MATHS CURRICULUM LEARNING JOURNEY

HARLINGTON SCHOOL
ASPIRATION COMMUNITY DIVERSITY

Knowledge & Concepts increase students depth/ challenge and build on previous learning where topics are revisted throughout their learning journey

		Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
Half Term 1	Topics	Algebraic Thinking	Proportional reasoning	Reasoning with algebra Constructing in 2 & 3 dimensions	Geometry	Algebra MOCK Exam 1	Algebra Geometry Statistics & Probability	Algebra Shapes & Space
	Knowledge	• Sequences • Understand and use algebraic notation • Equality and Equivalence	• Ratio & scale • Multiplicative change • Multiplying and dividing fractions	• Straight line graphs • Forming and solving equations • Testing conjectures • 3D shapes	• Congruence, Similarity & Enlargement • Trigonometry	• Gradients & lines • Non-linear graphs • Using graphs • Expanding & factorising • Revision for MOCK • MOCK exam (Paper 1)	• Algebra: Baseline Test • Algebraic expressions • Logarithms • Quadratics • Circle • Equations & inequalities • Graphs & Transformations • Straight line graphs • Data collection	• Algebraic Methods • Functions & Graphs • Sequences & Series • Recap Conditional Probability • Venn and Tree Diagrams • Regression correlation and Hypothesis Testing

							• Data Representation • Measures of Location and Spread • Correlation	• Normal Distribution
Half Term 2	Topics	Place Value and Proportion Applications of Number	Representations	Constructing in 2 & 3 dimensions Reasoning with number	Algebra Geometry	Algebra MOCK Exam 2	Geometry Statistics & Probability Calculus	Calculus Geometry Shapes & Space Mock Exam 1
	Knowledge	• Place value and ordering integers and decimals • Fraction, decimal and percentage equivalence • Solving problems with addition and subtraction	• Working in the Cartesian plane • Representing data • Tables & Probability	• Three dimensional shapes • Constructions & congruency • Numbers	• Representing Solutions of Equations & Inequalities • Simultaneous Equations • Angles and bearings	• Changing the subject • Functions • MOCK (Paper 1) • MOCK (Paper 2)	• Graphical transformation • Differentiation • Algebraic methods • Vectors • Trig ratio • Probability • Statistical Distribution • Hypothesis testing	• Binomial Expansion • Radians • Trigonometric Functions • Moments • Forces and friction • Gap analysis and preparation for Mock exam
	Topics	Applications of Number	Algebraic techniques	Reasoning with number	Geometry	Ratio and Proportion Algebra	Calculus Algebra	Calculus (2) Shapes & Space

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Half Term 3		Directed Numbers			Proportion & proportionality Algebraic reasoning Revision	Geometry and Measure Gap Analysis form MOCK	Trigonometry Mechanics	Problem Solving
	Knowledge	• (MYA Assessment) • Solving problems with multiplication and division • Fractions and percentages of amounts • Operations and equations. • Directed numbers	• Brackets, equations & inequalities • Sequences • Indices	• Using percentages • Maths & money • Deduction	• Working with Circles • Vectors • Ratio & fractions	• Multiplicative Reasoning • Geometric Reasoning • Algebraic Reasoning • Transformation and Constructions • Listing and Describing	• Integration • Trig Ratio • Trig Equations & Identities • Binomial Expansion • Hypothesis Testing • Modelling in mechanics • Constant acceleration	• Mock exam review • Trigonometry and modelling • Parametric Equations • Projectiles • Application of forces
Half Term 4	Topics	Directed Numbers Fractional Thinking Lines and Angles	Developing Number	Reasoning with geometry	Ratio-io & fractions Percentage & interest Probability	Consolidation	Trigonometry Mechanics	Algebra Problem solving

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	Knowledge	• Addition and subtraction of fractions	• Fractions & percentages • Standard index form • Number sense	• Rotation & Translation • Pythagoras • Enlargement & Similarity	• Ratios and graphs • Combine set of ratios • Ratio problems • Percentage increase/ decrease/change • Simple/compound interest • Growth & decay problems • Experimental probability		• Trig Equations & Identities • Exponentials & logarithms • Force & Motion • Variable Acceleration	• Differentiation • Integration • Further kinematics • Gap analysis • Prepare for Mock Exam 2
Half Term 5	Topics	Lines and Angles	Developing geometry	Reasoning with proportion & Representations	Data Non- calculator methods	Gap analyses	Mathematical modelling	Algebra Consolidation Mock exam 2
	Knowledge	• Constructing, measuring and using geometric notation • Develop geometric reasoning	• Angles in parallel lines & polygons • Area of trapezia and circles • Line symmetry and reflection	• Solving ratio & proportion problems • Rates • Probability	• Collecting, Representing & Interpreting Data • Non-Calculator Methods • Rounding/ estimating • Rational/irrational numbers	• Consolidation: topics from MOCK	• Gap analysis • Preparation for End of Year Exam	• Numerical Methods • vectors • Review Easter Mock Exam: Gap Analysis • Past Papers

					• Surds • Upper & lower bounds			
Half Term 6	Topics	Reasoning with Number	Reasoning with data	Representations & revision	Number Revision for EOY assessments Algebra		End of Year Exam and review Year 2 content Scholarship Research Tasks	Gap Analysis
	Knowledge	• Developing number sense • (EOY Assessment) • Sets and probability • Developing number sense • Sets & probability • Prime numbers & proof	• The data handling cycle • Measures of location	• Algebraic representation	• Types of Number & Sequences • Indices & Roots • Manipulating Expressions		• Pure Maths Unit (review) • Statistics & Prob (review) • Mechanics Unit (review) • Partial Fractions (A2) • Functions (A2) • Conditional probability (A2)	• Individual Consultations • A Level Maths Exams