Year 10 (Foundation) Curriculum Overview						
Curriculum Intent: The Year 10 GCSE Maths Foundation curriculum aims to secure core concepts, close KS3 gaps, and build fluency through structured practice, representations, and regular retrieval. Students are regularly exposed to GCSE-style questions to develop confidence, reasoning, and problem-solving skills in real-life and exam contexts, preparing them for success in Year 11.						
Unit	**Assessment**	**Outline**	**Knowledge/Skills**	**Links to Prior Learning**	**Wider Knowledge/Literacy**	**Links to Careers/Employability Skills**
Solving equations and rearranging formulae	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	During this topic students will be Solving linear equations up to and including those with the unknown on both sides of the equation. They will then develop their understanding of Changing the subjects of formulae.	**1. Solve linear equations in one unknown algebraically** **Knowledge** • Understanding equality and inverse operations • Structure of a linear equation • Order of operations (BIDMAS) • Properties of numbers (e.g. negatives, fractions) **Skills** • Isolate the unknown on one side • Apply inverse operations systematically • Check solutions by substitution **2. Rearrange formulae to change the subject in a geometrical context** **Knowledge**	These Year 10 algebra objectives build on Key Stage 3 aims, including simplifying expressions (Y7), solving equations (Y8), and using formulae (Y9). Students build on prior work with one- and two-step equations, inverse operations, and substitution into geometric formulae. They also extend their understanding of powers and roots when rearranging more complex formulae, ensuring readiness for GCSE-level algebra.	**Sparx Maths** (https://www.sparxmaths.uk) Solving equations with one step (U755) Solving equations with two or more steps (U325) Solving equations with the variable in the denominator (U505) Changing the subjects of formulae (U556)	Employability skills: • Critical thinking • Spatial reasoning • Flexibility in problem solving Careers: • Architecture • Surveying • Robotics • Engineering

			• Common geometric formulae (e.g. area, perimeter, volume) • Mathematical operations in formulas (multiplication, division, addition, subtraction) **Skills** • Rearranging to make a different variable the subject • Applying inverse operations in context • Interpreting geometric meaning behind the rearrangement **3. Change the subject of a formula involving the use of square roots and squares** **Knowledge** • Understanding of squaring and square rooting • Recognising non-linear relationships • Rules of indices and inverse operations **Skills**	How knowledge will be built on: • Solving Equations 1 (8.05) and • Solving Equations 2 (9.13).		

			• Isolating the subject using square roots/squares • Rearranging more complex expressions accurately • Handling multi-step algebraic rearrangements			
Linear Graphs	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	Recognise, plot & interpret straight lines; find solutions; gradient & intercepts.	**Knowledge:** • form *y=mx+c*; gradient, • intercept. • algebra–graph links. • four-quadrant coordinates. **Skills:** • plot accurately. • read solutions. • calculate gradient/intercept. • model contexts.	**KS2:** describe positions on full coordinate grid. **KS3:** use *y=mx+c*; calculate/interp. gradient & intercept; plot linear graphs. **GCSE Spec:** A8 (form y=mx+c), A9 (plot graphs), A10 (interpret gradients & intercepts).	NRICH, Corbett Maths, *Maths for Real Life*. **Sparx Codes:** U741 (plot straight lines); U315/U477 (equation of line); U669 (interpret equations); U898 (parallel/perpendicular); U652/U638 (real-life graphs).	Surveying, architecture, data science — accuracy, teamwork.
Linear Simultaneous Equations	Regular In class Formative Assessment. GCSE-style Question Exposure.	Solve simultaneous equations algebraically & graphically; derive from context.	**Knowledge:** • Structure of two-variable systems • Substitution & elimination • Links to graphs • Equations as models **Skills:** • Solve algebraically	**KS2:** problems with two unknowns. **KS3:** solve in two variables; substitution; graphical methods. **GCSE Spec:** A21 (set up sim. eqns), A22	Corbett Maths, GCSEPod. Sparx Codes: U760 (simultaneous equations); U836 (graphical solutions); U137 (construct linear pairs).	Economics, business planning — problem solving, resilience.

