

KS3 Curriculum Overview: Maths

Rationale: In year 8 we want to build on their skills from Y7 and extend their understanding further. Students will learn key skills in the 4 main areas, number, algebra, data and shape and then encouraged to apply these to help solve problems.

Term	Outline	Assessment	Home Learning	Resources	Knowledge/Skills End Points	Reading
Autumn 1	Ratio and Scale Multiplicative change Multiplying and dividing fractions	Autumn term 1 assessment (this will cover some or all the topics listed in the knowledge / skills end points column)	FAR Ratio and Scales FAR Multiplicative change FAR Multiplying and dividing fractions	Full SOL in shared area	Understand ratio and its link to multiplication. Use ratio notation. Reduce ratios to simplest form. Solve ratio problems. Use scale factors, linking to ratio, to solve simple direct proportion problems. Convert between currencies, including using graphs. Draw and interpret scale diagrams and maps. Multiply and divide a fraction by an integer. Multiply and divide a fraction by a fraction. Understand and use the reciprocal.	Key words: Ratio Multiplying Dividing Reading strategy: Go through key words and annotate worded problems. Books: Fractions in Disguise: A Math Adventure – Edward Einhorn
Autumn 2	Working in the Cartesian plane Representing data Tables and Probability	Autumn term 2 assessment (this will cover some or all the topics listed in the knowledge / skills end points column)	FAR Working in the Cartesian plane FAR Representing data FAR Tables and Probability	Full SOL in shared area	Plot and interpret straight line graphs. Understand and use the equations of a straight line, including lines parallel to the axes. Make links between direct proportion and straight lines of the form $y=kx$. Model situations by translating them into expressions, formulae and graphs. Draw and interpret scatter graphs. Understand correlation. Draw and use lines of best fit. Understand grouped and ungrouped, discrete and continuous data. Design and use one and two-way tables. List outcomes using sample space diagrams for one and two events. Find probabilities using tables and Venn diagrams.	Key words: Cartesian Data Probability Reading strategy: Go through key words and annotate worded problems. Books: That's a Possibility!: A Book about What Might Happen – Bruce Goldstone

Spring 1	Brackets, equations & inequalities Sequences Indices	Spring term 1 assessment (this will cover some or all the topics listed in the knowledge / skills end points column)	FAR Brackets, equations & inequalities FAR Sequences FAR Indices	Full SOL in shared area	Expand, and factorise into, single brackets. Form and use expressions, formulae and identities. Form and solve equations and inequalities with and without brackets. Distinguish between equations, expressions, formulae and identities. Generate sequences using more complex rules e.g. with brackets and squared terms, both in words and algebraically. Form expressions using indices. Understand and use the addition and subtraction rules.	<p>Key words: Equation Inequality Sequence</p> <p>Reading strategy: Go through key words and annotate worded problems.</p> <p>Books: Blockhead: The Life of Fibonacci - Joseph D'Agnes</p>
Spring 2	Fractions & Percentages Standard index form Number sense	Spring term 2 assessment (this will cover some or all the topics listed in the knowledge / skills end points column)	FAR Fractions & Percentages FAR Standard index form FAR Number sense	Full SOL in shared area	Develop understanding of fractions, decimals and percentages. Evaluate percentage increases and decreases. Use multipliers to solve percentage problems. Express one number as a percentage of another. Convert between numbers in ordinary and standard form. Compare numbers given in standard form. Calculate with numbers given in standard form, with and without a calculator. Develop mental strategies. Convert between metric measures and units. Estimation, including rounding to a given number of decimal places. Use the order of operations.	<p>Key words: Index Increase Decrease</p> <p>Reading strategy: Go through key words and annotate worded problems.</p> <p>Books: Alex's Adventures in Numberland - Alex Bellos</p>

Summer 1	Angles in parallel lines & polygons Area of trapezia & circles Line symmetry & reflection	Summer term 1 assessment (this will cover some or all the topics listed in the knowledge / skills end points column)	FAR Angles in parallel lines & polygons FAR Area of trapezia & circles FAR Line symmetry & reflection	Full SOL in shared area	<p>Review angles rules. Understand and use parallel lines and angles. Revisit geometric notation. Work out angles in special quadrilaterals. Find and use the sum of interior and exterior angles of a polygon. Prove simple geometric facts.</p> <p>Review area and shapes from year 7. Calculate the area of a trapezium. Calculate the area of a circle, and the area of parts of a circle. Use significant figures. Calculate the area of compound shapes.</p> <p>Recognise line symmetry in polygons and other shapes. Reflect shapes in horizontal, vertical, and diagonal lines.</p>	<p>Key words: Parallel Polygon Trapezium</p> <p>Reading strategy: Go through key words and annotate worded problems.</p> <p>Books: Sir Cumference and the Knights of the First Round Table – Cindy Meuschwander</p>
Summer 2	The data handling cycle Measure of location	Summer term 2 assessment (this will cover some or all the topics listed in the knowledge / skills end points column)	FAR The data handling cycle FAR Measure of location	Full SOL in shared area	<p>Understand and use primary and secondary sources of data. Collect data, including questionnaires. Interpret and construct statistical diagrams, including multiple bar charts. Construct and interpret pie charts. Compare distributions using charts. Identify misleading graphs.</p> <p>Revise the median and mean, including finding the total given the mean. Find the mean of grouped data. Work out the mode and modal class. Choose the appropriate average. Comparing distributions using measures.</p>	<p>Key words: Cycle Median Mean</p> <p>Reading strategy: Go through key words and annotate worded problems.</p> <p>Books: Violet and the Pie of Life by Debra Green</p>