BISHOP VESEY'S GRAMMAR SCHOOL

Mathematics

Curriculum Intent and Overview (Years 7-11)

Intent Statement

Inspiration and excellence are at the heart of everything we do. Our main aim is to inspire confidence in our students and stimulate their interest in Mathematics, both within the curriculum and the wider world. We hope that this in turn will spark a love of learning and an improved ability to model and solve problems, applying the Mathematical knowledge gained in lessons to a variety of different circumstances. We believe that this will enable our students, irrespective of background, to flourish and leave BVGS well-equipped for whatever they choose to do in life.

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

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

		MICHAELMAS TERM	LENT TERM	SUMMER TERM
KEY STAGE 3	Year 7	• Multiply and divide by 10, 100, 1000. • Mental & written calculations. • Fraction calculations • Fraction, Decimal and Percentage equivalence. • Factors and multiples • Using letter symbols. • Simplifying terms. • Expanding single brackets. • Using formulae. • Solving equations. • Coordinates & straight-line graphs.	• Converting linear measures. • Perimeter & area of triangles and quadrilaterals. • Surface area & volume of cuboids. • Simple angle rules. • Transformations & symmetry • Linear sequences. • Simplifying & dividing in ratio. • Proportions as fractions, decimals or percentages. • Percentages of amount. • Percentage increase/decrease.	• Averages and range. • Drawing frequency tables, bar charts and pie charts. • Averages from tables. • Probability scale and equally likely outcomes. • Sorting with Venn diagrams. • Simple constructions. • Plans and elevations.

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	Year 8	• Number properties, rounding and estimation. • Working with powers of ten. • Decimal calculations (inc. dividing by a decimal). • Fraction calculations (inc. all operations with mixed numbers). • Percentage change problems. • Indices in algebra. • Simplifying algebraic expressions (inc. simple algebraic fractions). • Rearranging formulae. • Linear graphs (introducing gradient more formally). • Curved graphs and real-life graphs.	• Stem and leaf diagrams. • Averages from tables (inc. grouped). • Scatter graphs and correlation. • Probability for two or more events. • Using Venn diagrams for probability. • Linear & geometric sequences. • Recursive formulae. • Equations with fractions. • Converting units of area. • Pythagoras' Theorem. • Area and perimeter of 2D shapes • Surface area & volume of prisms	• Ratio Problems. • Comparing proportions. • Angles and 2D shapes. • Transformations including enlargement by positive scale factor with centre. • 3D shapes. • Constructions, Loci & Bearings.
	Year 9	• Decimal calculations. • Estimation; upper & lower bounds. • Indices & surds. • Working with and calculating in standard form. • Fraction calculation review. • Converting recurring decimals. • Repeated percentage change. • Algebraic manipulation including double brackets. • Rearrange complex formulae. • Simultaneous equations. • Linear inequalities.	• Quadratic sequences. • y = mx + c, parallel & perpendicular lines. • Cubic, exponential & reciprocal graphs • Transformations including enlargement by negative scale factor and invariance. • Converting units of volume. • Compound measures. • Review on angles. • Applications of Pythagoras. • Trigonometry. • Arcs and sectors. • Problems involving 3D shapes.	• Estimate mean of grouped data. • Histograms with equal class widths & frequency polygons • Quartiles and box plots. • Cumulative frequency graphs. • Interpret correlation. • Comparing data. • Venn & tree diagrams. • Ratio and proportion problems. • Congruence & similarity.

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			• Constructions and loci.	

KEY STAGE 4	Year 10	• Factors, multiples & primes
		• Roots & indices including manipulation to a common base
		• Surds including rationalisation
		• Standard form including calculations
		• Calculations, checking & rounding
		• Accuracy and bounds including error intervals
		• Formulae, equations and linear inequalities
		• Sequences including quadratic
		• Iteration
		• Solving quadratic by factorising, completing the square and the formula
		• Solving simultaneous equations including one non-linear
			• Collecting data including capture/recapture
			• Averages, quartiles, range & IQR
			• Representing and interpreting data:
			  ○ Frequency Diagrams
			  ○ Histograms
			  ○ Scatter graphs
			  ○ Cumulative frequency & box plots
			• Polygons, angles and parallel lines
			• Pythagoras' Theorem and trigonometry
			• Sine & Cosine Rule
			• Perimeter, area and 3D forms
			• Circles, cylinders, pyramids, cones, frustums and spheres
			• Congruence and Similarity including area & volume scale factors
				• Direct and inverse proportion using algebra
				• Probability – The basics
				• Tree diagrams including algebraic
				• Venn diagrams and set notation including conditional probability
				• Linear graphs revision
				• Transformations revision

	Year 11	• Circle theorems • Graphs of circles and circle geometry • Functions • Quadratic graphs	• Gradient (Rates of change) • Area under graphs • Growth and decay	Revision and GCSE Examinations

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		• Quadratic inequalities • Cubic, reciprocal, exponential graphs • Graphs of trigonometric functions • Transformations of graphs	• Vectors and geometrical proof Revision	

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