	Mid-Year and End-of-Year Assessments.		• Solve graphically • Derive equations from words • Communicate reasoning	(solve algebraically), A23 (interpret graphically).		
Volume 2	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	Volume of cubes, cuboids, prisms, cylinders, spheres, pyramids, cones & composites.	**Knowledge:** • Volume formulae for solids • Capacity • Composite solids **Skills:** • Apply formulae • Decompose solids • Solve multi-step problems	**KS2:** recognise/use 3D shapes; volume of cubes/cuboids. **KS3:** derive/apply volume formulae; surface area & volume. **GCSE Spec:** G16 (volume of prisms), G17 (volume of spheres, cones, pyramids, composites).	BBC Bitesize, Mathigon. Sparx Codes: U786 (cubes/cuboids); U174 (prisms); U915 (cylinders); U116 (cones); U617 (spheres); U484 (pyramids); U543 (composite solids); U350 (frustums).	Engineering, construction, architecture — creativity, problem solving.
Compound Measures	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	Interpret distance-time graphs; convert standard & compound units.	**Knowledge:** • Speed/density/pressure • Units & conversions • D–S–T relationships **Skills:** • Draw/interpret distance-time • Convert units • Apply formulas in context	**KS2:** convert between measures. **KS3:** compound units; interpret distance-time graphs. **GCSE Spec:** R13 (compound units: speed, density, pressure).	Corbett Maths. Sparx Codes: U151 (speed); U256 (rates); U910 (density); U527 (pressure); U403 (plot distance-time); U914 (interpret distance-time); U462 (speed from graphs).	Science, logistics, transport — logical reasoning, staying positive.

Quadratics - graphical	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	Recognise, sketch & interpret quadratics; approximate solutions.	**Knowledge:** • Parabola shape • Roots/intercepts • Turning point • Algebra–graph link **Skills:** • Plot/sketch • Read solutions • Interpret features in context	**KS2:** use coordinates/graphs. **KS3:** plot quadratics; interpret key features. **GCSE Spec:** A11 (recognise quadratic graphs), A12 (interpret key features), A13 (solve graphically).	Desmos, BBC Bitesize. Sparx Codes: U989 (plot quadratic functions); U667 (interpret quadratics); U601 (solve quadratics graphically).	Physics, data modelling — accuracy, aiming high.
Quadratics - algebraic	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	Factorise and solve quadratics (where x^2 coeff. = 1).	**Knowledge:** • Quadratic structure • Expand/factorise • Solving via factorisation **Skills:** • Expand double brackets • Factorise • Solve and check solutions	**KS2:** intro algebraic reasoning. **KS3:** factorise expressions; solve quadratics by factorising. **GCSE Spec:** A18 (factorise quadratics), A19 (solve quadratics by factorisation).	Corbett Maths, Dr Frost. Sparx Codes: U768 (expanding brackets); U178 (factorising quadratics); U228 (factorise to solve); U960 (harder quadratics).	Engineering, computing — problem solving, reasoning.
Further graphs	Regular In class Formative Assessment. GCSE-style Question Exposure.	Sketch cubic & reciprocal; recognise inverse & direct proportion graphs.	**Knowledge:** • Properties of cubic/reciprocal • Inverse/direct proportion • Non-linear features **Skills:** • Sketch & recognise	**KS2:** plot/interpret graphs. **KS3:** recognise cubic/reciprocal; interpret real-life graphs.	Desmos, NRICH. Sparx Codes: U980 (cubic graphs); U593 (reciprocal graphs); U238 (direct/inverse proportion graphs); U407 (construct direct proportion); U138	Science, economics — creativity, problem solving.

