SUBJECT CURRICULUM PLAN

HASMONEAN
אל תקרי בניך אלא בוניך

SUBJECT:	Mathematics	YEAR GROUP:	9
SUBJECT INTENT:	To master algebraic, geometric, and proportional relationships, building directly upon Key Stage 3 fluency to successfully transition students into Higher Tier GCSE reasoning.		

Autumn Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Autumn	Calculations, Fractions, Decimals, & %	Multiplying/dividing decimals, calculating with complex fractions, reverse percentages, compound interest, and fractional change.	Place value, multipliers, percentage inversions, decimal syntax.	Extends Year 7/8 number and percentage topics. Progresses toward exponential growth modeling at KS4 and polynomial division in KS5.
Autumn	Handling Data 1 & 2	Sampling methods, constructing histograms, box plots, cumulative frequency curves, and comparing distributions using medians and IQR.	Representative sample, frequency density, interquartile range, spread.	Deepens Year 8 statistical averages. Direct foundation for statistical analysis and hypothesis testing in A-Level Statistics.
Autumn	Expressions & Equations	Expanding multiple brackets, factorising quadratics x^2 + bx + c, solving linear inequalities, and rearranging complex formulae.	Quadratics, factors, algebraic inequalities, changing the subject.	Advances from Year 8 multi-step equations. Prerequisite for Year 10 algebraic modeling and Key Stage 5 calculus foundations.

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Spring Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Spring	Working in 2D	Perimeter and area of composite shapes, area of sectors, arc lengths of circles, and properties of regular polygons.	Sector area, arc length, interior/exterior angles, polygon geometry.	Extends Year 8 circle and polygon rules. Sequences into 3D geometry, frustums, and coordinate geometry theorems.
Spring	Pythagoras & Trigonometry	Applying Pythagoras' Theorem in 2D and 3D contexts, and introduction to standard trigonometric ratios (SOHCAHTOA).	Hypotenuse, sine, cosine, tangent, right-angled triangles.	Builds upon fundamental geometric concepts. Prepares students for the Sine/Cosine rules in Year 10 and vector mechanics in Year 11/A-Level.
Spring	Sequences	Finding the nth term of linear and quadratic sequences; generating terms of geometric and Fibonacci sequences.	Quadratic sequences, common second difference, geometric progression.	Direct progression from Year 8 arithmetic series. Establishes core notation for arithmetic and geometric series at Key Stage 5.

Summer Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Summer	Ratio and Proportion	Direct and inverse proportion using algebraic equations ($y = kx$, $y = k/x$), compound units, and scale factors.	Proportionality constant (k), reciprocal models, scale reasoning.	Deepens Year 8 proportional models. Directly applicable to Year 11 compound units, physics formulas, and advanced variation mapping.

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TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Summer	Angles and Polygons	Interior and exterior angles of regular polygons, geometric proofs, and advanced parallel line angle properties.	Exterior angles sum, regular polygon configurations, rigorous geometric proof.	Extends Key Stage 3 spatial reasoning. Solidifies formal deductive proofs required for circle theorems in Year 10.
Summer	Probability	Theoretical and experimental probability, product rule for counting, Venn diagrams, and independent combined events.	Sample space, conditional independence, set notation, outcome calculation.	Builds upon Year 8 sample spaces. Directly sets up conditional probability trees in Year 11 and A-Level statistical distributions.

SUBJECT CURRICULUM PLAN

SUBJECT:	Mathematics	YEAR GROUP:	10
SUBJECT INTENT:	To deepen rigorous abstract mathematical structures, specializing in coordinate geometry, quadratic functional models, circular theorems, and functional vector tracking.		

Autumn Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Autumn	Graphs 1 & 2	Plotting quadratic, cubic, reciprocal, and exponential graphs; finding gradients of tangents and areas under curves.	Intercepts, turning points, instantaneous rate of change, curve boundaries.	Extends Year 8 linear graphs (y=mx+c). Crucial foundational bridge for A-Level coordinate geometry, calculus, and kinematic curves.

Spring Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Spring	Solving Equations & Quadratic Algebra	Solving quadratics by factorising, completing the square, or using the formula; solving simultaneous equations.	Roots of equations, vertex form, quadratic coefficients, intersection.	Refines Year 9 algebraic factoring. Prepares students for non-linear simultaneous equations, conic graph lines, and inequality regions.
Spring	Trigonometry (Advanced)	Applying Sine and Cosine rules to non-right-angled triangles, calculating area of any triangle (0.5ab sin C), and trigonometric	Non-right triangles, sine rule, cosine rule, periodic functions.	Extends Year 9 foundational trigonometry. Direct prerequisites for A-Level trigonometric identities and wave mechanics projections.

