

Mathematics

Year 8

Curriculum Overview

Intent: During year 8, students will continue to build on learning from year 7 and then develop this into the next stages. Students will embed skills by practise and learn new aspects of maths which they will continue to build upon in year 9. Building deeper connections between topics is key and students will begin during year 8 to embed the links between mathematical concepts.

	Unit 1: Equations, Inequalities and Graphs	Unit 2: Estimating	Unit 3: Rates of Change	Unit 4: Statistics	Unit 5: Angles and 3d Shapes	Unit6: Developing Algebra
	7 Weeks	2 Weeks	6 Weeks	6 Weeks	7 Weeks	5 Weeks
Core Course Topic: These topics are taught through the identified terms. They are taught in small bitesize chunks and revisited regularly.	<ul style="list-style-type: none"> Forming and solving equations Representing and solving inequalities Linear graphs and parallel lines 	<ul style="list-style-type: none"> Rounding Estimation Bounds 	<ul style="list-style-type: none"> Scales and maps Rates of change Ratio notation Relationship between fraction and ratio Direct and Inverse proportion (including with algebra and graphs) 	<ul style="list-style-type: none"> Construct and interpret graphs Mean, mode and median and range including outliers Scatter graphs (including best fit and interpolation / extrapolation) 	<ul style="list-style-type: none"> Exterior and interior angles in polygons Angles in parallel lines Reasoning with angles Area and volume 3D nets and surface area 	<ul style="list-style-type: none"> Algebraic Notation Simplifying expressions Solving simple equations
Additional support links:	Sparx maths is a platform which students use to complete their mathematics homework. There is also independent practise on there for the students to complete. Students will be supported with revision lists for all assessments, through the module introduction sheet or revision guide for larger assessments. The mathematics team also assist with homework club as well as the whole school Homework Club.					
Knowledge: Included here is the specific knowledge your child will learn in detail	Students will learn how to <ul style="list-style-type: none"> Plot coordinates Draw horizontal and vertical lines on a graph Find the midpoint of a line solving equations plot a straight-line graph 	Students will learn how to <ul style="list-style-type: none"> round numbers to decimal places and significant figures use rounding to estimate calculations find upper and lower bounds 	Students will learn how to <ul style="list-style-type: none"> solving problems involving direct proportion and inverse proportion Ratio notation Apply scales on diagrams Set up equations to model direct and inverse proportion 	Students will learn how to <ul style="list-style-type: none"> calculate the mean, median, mode and range of data identify the best average to use when draw graph, bar charts, pictograms, pie charts plot scatter graphs use scatter graphs to make predictions 	Students will learn how to <ul style="list-style-type: none"> find missing angles on parallel lines find missing angles around a point, straight line, triangle and quadrilateral find missing angles in any size polygon the sum of the exterior angles of a polygon the connection between the circumference of a circle and its diameter find the area and circumference of a circle find the volume and surface area of 3D shapes recognise and draw nets of prisms. 	Students will learn to: <ul style="list-style-type: none"> write expressions with algebra form and solve basic equations collect like terms

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Common Lexicon: These are the key words and terms learnt. These can be found on knowledge organisers.	Term, Variable, Constant, Solve, Equation, Inequalities, Less than, Greater than, Linear and Line.	Place Value, Decimal, Decimal Place, Round, Significant Figures, Estimate and Nearest Integer.	Scale, Unit, Solve, Ratio, Proportion, Fraction, Direct, Inverse, Graph and Rate.	Construct, Graph, Mean, Mode, Median, Range, Outlier, Line of Best Fit, Interpolation and Extrapolation.	Angles, Interior, Exterior, Polygon, Bearing, Area, Volume, Circle, Prism, Net, Surface Area and Composite.	Expressions, formulae, term, identify, equations, inequalities, solve, represent.
Ambition Curriculum	<p>Link to formulae used in many careers. Link graphs to scientific and statistical reasoning.</p> <p>Aspirations: Careers</p> <p>Code breaking- Alan Turning Imitation game link reference to Alan Turin's life at that time. Discussion around careers in coding.</p>	<p>Link to estimation in real life, how this may impact headlines and how it may impact in industry is the incorrect rounding has happened.</p> <p>Fermi- estimation Video link:</p> <p>Fermi estimations link 2: This resource provides examples of solving problems using Fermi Estimates. These examples are similar to the ones covered in the resource</p>	<p>Aspirations: Careers</p> <p>Students will link proportion to map reading, planning and surveying. They will begin to apply this to scientific knowledge and proportion is finance. Discussion around careers in surveying and planning and how this links to area.</p>	<p>Linking statistics to real life contexts, finance, media, science and populations. Students will be able to interpret the data they see in news.</p> <p>Predictions with Dr Hannah Fry using statistics Video Link</p> <p>Data in the real world link: This pilot collection of resources is designed to introduce key statistical ideas and help students to deepen their understanding.</p> <p>How accurate is the data we see? Link: The Observer's nine-point guide to spotting a dodgy statistic</p>	<p>Aspirations: Careers</p> <p>Links to directions such as pilots, captains of ships. Additional links to shape in construction.</p> <p>Discovery about platonic solids video link</p> <p>Growth Mindset: Resilience</p> <p>Links with angles and Olympic turns Link: Different sports involve angles in different ways. The Olympic Games can offer children a motivating context in which to explore angles and turns and gain a deeper understanding of the concepts involved in a real-world setting.</p>	<p>Real World</p> <p>Links to real application of formulae in shops and for calculating costs.</p> <p>Aspirations: Careers Link to formulae used in science</p>