	Mid-Year and End-of-Year Assessments.		• Interpret proportion graphs • Apply to contexts	**GCSE Spec:** A14 (sketch cubic/reciprocal), A15 (interpret inverse & direct proportion graphs).	(construct inverse proportion).	
Probability 2	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	Experimental & theoretical probability; tree diagrams; Venn diagrams.	**Knowledge:** • Probability rules / sum to 1 • Independence / dependence • Set notation **Skills:** • Construct & read diagrams • Compute combined probabilities • Justify with rules	**KS2:** simple probabilities. **KS3:** record / describe / analyse experiments; use Venn & tree diagrams. **GCSE Spec:** P6 (use Venn diagrams), P7 (construct/use tree diagrams), P8 (independent/dependent events).	BBC Bitesize, MathsWatch. Sparx Codes: U558 (tree independent); U729 (tree dependent); U476 (Venn diagrams); U748 (Venn set notation); U683 (mutually exclusive / sums to 1).	Insurance, risk analysis — problem solving, aiming high.
Statistics 2	Regular In class Formative Assessment. GCSE-style Question Exposure. Mid-Year and End-of-Year Assessments.	Bar charts, pictograms, stem-and-leaf, pie charts; averages & range; scatter graphs.	**Knowledge:** • Charts • Averages • Correlation **Skills:** • Draw/interpret charts • Calculate mean/median/mode/range • Plot & interpret scatter graphs	**KS2:** construct diagrams; calculate averages. **KS3:** charts/diagrams; averages & spread; scatter graphs. **GCSE Spec:** S2 (draw/interpret charts), S3 (calculate	Gapminder, ONS. Sparx Codes: U200 (stem-leaf draw); U909 (interpret); U363 (bar draw); U557 (interpret); U508 (pie draw); U172 (interpret); U199 (scatter plot); U277 (interpret); U291 (mean); U526 (range).	Data analysis, business — communication, teamwork.

				averages), S4 (scatter graphs & correlation).		
Ratio 2	Regular In class Formative Assessment. GCSE-style Question Exposure. End-of-Year Assessments.	Convert ratio ↔ fractions/percentages; simplify/combine; share amounts; problem-solve.	**Knowledge:** • Ratio notation • Ratio–fraction–percentage links • Combining ratios **Skills:** • Share in a ratio • Convert between forms • multi-step proportional reasoning	**KS2:** ratio & proportion problems. **KS3:** ratio notation; solve ratio problems. **GCSE Spec:** R8 (use ratio notation), R9 (divide in ratio), R10 (link ratio, fraction, percentage).	Corbett Maths, BBC Bitesize. Sparx Codes: U687 (write/simplify); U176 (convert ratio-fraction-%); U577 (share amounts); U921 (combine ratios); U676 (ratio with algebra).	Cooking, business — teamwork, creativity.
Growth & Decay	Regular In class Formative Assessment. GCSE-style Question Exposure. End-of-Year Assessments.	Growth/decay incl. compound interest; compare simple vs compound.	**Knowledge:** • % increase/decrease • Compound vs simple interest • Exponential change **Skills:** • Use formulas • Compare methods • Interpret in context	**KS2:** % of amounts. **KS3:** % change & repeated change. **GCSE Spec:** R16 (simple & compound interest), R17 (growth & decay contexts).	BBC Bitesize. Sparx Codes: U332 (compound interest); U988 (growth & decay); U671 (% change); U286 (find original values).	Finance, biology — aiming high, problem solving.
Pythagoras Review	Regular In class Formative Assessment. GCSE-style Question Exposure.	Find missing side; test if triangle is right-angled.	**Knowledge:** • Squares & roots • Pythagoras' Theorem • Right-angled conditions **Skills:** • Apply theorem to find sides	**KS2:** geometry & angles. **KS3:** understand/apply Pythagoras' Theorem.	MathsWatch, NRICH. Sparx Codes: U385 (Pythagoras in 2D).	Architecture, surveying — accuracy, problem solving.

	End-of-Year Assessments.		• Test triangles • Solve contextual problems	**GCSE Spec:** G20 (apply Pythagoras' Theorem in 2D & 3D).		
Bearings & Scale Drawings	Regular In class Formative Assessment. GCSE-style Question Exposure. End-of-Year Assessments.	Measure/draw bearings; scale diagrams; use angle rules.	**Knowledge:** • 3-figure bearings • Angle rules • Scale factors **Skills:** • Measure/draw bearings • Construct scale diagrams • Apply rules in problems	**KS2:** draw 2D shapes. **KS3:** constructions; measure bearings; scale drawings. **GCSE Spec:** G14 (bearings problems), G15 (scale drawings).	OS maps, BBC Skillswise. Sparx Codes: U525 (measure/draw bearings); U107 (calculate bearings); U257 (scale diagrams).	Navigation, aviation — leadership, teamwork, accuracy.