Curriculum Overview
Mathematics

	Half term 1	Half term 2	Half term 3	Half term 4	Half term 5	Half term 6
Year 7	Curriculum Recovery of KS2 **Knowledge:** Place Value, Four Operations, Fractions, Position and Direction, Decimals, Percentages, Converting Units, Perimeter, Area, Volume, Ratio, Properties of Shape **Key Skills:** Use four operations with integers, decimals and fractions Find the area, perimeter, volume and position of shapes and points Multiplicative Reasoning (from Year 7) **Knowledge:** writing ratios, sharing into a given ratio, proportion, proportional reasoning, using the unitary method **Key Skills:** Use and understand units, ratios and proportion	Analysing and displaying data **Knowledge:** Data collection, two-way tables, averages and range, grouped data, Pie charts and correlation **Key Skills:** Identify sources, suitable samples, charts and appropriate averages for data sets. Number Skills **Knowledge:** Factors, primes, multiples, negative numbers, multiplying and dividing, squares and square roots, calculations **Key Skills:** Find factors, primes and multiples of numbers Use the four operations with negative numbers, indices and brackets	Fractions **Knowledge** Working with fractions, adding and subtracting fractions, converting between fractions, decimals and percentages, multiplying and dividing fractions, working with mixed numbers **Key Skills:** Write, compare and simplify fractions Calculate fractions of amounts Angles and Shapes **Knowledge:** Congruent shapes, angles and parallel lines, triangles, quadrilaterals, polygons **Key Skills:** Understand and use standard conventions for shapes and angles Calculate unknown angles	Decimals **Knowledge:** Ordering integers and decimals, rounding decimals, adding, subtracting, multiplying and dividing decimals **Key Skills:** Understand and use place value Use the four operations with decimals Equations, Functions and Formulae **Knowledge:** Understanding vocabulary, simplifying and writing algebraic expressions, using and writing formulae, brackets and powers, factorising expressions **Key Skills:** Understand, use and simplify algebraic notation	Equations **Knowledge:** Solving one step equations, solving two step equations, Solving more complex equations, trial and improvement **Key Skills:** Solve equations with multiple steps Fractions and Percentages **Knowledge:** Fractions, decimals and percentages, working with percentages **Key Skills:** Convert fluently between fractions, decimals and percentage and use this to answer problems Calculate with percentages	Perimeter, Area and Volume **Knowledge:** Triangles, Parallelograms, trapeziums, perimeter and area of compound shapes, properties of 3D solids, surface area, volume **Key Skills:** Calculate space inside of 2D and 3D shapes Sequences **Knowledge:** Sequences, the nth term, pattern sequences **Key Skills:** Recognise and calculate terms and nth terms in sequences
Year 8	Factors and Powers **Knowledge:** Prime factor decomposition, Laws of indices, powers of 10, calculating and estimating **Key Skills:** Write numbers as prime factors and use this to answer problems Understand and calculate with indices and standard form Working with powers **Knowledge:** Simplifying expressions, expanding, substituting, solving, changing the subject **Key Skills:** Use, understand, simplify and calculate with algebraic notation and apply this to problems	2D shapes and 3D solids **Knowledge:** Surface area of prisms, Volume of prisms, circumference of a circle, area of a circle, cylinder **Key Skills** Calculate the space outside and inside 3D shapes Calculate with circles Real life graphs **Knowledge:** Direct proportion, Interpreting financial graphs, distance time graphs, rates of change, misleading graphs **Key Skills:** Draw and interpret real life graphs and use them to solve problems	Transformations **Knowledge:** Reflection and translation, rotation, enlargement, 2d shapes and 3d solids **Key Skills:** Describe and carry out transformations Find the perimeter and area of enlarged shapes Fractions, Decimals and Percentages **Knowledge:** Recurring decimals, using percentages, percentage change **Key Skills:** Recognise and calculate fractional equivalents to recurring decimals Calculate with percentages	Recovery – Representing Data **Knowledge:** Data collection, two-way tables, averages and range, grouped data, Pie charts and correlation **Key Skills:** Identify sources, suitable samples, charts and appropriate averages for data sets. Constructions