Maths Curriculum Map 2024-25

Intent: The mathematics curriculum aims to offer our students the opportunity to develop a solid foundation in the key mathematical components: number skills, algebra, geometry, ration and proportion and probability and statistics. This is achieved through teaching these mathematical concepts from a first principle basis to develop a deeper understanding and becoming fluent in the fundamentals of mathematics by developing their problem solving skills. We encourage a deep understanding and memory through revisiting and building upon prior knowledge.
Through our curriculum we aim for our students to link and master the different components to contextual real world problems, allowing students to appreciate the importance and power of mathematics in their everyday lives.

Term	Autumn 1		Autumn 2		Spring 1	Spring 2		Summer 1	Summer 2
Year 7	**Number:** Operations with integers Operations with decimals Money questions Negatives in real life Four rules of negatives BIDMAS Inverse operations Factors, Multiples and Primes Highest common factor Lowest common multiple Rounding Estimating answers	**Assessment 1**	**Number:** Squares, Cubes and Roots Indices Product of Primes Standard Form Fractions; Equivalent, Simplifying, Comparing Operations with fractions Finding a fraction of an amount Fractions, decimals, percentages Percentages of amounts	**Assessment 2**	**Algebra**: Introduction to Algebraic conversions Function machines Algebraic manipulation - Addition, Subtraction, Multiplication and Division Forming Expressions Substitution into formulae **Geometry:** Coordinates Measuring and drawing angles Angles round a point and on a line Problem solving with angles in triangles and quadrilaterals	**Data:** Tally charts Bar charts Pictograms Vertical Line Charts Frequency tables and diagrams Averages **Probability:** Calculating probabilities Experimental probability	**Assessment 3**	**Geometry**: Area and perimeter of 2D shapes 3D shapes Nets **Ratio:** Simplify ratios Split into ratios Introduction to proportion Exchanging money	Teachers explore all the topics exposed in previous terms through methods of application to empower students. This should be done through a mixture of activities and revision.

Year 8	**Number:** Operations with integers Four rules of negatives BIDMAS Estimating answers Operations with decimals Standard form Operations with fractions Fractions of amounts Factors, Multiples Product of primes Highest common factor Lowest common multiple Indices	**Assessment 1**	**Number:** Fractions, Decimals and Percentages Calculate Percentage of an Amount (without a calculator) Value for Money **Geometry**: Area and Perimeter; Parallelogram, Trapezium and Circle Volume of 3D shapes	**Assessment 2**	**Ratio**: Sharing amounts using ratio Using ratio for recipe Questions Exchanging money Introduction to proportion **Data:** Discrete and continuous data Two-way tables Frequency trees Averages and the Range Line graphs Scatter graphs Stem and leaf	**Algebra**: Algebraic manipulation Simplifying and factorising expressions Substitution Solving equations Sequences Generate Special Sequences Introduction to graphs Find gradient of a line	**Assessment 3**	**Geometry:** Reflections Rotations Translations Angles at a point Angles between parallel lines Angles in a Triangle Properties of special triangles **Probability**: Listing outcomes Calculating probabilities Mutually exclusive probabilities Experimental probabilities Possibility spaces	Teachers explore all the topics exposed in previous terms through methods of application to empower students. This should be done through a mixture of activities and revision.

Year 9	**Number:** Operations with integers Estimating answers BIDMAS Standard form Operations with fractions Fraction of an Amount Fractions, decimals and percentages Percentage increase/decrease, Change to a percentage, Reverse percentages Simple Interest Introduction to Bounds		**Number:** Indices Rounding Introduction to bounds **Algebra;** Simplifying expressions Expanding brackets Forming and solving formulae/equations Substitution Straight line graphs Gradient of a line Drawing graphs		**Algebra:** Generating a sequence Nth term Special sequences **Geometry:** Perimeter and area of 2D shapes Surface area of a prism Volume of 3D shapes Angles Angles in a triangle Angles in parallel lines Angles of Polygons; Angles in polygons Bearings	Metric conversions **Probability**: Listing outcomes Calculating probabilities Mutually exclusive events Experimental probability Venn diagrams Tree diagrams		**Data**: Discrete and Continuous, Two-way Tables, Frequency Trees Pie Charts Scatter Graphs Averages and the Range **Geometry:** Transformations; Reflections Translations Rotations Enlargements Pythagoras' Theorem **Ratio:** Sharing amounts using Ratio Using ratio in Recipe style questions Proportion	Teachers explore all the topics exposed in previous terms through methods of application to empower students. This should be done through a mixture of activities and revision.

