Striving For Excellence Together
Year 8 Mathematics Curriculum Map

Key Concepts: State the big ideas that will be taught across the year (Threshold Concepts)

8	Topics	Assessment	Key Concepts	Key Vocabulary	Our Pillars	Knowledge tracking
Topic 1	Proportional reasoning **Ratio and Scale**		Focus on the meaning of a ratio and using various representations to model a ratio. Sharing a quantity in a given ratio. Simplifying ratios. Investigate Pi as a ratio of the circumference and diameter of a circle. Finally looking at the meaning of gradient.	Ratio Equal parts Proportion Multiplier Parts Total Common Factor Simplify Circumference Pi Diameter Gradient	Careers – Maths Why Bother?	**Extension of previous work** Factors and multiples **Future learning** Year 8 Autumn term – Linking graphs to sequences. Year 8 Spring term – Algebraic sequences Year 10 Summer term – Types of number and sequences
Topic 2	Proportional Reasoning **Multiplicative Change**		Exploring all different forms of direct proportion. Using conversion graphs Currency conversion Using scale factors in numerical relationships, scale diagrams and maps.	Linear Ratio Proportion Axes Currency Exchange rate Rate Enlargement Scale factor Conversion	Careers – Maths why bother? Financial maths – exchange rates. Life beyond SWR	**Extension of previous work** Factors and multiples Simplifying fractions **Future learning** Year 9 Summer term – Enlargement and similarity Year 9 Summer term – Solving ratio problems Year 10 Spring term – Ratios and fractions
Topic 3	Proportional reasoning **Multiplying and dividing fractions**		Multiplying a fraction by Integers/unit fractions/fractions. Dividing a fraction by Integers/unit fractions/fractions. Use mixed numbers in calculations. Multiply and divide algebraic fractions	Unit fraction Numerator Denominator Reciprocal Simplify Term Simplest form	Careers – Maths why bother?	**Extension of previous work** Varied experience from year 6 of multiplying and dividing fractions **Future learning** Year 9 Spring term – Solve problems with fractions
Topic 4	Representations **Working with the Cartesian plane**		Using coordinates in all four quadrants. Exploring plotting linear graphs on a coordinate axis. Link graphs to sequences. Explore non-linear graphs.	Quadrant Axis Origin Parallel Equation Scale Linear Gradient Multiplier Table of values Substitution Curve Non-Linear Midpoint	Careers - Maths, Why bother?	**Extension of previous work** Year 6 work on coordinates. Substitution into expressions **Future learning** Year 9 Autumn term- Straight line graphs Year 11 Autumn term – Gradients and lines

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Topic 5	Representations **Representing data**		Drawing and interpreting scatter graphs. Reading and interpreting frequency tables. Representing data in two way tables.	Variable Relationship Correlation Line of best fit Extrapolate Discrete	Continuous Qualitative Quantitative Frequency Tally	Careers - Maths, Why bother?	**Extension of previous work** Use of tally charts **Future learning** Topic 6 year 8. Year 10 Summer term – Collecting, representing and interpreting data
Topic 6	Representations **Tables and probability**		Finding and constructing a variety of tables to find probabilities from them. e.g – Sample Spaces, Two way tables, Venn Diagrams Finding the total number of outcomes	Outcomes Sample space Probability P(Event) Set And/Or	Region Outcomes	Careers – Maths, Why Bother? Financial Mathematics – Life after SWR.	**Extension of previous work** Year 7 – Sets and probabilities. **Future learning** Year 10 Summer term – Collecting, representing and interpreting data
Topic 7	Algebraic techniques **Brackets, equations and inequalities**		Expanding and factorising single brackets. Expanding double brackets Solving equations involving brackets. Forming and solving inequalities. Solve equations and inequalities with unknowns on both sides.	Term Simplify Expand Factorise HCF Binomial	Solve Inequality	Careers – Maths, Why Bother?	**Extension of previous work** Year 7 Autumn term – Equality and Equivalence **Future learning** Year 9 Autumn term – Forming and solving equations
Topic 8	Algebraic techniques **Sequeunces**		Generate sequences from words, simple algebraic rules and complex algebraic rules. Finding the nth term of a linear sequence.	Linear Sequence Non-Linear Fibonacci Term position		Careers – Maths, Why Bother?	**Extension of previous work** Year 8 Autumn term – Ratio and scale **Future learning** Year 10 Summer term – Types of numbers and sequences
Topic 9	Algebraic techniques **Indices**		Using and interpreting algebraic notation including the use of powers. Simplifying algebraic expressions by collecting like terms or using the rules of indices. Explore powers of powers.	Expression Simplify Term Indices Index Base	Power Exponent	Careers – Maths, Why Bother?	**Extension of previous work** Year 7 – Autumn term – Understand and use algebraic notation. **Future learning** Year 8 – Spring term – Standard form Year 10 Summer term – Indices and roots
Topic 10	Developing Number **Fractions and percentages**		Calculate key fraction decimal and percentages of amounts with and without a calculator. Calculate a percentage increase and decrease with the use of a multiplier. Express one number as a fraction or percentage of another, to use to calculate percentage change. Find the original amounts given a percentage change.	Equivalent Efficient Multiplier Decrease Increase Interest	Original Profit/Loss	Careers – Maths, Why Bother?	**Extension of previous work** Year 7 – Autumn term - Fraction, decimal and percentage equivalence **Future learning** Year 9 – Spring term Using percentages