and loci **Knowledge:** Plans and elevations, accurate drawings, constructing shapes, constructions, loci **Key Skills:** Construct triangles, nets, diagrams and loci using mathematical equipment, and use this to solve problems	Probability **Knowledge:** Comparing probabilities, mutually exclusive events, estimating probability, experimental probability, probability diagrams, tree diagrams **Key Skills:** Calculate probabilities and evaluate the chances of events Scale drawings and measures **Knowledge:** Maps and scales, bearings, scales and ratio, congruent and similar shapes, solving geometry problems **Key Skills:** Use, draw and measure with scales Understand and solve problems involving similar shapes	Multiplicative Reasoning (from Year 7) **Knowledge:** Metric and Imperial units, writing ratios, sharing into a given ratio, proportion, proportional reasoning, using the unitary method, compound units **Key Skills:** Use and understand units, ratios and proportion Graphs (from Year 7) **Knowledge:** Coordinates and line segment, graphs **Key Skills:** Use position and direction to read and plot points Recognise, draw and interpret linear graphs Discovery of right angled triangles

Year 9 F	Graphs, tables and charts	Algebra	Fractions and percentages	Equations, Inequalities and Sequences	Angles	Averages and Range
	Knowledge: Frequency tables, two-way tables, representing data, time series, scatter graphs, line of best fit, pie charts, stem and leaf diagrams **Key Skills:** Design, draw and interpret tables, charts and diagrams from data Number **Knowledge:** Calculations, Decimal numbers, place value, factors and multiples, square, cubes, roots, index notation, prime factors **Key Skills:** Use all four operations with integers and decimals Find factors, multiples and primes and use this to solve problems	**Knowledge:** Algebraic expressions, simplifying, substitution, formulae, expanding brackets, factorising **Key Skills:** Understand, use, simplify and manipulate algebraic expressions Right-Angled Triangles **Knowledge:** Pythagoras' theorem, Trigonometry **Key Skills:** Calculate angles and missing sides of right angled triangles	**Knowledge**: Working with fractions, operations with fractions, multiplying and dividing fractions, fractions, decimals and percentages, calculating percentages **Key Skills:** Use the four operations with fractions Calculate using percentages Solving Equations **Knowledge:** Solving equations, Inequalities, generating sequences, using the nth term, more formulae **Key Skills:** Solve multi step equations and find unknowns	**Knowledge:** Introducing inequalities, generating sequences, using the nth term of a sequence, more formulae **Key Skills**: Understand, represent and solve inequalities Recognise and calculate terms and nth terms in sequences Curriculum Recovery - Fractions, Decimals and Percentages **Knowledge:** Recurring decimals, using percentages, percentage change **Key Skills:** Recognise and calculate fractional equivalents to recurring decimals Calculate with percentages	**Knowledge:** Properties of shape, angles in parallel lines, angles in triangles, exterior and interior angles, geometric patterns **Key Skills** Solve geometric problems using side and angle properties of polygons Graphs (from Year 8) **Knowledge:** Plotting linear graphs, find the gradient, y = mx+c, parallel and perpendicular lines, inverse functions, quadratic graphs, non-linear graphs **Key Skills:** Plot and interpret straight line graph	**Knowledge:** Mean and range, mode, median and range, types of average, estimating the mean, sampling **Key Skills:** Calculate averages and range and use this to solve problems for lists, discrete data and continuous data . Personal Finance **Knowledge:** Ethics of spending, understanding and managing money, transactions, saving and financial risks, salaries and payslips, paying rent, bills and other expenses, financial survival skills, future of money, planning and budgeting for a meal **Key Skills:** Understand and manage money more efficiently
Year 9 H	Interpreting and representing data	Algebra	Right-Angled Triangles	Graphs	Area and Volume:	Transformations and Constructions
