



St George's School
Mathematics and Computing Faculty
Year 8 Curriculum Map for MATHEMATICS

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
THE BIG IDEAS & KNOWLEDGE <i>Overview of topics or key questions</i>	Ratio and Proportion: Ratio and scale; Multiplicative change Number: Multiplying and dividing fractions	Algebra: Working in the Cartesian plane Handling Data: Representing data Tables and Probability	Algebra: Brackets, equations and inequalities Algebra Indices	Number: Fractions and percentages; Standard index	Number: Number sense Shape and Space: Angles in parallel lines and polygons; Area of trapezia / circles	Handling Data: Measures of location; Number: Surds Handling Data: The data handling cycle
SKILLS & STRATEGIES <i>Procedural knowledge, literacy and numeracy skills</i>	<p>Creativity is developed in lessons by exploring concepts through different visual representations. The students are sometimes tasked with open-ended problems whereby there are multiple solutions possible. Our students may also at times be asked to problem -pose whereby they come up with their own question for a peer to solve. Our department looks to encourage flexible thinking in lessons through effective questioning.</p> <p>Critical thinking skills are developed as we nurture a classroom culture in which mathematical discussion is part of the daily routine. We also at times use open-ended questions and present problems for which our students have no predetermined solution strategy.</p> <p>Communication skills are developed in every lesson through group discussions. The examples chosen to probe such discussion have been carefully selected in advance in order to increase the fruitfulness of conversation.</p> <p>Collaboration skills are developed during our allocated Extension and Enrichment lessons as our students work in groups of between two and four to tackle various problem-solving style questions.</p> <p>Reasoning skills are developed in lessons through our teachers asking their students to conjecture abstract generalised techniques from an initial visual methodological approach. We always encourage our students to focus on 'why does this work' as opposed to 'how does this work'.</p> <p>Reflection skills are encouraged through tasks at the end of each lesson which can take various different forms. Students are encouraged to spend time reflecting upon their teacher's feedback following an end -of-topic homework or year -group assessment. During times where multiple solutions are possible, a discussion is encouraged among our students as to the benefits and drawbacks.</p> <p>Problem-solving skills are developed through the more challenging questions in each lesson, but also through tackling questions during the allocated Extension and Enrichment lessons. Our students are encouraged to use different strategies such as visualising the problem, working backwards, working systematically, reasoning logically and looking for patterns.</p>					

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FEEDBACK <i>Noteworthy tasks and assessments</i>	Separate end of topic preps	Separate end of topic preps Year-group Checkpoint	Separate end of topic preps Year-group Checkpoint	Separate end of topic preps Year-group checkpoint	Separate end of topic preps	Separate end of topic preps Year-group checkpoint
BREADTH <i>Opportunities, trips, wider reading, cultural capital</i>	“Can You Solve My Problems?” by Alex Bellos “How many socks make a pair?” by Rob Eastaway “Alex’s Adventures in Numberland” by Alex Bellos “How to Cut a Cake: And Other Mathematical Conundrums” by Ian Stewart			Herts for Learning Maths Team Challenge	UKMT Junior Maths Challenge	
KEY VOCABULARY <i>Important words and phrases</i>	Ratio Proportion Double number lines Ratio table Diameter Radius Circumference Gradient Direct Proportion Constant Multiplier Conversion graph Axis Exchange rate Similar Enlargement Scale factor Scale Scale drawing Map Fraction Integer Numerator Denominator Unit fraction Reciprocal	Quadrant Origin Coordinate Parallel Linear y-intercept Curve Midpoint Line segment Correlation Outlier Discrete Continuous Qualitative Quantitative Frequency Grouped data Class interval Two-way table Sample space Probability Random Venn diagram Outcome	Term Expression Coefficient Expand Factorise Binomial Inequality Solution set Variable Formula Identity Equation Power / exponent Index / indices Base	Decrease Reduce Increase Profit Loss Original value Reverse percentage Standard form Commutative Square root Cube root	Significant figure Estimate Order of operations Decimal places Degree of accuracy Error interval Centi Milli Kilo Area Volume Capacity Adjacent Vertically opposite angles Alternate angles Co-interior angles Corresponding angles Transversal Bisect Construct Diagonal Isosceles Exterior angle Interior angle Polygon Regular polygon Proof Bisector Equidistant Area Perpendicular height	Range Average Mean Median Mode Modal class Subtotal Outlier Integer Real number Rational number Irrational number Surd Hypothesis Primary data Questionnaire Sample Secondary data Key Compare Line graph Multiple bar chart Distribution Misleading graphs

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