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Topic 11	Developing Number **Standard Index Form**		This was briefly seen in year 7. This topic looks at standard form in depth. Write large numbers and small numbers in standard form. Compare numbers written in standard form. Add, Subtract, multiply and divide numbers written in standard form. Using a calculator and non-calculator methods to do this. Involve the use of negative and fractional indices for some.	Indices Standard form Base Power Place value Scientific notation (SCI on calculator) Reciprocal Root	Careers – Maths, Why Bother?	**Extension of previous work** Year 7 – Writing numbers in and out of standard form. **Future learning** Opportunity to revise in Spring term year 9. Year 10 – Summer term - Indices and roots
Topic 12	Developing Number **Number Sense**		Continuing from rounding to powers of 10 and significant figures from year 7. Round to a set number of decimal places. Estimate calculations by rounding to one significant figure. Understand and use error intervals. Converting metric units.	Round Significant Decimal place Estimate Credit Debit Metre Kilo… Milli… Centi…	Careers – Maths, Why Bother? Financial maths – Life after SWR.	**Extension of previous work** Year 7 – Autumn term – Place value and ordering decimals and integers. **Future learning** Year 10 – Summer term – Non-calculator Methods
Topic 13	Developing Geometry **Angles in paralell lines and polygons**		Continuation from year 7 on angle notation and basic angle rules. Solve problems with parallel line angle rules, by identifying and calculating Co-Interior, corresponding and alternate angles. Work with the sum of exterior and interior angles of any polygon. Some will also investigate angle and line bisectors.	Transversal Corresponding Alternate Co-Interior Supplementary Interior Exterior Regular polygon Bisect Compasses Perpendicular	Careers – Maths, Why Bother?	**Extension of previous work** Year 7 – Summer term – Using geometric notation. Year 7 – Summer term – Developing geometric reasoning. **Future learning** Year 10 – Spring term – Angles and bearings Year 9 – Autumn term – Constructions and congruency
Topic 14	Developing Geometry **Area of trapezia and circles**		Calculate the area of triangles, rectangle, parallelograms, and trapeziums. Work with the area of a circle to calculate areas of parts of circles. Find perimeters and areas of compound shapes.	Formula Compound Radius In terms of Pi	Careers – Maths, Why Bother?	**Extension of previous work** Year 7 Spring term – working with areas and perimeters. 'Applications of number' **Future learning** Year 9 Autumn term – Three dimensional shapes Year 10 – Spring term – Working with circles
Topic 15	Developing Geometry **Line symmetry and reflection**		Reflecting shapes in horizontal, vertical and diagonal lines.	Reflect Line symmetry Image Object Congruent	Careers – Maths, Why Bother?	**Extension of previous work** Year 6 work on reflections of shapes **Future learning** Year 9 – Spring term – Rotation and translation

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Topic 16	Reasoning with Data **The data handling cycle**		Much of the statistical content here is a continuation of that studied at primary school. Most charts and graphs have been used in year 7 or previously in year 8. Collection of data including designing and criticising questionnaires. Constructing and interpreting Frequency tables, bar charts, pie charts, pictograms and vertical line graphs. Continued work with ungrouped and grouped data.	Hypothesis Investigation Questionnaire Pictogram Line graph	Careers – Maths, Why Bother?	**Extension of previous work** All charts have been seen in primary and year 7 at a basic level. **Future learning** Year 10 Spring term – Collecting, representing, and interpreting data
Topic 17	Reasoning with Data **Measures of location**		Revisit previous work on Mean, Median and mode. New learning looks at choosing the most appropriate average. Then finding the mean from frequency tables. Comparing different distributions and identifying outliers.	Modal value Modal class	Careers – Maths, Why Bother?	**Extension of previous work** Mean, Median, Mode previously seen at primary level. **Future learning** Year 10 Spring term – Collecting, representing, and interpreting data