	Knowledge: Statistical diagrams, time series, scatter graphs, lines of best fit, averages and range **Key Skills:** Design, draw and interpret tables, charts and diagrams from data Calculate averages and range and use this to solve problems for lists, discrete data and continuous data Number **Knowledge:** Number problems and reasoning, place value and estimating, HCF and LCM, Calculating with powers, indices, powers of ten and standard form, surds **Key Skills:** Use all four operations with integers and decimals Find factors, multiples and primes and use this to solve problems Calculate with indices, standard form and surds	**Knowledge:** Algebraic indices, expanding and factorising, equations, formulae, linear sequences, non-linear sequences, more expanding and factorising **Key Skills:** Manipulate algebraic expressions, involving quadratics Angles **Knowledge:** Angle properties of triangles and quadrilaterals, interior angles of a polygon, exterior angles of a polygon Key Skills: Use angle properties to solve problems Graphs (from Year 8) **Knowledge:** Plotting linear graphs, find the gradient, y = mx+c, parallel and perpendicular lines **Key Skills:** Plot and sketch linear graphs Estimate and calculate from graphs	**Knowledge:** Pythagoras' theorem, Trigonometry **Key Skills:** Understand, calculate and solve problems involving right angled triangles Fractions, ratio and percentages **Knowledge:** Fractions, ratios, ratios and proportion, percentages, fractions, decimals and percentages **Key Skills:** Use the four operations with fractions Calculate, compare and solve ratio problems Calculate with percentages	**Knowledge:** Recall of linear graphs, graphing rates of change, real life graphs, line segments, quadratics, cubic and reciprocal graphs, inverse functions, more graphs, non-linear graphs **Key Skills:** Read, interpret, sketch and draw linear graphs Read and calculate from real life graphs Draw and interpret quadratic graphs Recognise, sketch and plot non-linear graphs	**Knowledge:** Perimeter, area, units, accuracy, prisms, circles, sectors of circles, cylinders, spheres, pyramids, cones **Key Skills:** Calculate the space inside 2D and 3D shapes Transformations and constructions **Knowledge:** 3D solids, bearings, scale drawings **Key Skills:** Draw plans and elevations of 3D solids. Draw and use scales on maps and scale drawings. Solve problems involving bearings.	**Knowledge:** Reflection and rotation, enlargement, transformations and combinations, constructions, loci **Key Skills:** Transform and construct shapes and loci Personal Finance **Knowledge:** Ethics of spending, understanding and managing money, transactions, saving and financial risks, salaries and payslips, paying rent, bills and other expenses, financial survival skills, future of money, planning and budgeting for a meal **Key Skills:** Understand and manage money more efficiently

Year 10 F	Perimeter, area and volume **Knowledge:** Rectangles, parallelograms, triangles, trapezia and changing units, area of compound shapes, surface area of 3D solids, volume of prisms **Key Skills:** Calculate the perimeter, area and volume of 2D and 3D shapes Graphs **Knowledge:** Coordinates, Linear graphs, Gradient, y=mx + c, Real life graphs, distance time graphs **Key Skills:** Draw, interpret and sketch linear graphs and real life graphs	Transformations **Knowledge:** Translation, Reflection, Rotation, Enlargement, describing enlargements, combing transformations, **Key Skills:** Transform shapes and describe the transformation Ratio **Knowledge:** Writing ratios, using ratios, ratios and measures, comparing ratios, using proportion, proportion and graphs, proportion problems **Key Skills:** Write, use and calculate with ratio and proportion. Curriculum Recovery - Equations, Inequalities and Sequences **Knowledge:** Introducing inequalities, generating sequences, using the nth term of a sequence, more formulae **Key Skills:** Understand, represent and solve inequalities Recognise and calculate terms and nth terms in sequences	Probability **Knowledge:** Calculating probability, two events, experimental probability, Venn diagrams, tree diagrams **Key Skills:** Calculate probabilities and repeated events Multiplicative Reasoning **Knowledge:** Percentages, growth and decay **Key Skills:** Calculate using percentages Solve growth and decay problems	Multiplicative Reasoning **Knowledge:** Compound measures, distance, speed and time, direct and inverse proportion **Key Skills** Use, understand and calculate with compound measures Constructions, loci and bearings **Knowledge:** 3D solids, plans and elevations, accurate drawings, scale drawings and maps, constructions, loci and regions, bearings **Key Skills:** Recognise 3D shapes, similar shapes and congruent shapes and understand their properties Construct shapes and loci