KING EDWARD VI ASTON GRAMMAR SCHOOL
MATHEMATICS
Curriculum Intent and Overview (Years 7-11)

Intent Statement

The Mathematics Department aims to help your child discover the joy and beauty of this fascinating and extremely rewarding subject. Our primary objective is to ensure all students develop a strong foundation in mathematical fluency and language, fostering confidence in problem-solving. Through our creative curriculum, which carefully weaves prior learning throughout the academic journey, we cultivate a love of learning and enhance students' ability to model and solve complex, non-routine problems using their mathematical knowledge.

Our curriculum extends beyond the standard specification, offering enriching experiences and activities accessible to all students, regardless of background. We nurture independence, critical thinking and enthusiasm through engaging lessons and diverse extra-curricular opportunities. These include Mathematics Inspiration lectures, inter-school Mathematics competitions and participation in the prestigious UKMT Mathematics Challenge.

In the Curriculum Overview below, topics are coloured according to the following strands:

- Number
- Algebra
- Geometry and Measure
- Statistics and Probability
- Ratio and Proportion

		MICHAELMAS TERM	LENT TERM	SUMMER TERM
KEY STAGE 3	YEAR 7*	- Multiply and divide by 10, 100, 1000. - Mental & written calculations - Fraction and Decimal calculations - Fraction, Decimal and Percentage equivalence - Factors and multiples - Divisibility rules - Using letter symbols - Simplifying terms - Expanding single brackets - Using and forming formulae - Solving equations - Coordinates & straight-line graphs	- Converting metric & imperial measures - Perimeter & area of triangles and quadrilaterals - Surface area & volume of cuboids - Simple angle rules - Angles on parallel lines - Transformations (not enlargement) - Linear sequences - Simplifying & finding values in ratios - Proportions as fractions, decimals or percentages - Percentages of amounts - Percentage increase/decrease - Reverse percentages - Financial Mathematics (VAT, APR and Best buys)	- Averages and range - Drawing frequency tables, bar charts and pie charts - Averages from ungrouped frequency tables - Probability scale and equally likely outcomes - Mutually exclusive events - Experimental probability - Constructing triangles

Key: * means that the scheme of work has changed for this year group
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	YEAR 8	- Index laws for powers of 0 and 1 - Laws of indices - Working with and calculating in standard form - Fraction, Decimal and Percentage equivalence - Percentages of amount - Percentage increase/decrease - Equations with fractions - Draw inequalities on number lines - Solving linear inequalities - Linear graphs (introducing gradient more formally)	- Probability scale and equally likely outcomes - Mutually exclusive events - Experimental probability - Sample space diagrams - Counting strategies - Two-way tables and frequency trees - Scatter graphs and correlation - Circles - Surface area & volume of prisms - Density - Angles in polygons	- Pythagoras' Theorem and its applications including 3D - Simplifying & finding values in ratios - Combine ratios - Transformations including enlargement by positive scale factor with centre - Bearings - Constructing triangles - Conversion problems
	YEAR 9	- Convert fractions to terminating and non-terminating decimals - Converting recurring decimals to fractions - Reverse percentages, percentage change and compound percentage change - Expanding brackets (including 3 sets) and extend to identities - Factorising into single brackets and double brackets (including difference of two squares) - Basic rearranging of formulae - Linear graphs (introducing gradient more formally) - $y = mx + c$, parallel & perpendicular lines - Linear simultaneous equations	- Graphing inequalities - Cubic, exponential & reciprocal graphs - Bearings - Basic 2D trigonometry - 3D Pythagoras and trigonometry - Plans and elevations	- Sampling - Averages from tables (inc. grouped) - Combined mean problems - Quartiles and box plots - Cumulative frequency graphs - Sets and Venn diagrams - Proportion using ratio - Conversion problems

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KEY STAGE 4	YEAR 10*	- Negative indices - Fractional indices - Changing bases to solve equations - Simplifying surds - Arithmetic with surds - Rationalising the denominator - Solving quadratic equations by factorising, completing the square and the formula - Sketching quadratics with features which include the turning point - Sequences including quadratic, geometric and Fibonacci - Rearranging more complex formulae which includes factorising - Simplifying and arithmetic with algebraic fractions - Cubic, exponential, reciprocal and trigonometric graphs	- Sampling - Averages from tables (including grouped) - Combined mean problems - Quartiles and box plots - Cumulative frequency graphs - Histograms - Mean from a histogram - Interpolation to find the median or other quartiles - Plans and elevations - Congruency and similar shapes including area and volume scale factors - Arc length and area of a sector - Volumes and surface areas of cylinders, pyramids, cones, frustums and spheres	- Non-right angled trigonometry - Direct and indirect proportion with algebra - Accuracy and bounds including estimation - Tree diagrams including algebraic problems
	YEAR 11	- Direct and indirect proportion with algebra - Functions - Linear graphs revision - Gradient of curves (Rates of change) - Area under graphs using trapezia - Sequences including quadratic, geometric and Fibonacci - Graphical transformations - Vectors	- Circles and simultaneous equations - Graphical solutions to simultaneous equations - Histograms - Mean from a histogram - Interpolation to find the median or other quartiles - Revision of how to sketch a quadratic and then growth and decay - Algebraic proof - Iteration - Loci	**Revision and GCSE exams**

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