Subject Curriculum – Year 8 Higher Tier

Big Ideas & Purpose	The aims of teaching and learning mathematics are to encourage and enable students to: recognise that mathematics permeates the world around us; appreciate the usefulness, power and beauty of mathematics and enjoy mathematics and develop patience and persistence when solving problems.				
Programme of Study	HT1 **Factors and powers** Prime factor decomposition Laws of indices STEM: Powers of 10 Calculating and estimating **Working with powers** Simplifying expressions Expanding and simplifying Substituting and solving	HT2 **2D shapes and 3D solids** Plans and elevations Surface area of prisms Volume of prisms Circumference of a circle Area of a circle Cylinders Pythagoras' theorem **Fractions, decimals and percentages** Recurring decimals Using percentages Percentage change FINANCE: Repeated percentage change	HT3 **Real life graphs** Direct proportion FINANCE: Interpreting financial graphs Distance-time graphs Rates of change Misleading graphs **Transformations** Reflection and translation Rotation Enlargement More enlargement STEM: Combining transformations 2D shapes and 3D solids	HT4 **Constructions and Loci** Accurate drawings Constructing shapes Constructions 1 Constructions 2 Loci **Probability** Comparing probabilities Mutually exclusive events Estimating probability Experimental probability Probability diagrams Tree diagrams	HT5 **Scale drawings and measures** Maps and scales Bearings Scales and ratio Congruent and similar shapes Solving geometry problems	HT6 **Graphs** Plotting linear graphs The gradient y = mx + c Parallel and perpendicular lines Inverse functions STEM: Non-linear graphs
Key Assessments	• Assessments take place after every unit. • Usually 2 per half term.		• Assessments take place after every unit. • Usually 2 per half term.		• Year 8 will also take an end of year examination in the summer term.

Key Skills		**Links to Careers**
	• To provide opportunities for learner to demonstrate their knowledge of mathematics across a whole range of topic areas. • To allow learners to develop their problem-solving strategies and provide the confidence and skills required to tackle unfamiliar challenges.	• Mathematics teaches accuracy and precision in work. The analytical and problem-solving skills you learn are valuable in many different careers, for example Accountancy, Teaching, Business, Medicine, Architecture and Computer Studies.

Subject Curriculum – Year 8 Middle Tier

Big Ideas & Purpose	The aims of teaching and learning mathematics are to encourage and enable students to: recognize that mathematics permeates the world around us; appreciate the usefulness, power and beauty of mathematics; enjoy mathematics and develop patience and persistence when solving problems in school and real-life and appreciate the international dimension of mathematics and its multicultural and historical perspectives.				
Programme of Study	**HT1** **Number** Calculations Powers and roots Powers, roots and brackets Multiples and factors **Area and volume** Area of a triangle Area of a parallelogram and trapezium Volume of cubes and cuboids 3D shapes Surface area of cubes and cuboids Problems and measures	**HT2** **Statistics, graphs and charts** Pie charts Using tables Stem and leaf diagrams Comparing data Scatter graphs FINANCE: Misleading graphs **Decimals and ratio** Ordering decimals and rounding Place-value calculations Calculations with decimals Ratio and proportion with decimals STEM: Using ratios	**HT3** **Real-life graphs** Conversion graphs Distance-time graphs Line graphs Complex line graphs STEM: Graphs of functions More real-life graphs **Lines and angles** Quadrilaterals Alternate angles and proof Geometrical problems Exterior and interior angles Solving geometric problems	**HT4** **Lines and angles** Quadrilaterals Alternate angles and proof Geometrical problems Exterior and interior angles Solving geometric problems **Expressions and equations** Algebraic powers Expressions and brackets Factorising expressions One-step equations Two-step equations The balancing method	**HT5** **Calculating with fractions** Adding and subtracting fractions Multiplying fractions Fractions, decimals and reciprocals Dividing fractions Calculating with mixed numbers **Straight-line graphs** Direct proportion on graphs Gradients Equations of straight lines STEM: Direct proportion problems	**HT6** **Percentages,** decimals and fractions Fractions and decimals Equivalent proportions Writing percentages Percentages of amounts FINANCE: Solving problems
Key Assessments	• Assessments take place after every unit. • Usually 2 per half term.		• Assessments take place after every unit. • Usually 2 per half term.		• Year 8 will also take an end of year examination in the summer term.

Key Skills

- To provide opportunities for learner to demonstrate their knowledge of mathematics across a whole range of topic areas.
- To allow learners to develop their problem-solving strategies and provide the confidence and skills required to tackle unfamiliar challenges.

Links to Careers

- Mathematics teaches accuracy and precision in work. The analytical and problem-solving skills you learn are valuable in many different careers, for example Accountancy, Teaching, Business, Medicine, Architecture and Computer Studies.

Subject Curriculum – Year 8 Lower Tier

Big Ideas & Purpose	The aims of teaching and learning mathematics are to encourage and enable students to: recognise that mathematics permeates the world around us; appreciate the usefulness, power and beauty of mathematics and enjoy mathematics and develop patience and persistence when solving problems.				
Programme of Study	HT1 **Number properties and calculations** Adding and subtracting with larger numbers More calculations Negative numbers STEM: Writing ratios Using ratios to solve problems Multiplicative reasoning **Shapes and measures in 3D** 3D solids Nets of 3D solids Surface area Volume Working with measures	HT2 **Statistics** Data collection sheets Interpreting bar charts Drawing bar charts STEM: Pie charts **Number properties** Squares, cubes and roots Calculating with brackets and indices LCM and HCF Prime factor decomposition	HT3 **Expressions and equations** Simplifying expressions Functions Solving equations Using brackets **Decimal calculations** Adding and subtracting decimals Multiplying decimals Ordering and rounding decimals STEM: Problem-solving with decimals	HT4 **Angles** Measuring and drawing angles Vertically opposite angles Angles in triangles Drawing triangles accurately Designing nets **Sequences** Generating sequences Extending sequences Special sequences Position-to-term rules Finding the nth term	HT5 **Fractions and percentages** Comparing fractions Fractions of amounts Adding and subtracting fractions Fractions and percentages Calculating percentages STEM: Percentages and proportion	HT6 **Probability** The language of probability Outcomes Probability calculations Experimental probability FINANCE: Comparing probabilities
Key Assessments	• Assessments take place after every unit. • Usually 2 per half term.		• Assessments take place after every unit. • Usually 2 per half term.		• Year 8 will also take an end of year examination in the summer term.	

Key Skills		**Links to Careers**	
	• To provide opportunities for learner to demonstrate their knowledge of mathematics across a whole range of topic areas. • To allow learners to develop their problem-solving strategies and provide the confidence and skills required to tackle unfamiliar challenges.		• Mathematics teaches accuracy and precision in work. The analytical and problem-solving skills you learn are valuable in many different careers, for example Accountancy, Teaching, Business, Medicine, Architecture and Computer Studies.