

Subject content (What will be covered)	As a result, what students should know /understand (Order of study)	What students should be able to do by the end of year 8	How students will be assessed	By when (Half term 1 > 6)
<p>The curriculum is split into 6 main areas Numbers, Algebra, Ratio, proportion and rates of change, Geometry and measures, Probability and Statistics.</p> <p>In addition to this the mathematics curriculum aims to ensure that all pupils:</p> <ul style="list-style-type: none"> become fluent in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately. reason mathematically by following a line of enquiry, 	<ul style="list-style-type: none"> Factors Multiples and Roots Standard Form Rounding to Decimal Places and Significant Figures BIDMAS Geometric Reasoning Scale Drawings and Bearings Plans and Elevations Probability Algebraic Expressions and Equations Fractions Decimals and Percentages Proportional Reasoning 	<p>Number</p> <ul style="list-style-type: none"> use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation, and the unique factorisation property use integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5 and distinguish between exact representations of roots and their decimal approximations interpret and compare numbers in standard form use conventional notation for the priority of operations, including brackets, powers, roots and reciprocals work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 and 3/8) define percentage as ‘number of parts per hundred’, interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100% interpret fractions and percentages as operators order positive and negative integers, decimals and fractions; use the number line as a model for ordering of the real numbers; use the symbols =, ≠, <, >, ≤, ≥ use the four operations, including formal written methods, applied to integers, decimals, proper and improper fractions, and mixed numbers, all both positive and negative 	<p>End of Topic based tests and class assessments</p>	<p>HT1</p>
	<ul style="list-style-type: none"> Sequences Angles 	<p>Algebra</p> <ul style="list-style-type: none"> use and interpret algebraic notation, including: <ul style="list-style-type: none"> ab in place of $a \times b$ $3y$ in place of $y + y + y$ and $3 \times y$ a^2 in place of $a \times a$, a^3 in place of $a \times a \times a$; a^2b in place of $a \times a \times b$ a/b in place of $a \div b$ coefficients written as fractions rather than as decimals brackets 	<p>End of Topic based tests and class assessments</p>	<p>HT3</p>
	<ul style="list-style-type: none"> Calculations with Fractions Decimals and Percentages Solving Equations and Inequalities 	<ul style="list-style-type: none"> understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors simplify and manipulate algebraic expressions to maintain equivalence by: <ul style="list-style-type: none"> collecting like terms multiplying a single term over a bracket 	<p>Termly Assessment examination based on topics studied term 1 and 2</p>	<p>HT2</p>
	<p>Termly Assessment examination based on topics studied term 3 and 4</p>	<p>HT4</p>		

<p>conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language</p> <ul style="list-style-type: none"> • can solve problems by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions. 	<ul style="list-style-type: none"> • Calculating Space • Linear and Quadratic Graphs • Probability • Measuring and Presenting Data 	<ul style="list-style-type: none"> ○ taking out common factors ○ expanding products of two or more binomials 	End of Topic based tests and class assessments	HT5
		<ul style="list-style-type: none"> • use algebraic methods to solve linear equations in one variable (including all forms that require rearrangement) • generate terms of a sequence from either a term-to-term or a position-to-term rule • recognise arithmetic sequences and find the nth term • recognise, sketch and produce graphs of linear and quadratic functions of one variable with appropriate scaling, using equations in x and y and the Cartesian plane • reduce a given linear equation in two variables to the standard form $y = mx + c$; calculate and interpret gradients and intercepts of graphs of such linear equations numerically, graphically and algebraically <p>Ratio, proportion and rates of change</p> <ul style="list-style-type: none"> • understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction • relate the language of ratios and the associated calculations to the arithmetic of fractions and to linear functions <p>Geometry and measures</p> <ul style="list-style-type: none"> • apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles • draw and measure line segments and angles in geometric figures, including interpreting scale drawings • understand and use the relationship between parallel lines and alternate and corresponding angles • derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons • derive and apply formulae to calculate and solve problems involving: perimeter and area of triangles, parallelograms, trapezia, volume of cuboids (including cubes) and other prisms (including cylinders) • calculate and solve problems involving: perimeters of 2-D shapes (including circles), areas of circles and composite shapes <p>Probability</p> <ul style="list-style-type: none"> • record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale • understand that the probabilities of all possible outcomes sum to 1 <p>Statistics</p> <ul style="list-style-type: none"> • describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers) • construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data • describe simple mathematical relationships between two variables (bivariate data) in observational and experimental contexts and illustrate using scatter graphs. 	Termly Assessment examination based on topics studied all year	HT6