

Mathematics Curriculum Overview 2023/24 - Anything in bold is higher content only

	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 7	Describe and continue sequences Represent sequences in graphical and tabular form Recognise the difference between linear and non linear sequences Explain the term-to-term rule in numeric sequences in words Find missing numbers within sequences Function machines Substitution into single operation expressions Generate sequences given an algebraic rule Solve one step equations Understand the meaning of like and unlike terms.	Place value and ordering Write numbers in powers of 10 Convert between fractions, decimals and percentages Equivalent fractions	Consolidation and extension of problem solving using addition, subtraction, multiplication and division Find fractions and percentages of amounts Solve problems with fractions greater than 1 and percentages greater than 100%	Add, subtract, multiply and divide directed numbers Roots of positive numbers Addition and subtraction of fractions Addition and subtraction of simple algebraic fractions	Draw and measure angles and lines accurately Construct triangles Draw and interpret pie charts Know, understand and apply angle sums on straight lines, around a point, in a triangle, in a quadrilateral and vertically opposite angles Find and use the angle sum of any polygon Angles in parallel lines.	Number sense – using known facts to derive other facts Sets and venn diagrams Complements of sets Calculate probability for single events Factors Multiples Prime numbers Square and triangular numbers HCF and LCM Use a venn diagram to calculate the HCF and LCM Prime factor decomposition.

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Year 8	Consolidation and extension of problem solving using addition, subtraction, multiplication and division Direct proportion Conversion graphs Explore direct proportion graphs Similar shapes Scale factors Multiplying and dividing fractions Coordinates Gradients Plotting linear graphs	Coordinates Gradients Plotting linear graphs Linking graphs to linear sequences Scatter graphs and correlation Grouped and ungrouped frequency tables Types of data Probability	Form algebraic expressions Use directed number with algebra Expand and factorise single brackets Expand and simplify binomials Form and solve equations and inequalities Generate sequences with more complex rules eg brackets and squared terms Find the nth term of a linear sequence Form expressions using indices Understand rules of indices for multiplication and division.	Develop understanding of fractions, decimals and percentages Evaluate percentage increases and decreases Use multipliers to solve percentage problems Express one number as a percentage of another Reverse percentages Convert numbers between ordinary and standard form Compare numbers given in standard form Calculate with numbers given in standard form Understand and use surd notation Understand and use negative and simple fractional indices Convert between metric measures and units Convert between units of area and volume Rounding Error intervals Order of operations	Understand and use parallel lines and angles Work out angles in special quadrilaterals Find and use the sum of interior and exterior angles in polygons Prove simple geometric facts Constructions Understand and use the properties of diagonals of quadrilaterals Calculate the area of a trapezium Calculate the area of a circle and parts of a circle Use significant figures Calculate the area of compound shapes Recognise symmetry in polygons and other shapes Reflect shapes in horizontal, vertical and diagonal lines.	Understand and use primary and secondary sources of data Collect data, including using questionnaires Interpret and construct statistical diagrams Compare distributions using charts Identify misleading graphs Find unknown data values given the mean or changes in the mean Find the mean of grouped data Work out the mode and modal class Choose the appropriate average Explore histograms for unequal groups Find the median from a table of values

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Year 9	Interpret straight line graphs Find and use the equation of a straight line Reduce equations to the form $y = mx + c$ Compare to linear sequences and finding the nth term Explore equations of perpendicular lines Revisit solving equations and inequalities Change the subject of a formula Solve simultaneous equations using graphical methods Change the subject of a complex formula Testing conjectures	Understand the language of faces, edges and vertices Identify 3D shapes and 2D shapes within 3D shapes Work out the volume and surface area of cuboids and cylinders Work out the volume and surface area of prisms Explore volumes of cones, spheres and complex shapes Nets of 3D shapes Scale drawings Construct perpendiculars and bisectors Understand congruency Explore the locus of a path	Rational and real numbers Fraction arithmetic Use percentages over 100% Find percentage changes Use multipliers in a variety of contexts Solve reverse percentage problems Work with repeated percentage change Explore financial maths.	Find angles using algebraic methods Use chains of reasoning to evaluate angles Develop geometric proofs Identify order of rotational symmetry Find the result of rotating shapes Translate points and shapes by a given vector Understand variance and invariance in the context of transforming shapes Find the result of a series of transformations Explore proofs of Pythagoras' Theorem Calculate missing sides in right angled triangles Use Pythagoras' Theorem in 3D shapes	Enlarge shapes by a positive scale factor Enlarge shapes by a negative scale factor Calculate missing side lengths in similar shapes Similar triangles Direct proportion problems and graphs Conversion graphs Solve ratio problems given the whole or part Simple inverse proportion problems Inverse proportion graphs Best buys Speed, distance, time, density Converting compound measures	Relative frequency Expected number of outcomes Independent events Tree diagrams Drawing and reading from quadratics Representing inequalities Graphical solutions of simultaneous inequalities

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Year 10	Understand the difference between congruence and similarity Enlarge a shape about a given point Find missing sides in similar shapes Understand and use the conditions for a pair of congruent triangles Area and volume of similar shapes Formal proof of congruency of triangles Understand trigonometric ratios Work out missing lengths and angles in right angles triangles Use trigonometry in 3D shapes Derive and use the sine and cosine rules Use the formula $\frac{1}{2}ab\sin C$ to find the area of non-right angled triangles	Form and solve equations and inequalities in a variety of contexts Represent solutions to inequalities on a number line Represent solutions to equations graphically Use set notation for solutions Solve inequalities in two variables, identifying regions Solve quadratic equations and inequalities by factorising Understand the meaning of solution and that some equations have multiple solutions Solve a pair of simultaneous equations graphically Solve a pair of simultaneous equations algebraically Solve simultaneous equations where one is linear and one is quadratic.	Understand and use bearings Name parts of a circle Find areas and volumes related to circles Circle theorems Understand vector notation Vector arithmetic Vectors and translations Geometric proofs with vectors	Using ratios Fractions in ratios Fractions from ratios Combining ratios Best buys Currency conversions Fractions, decimals and percentages Find percentages and percentage changes Find one number as a percentage of another Simple and compound interest Evaluate exponential change eg depreciation Use iterative methods Mutually exclusive and independent events Construct and interpret tree diagrams Find probabilities from frequency trees, frequency tables and venn diagrams Calculate and interpret conditional probabilities	Understanding sampling Construct and interpret tables and line graphs for time series data Understand and represent with grouped data Understand and identify correlation Use lines of best fit, understanding the dangers of extrapolation Evaluate measures of location and dispersion Use statistical diagrams and measures to compare distributions Construct and interpret cumulative frequency diagrams, box plots and histograms	Work with exact answers Use factors, multiples, primes and prime factorisation Recognise arithmetic and geometric sequences Calculate with surds Find the rule for the nth term of a quadratic sequence Understand and use fractional indices Work with rational and irrational numbers including recurring decimals Limits of accuracy Work out powers and roots Rules of indices Calculate with numbers in standard form
Year 11	Vectors Geometric reasoning Bearings Congruence Constructions and Loci Circle Theorems	Linear inequalities Linear graphs Non-linear graphs Trig graphs	Revision Algebraic proof and reasoning Recurrence relations Functions Transformation of graphs Further graphs	Revision	Revision	Revision