Year 10 (F)	**Number:** Decimals Indices Bounds Error Intervals Estimating answers Mathematical Reasoning Standard form Percentages; Percentage change Reverse percentages Simple Interest Compound Interest Depreciation problems Growth and Decay Metric conversions Compound units	**Assessment 1**	**Algebra:** Factorising Expanding brackets Forming and solving linear equations Inequalities on a number line Solving linear inequalities Sequences Fibonacci Geometric Progressions Straight Line Graphs Gradient of a line Midpoint of a line Equation of a Straight Line Drawing Graphs Factorising and solving quadratics The difference of two squares Roots and turning points of quadratics	**Assessment 2**	**Algebra:** Simultaneous equations **Geometry:** Perimeter and area Tangents, Arcs, Sectors and Segments Surface Area and Volume; Spheres, Pyramids, Cones and Frustums Angles in parallel lines Angles in polygons Bearings **Ratio:** Introduction to proportion Sharing into a ratio	**Geometry:** Pythagoras' Theorem Trigonometric Ratios Exact Trigonometric Values **Probability:** Experimental probability Listing outcomes Venn Diagrams Tree Diagrams	**Assessment 3**	**Data:** Averages Sampling Pie Charts Scatter graphs Populations Stratified Sampling and Time Series Graphs **Geometry:** Similar shapes Transformations Scale drawings Vectors Construction Loci	Teachers explore all the topics exposed in previous terms through methods of application to empower students. This should be done through a mixture of activities and revision.

Year 10 (H)	**Number:** Decimals Indices Bounds Percentage change Reverse percentages Simple Interest Compound Interest Depreciation Growth and Decay	**Assessment 1**	**Algebra:** Factorising linear and quadratic expressions Expanding brackets Forming and solving equations Sequences Quadratic sequences Straight Line Graphs Gradient of a line Equation of a Straight Line Parallel and perpendicular lines Drawing Graphs Solving quadratic equations with formula and completing the square. Roots and turning points of quadratics	**Assessment 2**	**Algebra:** Simultaneous equations including quadratic equations **Geometry:** Tangents, Arcs, Sectors and Segments Surface Area and Volume; Spheres, Pyramids, Cones and Frustums Angles in parallel lines Angles in polygons Circle theorems **Ratio:** Sharing into a ratio Direct and inverse proportion	**Geometry:** Pythagoras' Theorem Trigonometric Ratios Exact Trigonometric Values Area of a triangle Trig and bearings **Probability:** Experimental probability Listing outcomes Venn Diagrams Tree Diagrams Conditional probability **Data:** Cumulative frequency Box plot	**Assessment 3**	**Data:** Averages Sampling Pie Charts Scatter graphs Histogram Populations Stratified Sampling and Time Series Graphs **Geometry:** Similar shapes Transformations Scale drawings Vectors Construction Loci	Teachers explore all the topics exposed in previous terms through methods of application to empower students. This should be done through a mixture of activities and revision.

