divide fractions 	Applications of algebra <ul style="list-style-type: none"> Order of operations Substitution Simplifying algebraic expressions Solve word problems with expressions Sequences (term-toterm, not nth term) 	Percentages and pie charts <ul style="list-style-type: none"> Read and interpret pie charts Convert between percentages and fractions and decimals Percentage of a quantity Find the whole given the part and the percentage Solve word problems with proportion
Year 8					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Number <ul style="list-style-type: none"> Primes and indices Prime factorisation to find LCM, HCF, squares, cubes Rounding, significant figures and estimation Add and subtract fractions 	Algebraic expressions <ul style="list-style-type: none"> Negative numbers and inequality statements Calculate and evaluate expressions with rational numbers Linear equations Expressions and equations from real-world situations 	2D Geometry <ul style="list-style-type: none"> Draw accurate triangles and quadrilaterals (ruler, protractor, compasses) Find unknown angles (including parallel lines) Conversion between length units and between area units Area and perimeter of composite figures Area of parallelograms and trapeziums 	Proportional reasoning <ul style="list-style-type: none"> Convert between percentages and fractions and decimals Percentage increase and decrease, finding the whole given the part and the percentage Ratio (equivalent, of a quantity) and rate Speed, distance, time 	3D Geometry <ul style="list-style-type: none"> Circumference and area of a circle Conversion between mass units and between volume units Visualise and identify 3D shapes and their nets Surface area and volume of cuboid, prism, cylinder, composite solids 	Statistics <ul style="list-style-type: none"> Collecting and organising data Construction and interpretation of graphs – pictograms, bar charts, pie charts, histograms, line graphs Interpret and compare statistical representations

Year 9					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Algebraic expressions <ul style="list-style-type: none"> ▪ Change the subject of a formula ▪ Algebraic manipulation ▪ Expansion ▪ Factorisation ▪ Algebraic fractions 	2D Geometry <ul style="list-style-type: none"> ▪ Construction and loci ▪ Triangles and quadrilaterals (angles on diagonals) ▪ Angles in polygons ▪ Congruence and similarity 	Graphs and proportion <ul style="list-style-type: none"> ▪ Cartesian coordinates ▪ Linear graphs ▪ Direct and inverse proportion ▪ Calculating with scales ▪ Sequences: nth term 	Equations and inequalities <ul style="list-style-type: none"> ▪ Equations ▪ Inequalities ▪ Constructing equations and inequalities ▪ Quadratic equations ▪ Simultaneous linear equations 	Statistics <ul style="list-style-type: none"> ▪ Comparing two data sets ▪ Stem-and-leaf diagrams ▪ Mean, median and mode averages ▪ Mean of grouped data ▪ Scatter graphs ▪ Probability 	3D Geometry <ul style="list-style-type: none"> ▪ Pythagoras' theorem ▪ Surface area and volume of pyramids, cones and spheres ▪ Similar solids
Year 10 –Edexcel Maths A					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit 1 Number Unit 2 Algebra Unit 3 Graphs, tables and charts OR interpreting and representing data (Higher)	Unit 4 Fractions and Percentages OR Fractions, ratio & proportion (Higher) Unit 5 Equations, Inequalities and Sequences OR Angles and trigonometry (Higher)	Unit 6 Angles Unit 7 Average & Range Unit 8 Perimeter, Area & Volume	Unit 9 Graphs Unit 10 Transformations	Unit 11 Ration & Proportion OR Multiplicative Reasoning (Higher) Unit 12 Right angled triangles OR Similarity and Congruence (Higher) Unit 13 Probability OR Trigonometry (Higher)	Unit 14 Multiplicative Reasoning OR Further Statistic (Higher) Unit 15 Construction, loci & bearings OR Equations and Graphs (Higher)
Year 10 –Edexcel Maths A					
Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Unit 16 Quadratic Equations & Graphs OR Circle Theorems (Higher) Unit 17 Perimeter, Area & Volume OR Algebra (Higher) Unit 18 Fractions, Indices & Standard Form OR Vectors and geometric proofs (Higher)	Unit 19 Congruence, Similarities & Vectors OR Proportions and Graphs (Higher) Unit 20 Algebra	Revision and Exam Practice	Revision and Exam Practice	Revision and Exam Practice	Revision and Exam Practice