

CURRICULUM OVERVIEW - MATHS

YEAR 8



In year 8 students will build on the knowledge learned in year 7. The topics are varied and stimulating, they include ratio, the cartesian plane, algebra, number, geometry and data handling.

	Unit of Work	Extended Learning/Wider Reading
Autumn 1	Percentages <i>Students learn to calculate percentages, percentage increase/decrease and apply them to real-life contexts.</i> Money <i>Students solve multi-step money problems involving totals, change, budgeting and best-buy comparisons.</i> Indices & Index Laws <i>Students work with powers and roots and use index laws to simplify expressions.</i> <u>Revision Workbook 1</u>	Read: <i>Math Riddles For Smart Kids: Math Riddles And Brain Teasers That Kids And Families Will love</i> Watch: <u>Golden Ratio</u> Visit: Legoland Scholars' Question: What happens when you try to divide by zero? Why does this happen?

Autumn 2	Equations <i>Students solve linear equations using inverse operations and balancing methods.</i> Sequences <i>Students generate sequences and identify term-to-term and position-to-term rules.</i> Ratio <i>Students simplify ratios and solve proportional problems including sharing amounts in a ratio.</i> Scale Diagrams <i>Students interpret and draw scale diagrams to represent real-life objects and distances accurately.</i> <u>Revision Workbook 1</u>	Read: <i>Help Your Kids with Maths, Ages 10-16 (Key Stages 3-4): A Unique Step-by-Step Visual Guide, Revision and Reference</i> Watch: Pi is Beautiful - Numberphile Visit: The Bank of England Museum Scholars' Question: What role did Florence Nightingale play in the field of Representing Data?
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Spring 1	<i>Rounding</i> <i>Students round numbers to given place values and significant figures to estimate and simplify calculations.</i> <i>Coordinates & Midpoints</i> <i>Students plot coordinates, read coordinate grids and calculate midpoints of line segments.</i> <i>Area & Units</i> <i>Students calculate the area of 2D shapes and convert between metric units of measure.</i> <i>Circles (Area & Circumference)</i> <i>Students use formulas to calculate the area and circumference of circles and solve related problems.</i> <u>Revision Workbook 2</u>	Read: <i>The Miscalculations of Lightning Girl</i> Watch: <u>The Levine Sequence - Numberphile</u> Visit: Royal Museums Greenwich Scholars' Question: Would 182 be a number in a sequence with n^{th} term $3n + 5$? Why?
Spring 2	<i>Standard Form</i> <i>Students convert numbers to and from standard form and apply it to scientific contexts.</i>	Read: <i>The Big 11+ Logic Puzzle Challenge (The Big 11+ Series)</i> Watch: <u>Infinite Fractions - Numberphile</u> Visit: The British Museum Scholars' Question: Show why 75% of 40 = 40% of 75. Is this always the case?

	Venn Diagrams <i>Students construct and interpret Venn diagrams to classify data and calculate probabilities.</i> Factors, Multiples & Primes <i>Students identify factors, multiples and prime numbers and use them in problem-solving.</i> 3D Shapes, Nets & Surface Area/Volume <i>Students recognise 3D shapes, use nets and calculate surface area and volume of prisms.</i> <u>Revision Workbook 2</u>	
Summer 1	Linear Graphs <i>Students plot linear graphs and find equations using gradients and intercepts.</i> Transformations <i>Students perform and describe reflections, rotations, translations and enlargements.</i> Angles <i>Students calculate unknown angles using angle facts including around a point, on a</i>	Read: <i>Logic Workbook for Gritty Kids: Spatial reasoning, math puzzles, word games, logic problems, activities, two-player games.</i> Watch: <u>How many ways can circles overlap? - Numberphile</u> Visit: The Mathematics Gallery at the Science Museum Scholars' Question: What would the diameter of a circle with area of $36\pi\text{cm}^2$ be?

	<i>line and in polygons.</i> Statistical Diagrams <i>Students draw and interpret bar charts, pie charts and line graphs to represent data.</i> Revision Workbook 3	
Summer 2	<i>Inequalities</i> <i>Students represent and solve linear inequalities and show solutions on number lines.</i> <i>Brackets & Double Brackets</i> <i>Students expand and simplify expressions involving single and double brackets.</i> <i>Algebraic Fractions</i> <i>Students simplify and manipulate algebraic fractions using their knowledge of numerical fractions.</i> <i>Recurring Decimals</i> <i>Students convert recurring decimals into fractions and recognise repeating patterns.</i> Revision Workbook 3	Read: <i>Escape Room: The Times Children's Book of the Week</i> Watch: Don Bradman's Duck - Numberphile Visit: Wembley Stadium Learning Zone Scholars' Question: What are the benefits and limitations of different types of data collection?