Year 11 (F)	**Number:** Fractions Indices Bounds Error Intervals Estimating answers Mathematical Reasoning Percentages Standard form Fractions Percentage change Reverse percentages Simple Interest Compound Interest Depreciation problems Growth and Decay	**Mock Exam 1**	**Algebra:** Factorising Expanding brackets Solving equations Inequalities on a number line Solving Linear Inequalities Sequences Geometric progressions Special sequences Substitution Straight Line Graphs The Gradient of a Line Midpoint of a Line Equation of a Straight Line Factorising and Solving Quadratics The Difference of Two Squares Roots and Turning Points of Quadratics Drawing graphs	**Mock Exam 2**	**Algebra:** Simultaneous equations **Geometry:** Area and perimeter of 2D shapes Tangents, Arcs, Sectors and Segments Surface Area and Volume; Spheres, Pyramids, Cones and Frustums Compound Units Distance-Time Graphs **Proportion:** Intro to proportion Ratio	**Geometry:** Angles Loci Bisecting angles Bearings Construction Pythagoras' Theorem Trigonometric Ratios to Find Missing Sides and Angles in Right-Angled Triangles Exact Trigonometric Values Similar Shapes Congruent Triangles Scale Drawings Vectors Transformations **Statistics**: Pie Charts Scatter Graphs Sampling Populations, Stratified Sampling Time Series Graphs Averages	**Mock Exam 3**	Exam preparation on all topics. Revision packs included on every major topic taught. Then the students are exposed to past and specimen exam papers.	Summer Examinations take place.

Year 11 (H)	**Number:** Mathematical Reasoning, Negative Indices, Error Intervals and Standard Form Recurring Decimals to Fractions Upper and Lower Bounds Surds Direct and Inverse Proportion Percentages Fractions **Algebra:** Product of Three Binomials Rearranging formulae Factorising Quadratics with a coefficient >1 Iterative Processes Algebraic Proof	**Mock Exam 1**	**Geometry:** Transformations - Negative Scale Factor Circle Theorems Similarity - Area and Volume and Congruency Trigonometry The Sine and Cosine Rule Pythagoras' Theorem Trigonometric Ratios in 3D shapes	**Mock Exam 2**	**Probability:** Calculating probabilities Tree diagrams Venn diagrams **Statistics:** Pie Charts Scatter graphs Sampling Cumulative Frequency Boxplots Histograms **Algebra:** Solving quadratics Algebraic Fractions Roots and Turning Points of Quadratics Completing the Square Simultaneous Equations with a Quadratic Equation Inverse and Composite Functions	**Algebra:** Perpendicular lines Equations of a circle Pythagoras on a line Sequences Regions Inequalities **Geometry:** Distance-Time Graphs and Velocity-Time Graphs Vectors Trigonometric Graphs Transformation of Functions Surface Area and Volume; Spheres, Cones, Pyramids and Frustums	**Mock Exam 3**	Exam preparation on all topics. Revision packs included on every major topic taught. Then the students are exposed to past and specimen exam papers.	Summer Examinations take place.

Year 12	**Pure Mathematics** Algebra and functions • Algebraic expressions • Quadratic functions • Equations • Inequalities • Graphs • Transformations **Statistics** Data Sampling • Terminology • Sampling techniques Data presentation and interpretation • Measures of location • Measures of variation • Single variable data • Scatter diagrams Probability • Mutually exclusive events • Independent events	**Pure Mathematics** Coordinate Geometry in the (x,y) plane • Straight line graphs • Circles Further Algebra • Algebraic division • Factor theorem • Proof • Binomial expansion **Statistics** Statistical distributions • Discrete uniform distributions • Probabilities using binomial distributions Statistical hypothesis testing • Significance levels • Hypothesis testing using binomial distribution	**Mock Exam 1 (Jan)**	**Pure Mathematics** Trigonometry • Ratios and graphs • Identities and equations Vectors (2D) • Magnitude • Addition and scalar multiplication • Position Vectors **Mechanics** Quantities and units • Intro to mathematical modelling • Vector and scalar quantities Kinematics 1 • Graphical representation of velocity and displacement • Motion in a straight line • Suvat formulae • Vertical motion	**Pure Mathematics** Differentiation • Polynomials • 2nd derivatives • Gradient • Tangent and normal Integration • Indefinite integrals • Definite integrals • Area under a curve **Mechanics** Forces and Newton's Law • Newtons first law • Force diagrams • Newtons second law • Newtons third law	**Mock Exam 2**	**Pure Mathematics** Exponentials and logarithms • Exponential functions • Natural logarithms **Mechanics** Kinematics 2 • Variable force • Use of integration **REVISION**	**REVISION** **EXAMINATIONS**