SUBJECT CURRICULUM PLAN

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
		graphs.		
Spring	Formulae and Functions	Composite functions, inverse functions, functional notation f(x), and constructing equations from real-life contexts.	Domain, range, inverse mapping, input-output variables.	Elevates basic formula substitution into functional logic. Crucial groundwork for pure mathematics mappings at Key Stage 5.
Spring	Circles and Constructions	Proving and applying the 8 Circle Theorems, circle coordinate equations x^2+y^2=r^2, and geometric loci constructions.	Tangents, chords, cyclic quadrilaterals, perpendicular bisectors.	Integrates Year 8 circle rules and Year 9 angle proofs. Extends into tangent lines and calculus optimization lines at higher levels.

Summer Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Summer	Inequalities	Solving quadratic inequalities, showing inequalities graphically by shading regions, and writing error intervals using bounds.	Feasible regions, linear inequalities, quadratic bounds, interval constraints.	Builds on Year 9 linear inequalities. Directly transitions into linear programming models and optimization matrices in advanced studies.
Summer	Working in 3D	Calculating volume and surface area of pyramids, cones, spheres, frustums,	Frustum structures, composite 3D solids, spatial	Deepens Key Stage 3 3D mechanics. Integrates with Year 9 Pythagoras and trigonometry to process 3D spatial calculations.

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TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
		and identifying plans and elevations.	projection, exact volume constants.	

SUBJECT CURRICULUM PLAN

SUBJECT:	**Mathematics**	**YEAR GROUP:**	**11**
SUBJECT INTENT:	To synthesize multi-topic fluency, master advanced compound units, statistical probability mechanics, and vector spacing while executing rigorous targeted revision for GCSE success.		

Autumn Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Autumn	Units and Proportionality	Converting compound units, calculating speed, density, and pressure; handling direct and inverse variation under root/square scales.	Compound units, proportional scale factors, inverse power models.	Synthesizes Year 9 proportion and Year 10 algebraic rearrangement. Essential for both GCSE physics and A-Level mechanics applications.
Autumn	Revision of Y9/Y10 TOPICS	Review booklets with mathswatch clips and corbett maths clips. Consolidation with revision tests	Recall previous topics learnt in Y9/Y10 for revision for the mock exams	Reviews key skills content from previous years to ensure easy marks in the exams are not lost

Spring Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Spring	Probability of Combined Events	Conditional probability trees, algebraic probability problems, and dependent event samplings without replacement.	Dependent events, tree branching, conditional algorithms, sample shifts.	Extends Year 9 probability setups. Directly structures the baseline framework for binomial and normal distributions at A-Level.

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TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Spring	Measures and Accuracy	Advanced bounds in multi-step formulas involving fractions, powers, and roots; determining levels of decimal accuracy.	Upper/lower bounds, error intervals, propagation of error.	Refines Year 8 estimation and Year 10 inequality intervals. This is vital for analytical error tolerances across higher scientific domains.
Spring	Vectors	Vector arithmetic, column matrices, scalar multiplication, and executing rigorous geometric proofs for parallel or collinear lines.	Scalar multipliers, collinearity, vector tracking, algebraic geometry proof.	Connects Year 9 straight line graphs with spatial geometry. Synthesizes vector mechanics required for both A-Level Pure and Applied paths.
Spring	Targeted GCSE Revision	Comprehensive review of Year 9 and 10 topics; focused intervention from mock performance and exam papers.	Exam strategies, multi-topic synthesis, problem solving, error elimination.	Brings together all aspects of the curriculum. Transitions students fully into examination readiness and higher independent problem solving.

Summer Term Plan

TERM	TOPIC	CORE LEARNING	KEY CONCEPTS	SEQUENCING
Summer	Final Exam Readiness & KS5 Transition	Final past-paper practice, exam board structural timing workshops, and introductory algebraic induction for A-Level Mathematics.	Fluency retrieval, cross-topic links, advanced algebraic parameters.	Finalizes the secondary school curriculum blueprint, ensuring exam success and a confident leap into Advanced Level qualifications.