Calculate and read bearings	Recap of Year 9 Algebra Algebra **Knowledge:** Algebraic expressions, simplifying, substitution, formulae, expanding brackets, factorising **Key Skills:** Manipulate algebraic expressions, involving quadratics Quadratic equations and graphs **Knowledge:** Expanding double brackets, plotting quadratic graphs, using quadratic graphs, factorising quadratic expressions, solving quadratic equations algebraically **Key Skills:** Manipulate, recognise and solve with quadratic expressions	Perimeter, area and volume **Knowledge:** Circumference of a circle, area of a circle, semi circles and sectors, composite 2D shapes and cylinders, pyramids and cones, spheres and composite **Key Skills:** Calculate the circumference and area of circles Calculate the volume of 3D shapes Solve problems involving circles Statistical Investigation
Year 10 H	Equations and inequalities **Knowledge:** Solving quadratic equations, completing the square, solving simultaneous equations, solving linear inequalities **Key Skills:** Solve inequalities, simultaneous and quadratic equations fluently	Multiplicative Reasoning **Knowledge:** Growth and decay, compound measures, ratio and proportion **Key Skills:** Calculate with percentages and direct and inverse proportion Trigonometry **Knowledge:** Accuracy, graphs of the sine, cosine and tangent function, calculating areas and the sine rule, the cosine rule and 2D trigonometric problems, solving problems in 3D, transforming trigonometric graphs **Key Skills:** Understand and use bounds Calculate missing lengths, angles and area using trigonometry	Probability **Knowledge:** Combined events, mutually exclusive events, mutually exclusive events, experimental probability, independent events and tree diagrams, conditional probability, Venn diagrams and set notation **Key Skills:** Calculate probabilities and repeated events Understand and interpret set notation Equations and graphs **Knowledge:** Solving simultaneous equations graphically, representing inequalities graphically, graphs of quadratic functions, solving quadratic equations graphically, graphs of cubic functions **Key Skills:** Solve and interpret from graphical simultaneous equations, inequalities and quadratic and cubic functions	Further Statistics **Knowledge:** Sampling, cumulative frequency, box plots, drawing histograms, interpreting histograms, comparing and describing populations **Key Skills:** Interpret and draw cumulative frequencies and histograms from data Similarity and congruence **Knowledge:** Similarity, Congruence, geometric proof and congruence, **Key Skills:** Calculate scale factors of similar shapes Prove shapes are congruent and similar	Circle Theorems **Knowledge:** Radii and chords, tangents, angles in circles, applying and proving circle theorems **Key Skills:** Understand and use circle theorems to answer and prove questions	More Algebra **Knowledge:** Rearranging formulae, algebraic fractions, simplifying algebraic fractions, surds, solving algebraic fractions, functions, proof **Key Skills:** Manipulate quadratic expressions and algebraic fractions. Angles **Knowledge:** Angle properties of triangles and quadrilaterals, interior angles of a polygon, exterior angles of a polygon Key Skills: Use angle properties to solve problems Statistical Investigation

Year 11 F	Preparations for examinations for all Exam preparation, GAP analysis and recall with interventions	**Fractions, indices and standard form** **Knowledge:** Multiplying and dividing fractions, the law of indices, writing numbers in standard form, calculating in standard form **Key Skills:** Calculate with indices, fractions and standard form **Congruence, similarity and vectors** **Knowledge:** Similarity and enlargement, more similarity, using similarity, congruence, vectors **Key Skills:** Understand and calculate similarity in shapes Understand and use vector notation	Practice examinations Exam preparation, GAP analysis and recall with interventions	Exam preparation, GAP analysis and recall with interventions	Exam preparation, GAP analysis and recall with inventions	
Year 11 H	Preparations for examinations for all Exam preparation, GAP analysis and recall	**Vectors and geometric proof** **Knowledge:** Vector and vector notation, vector arithmetic, parallel vectors and collinear points, solving geometric problems **Key Skills:** Understand, use, calculate and apply vector notations **Proportion and graphs** **Knowledge:** Direct proportion, inverse proportion, exponential functions, non-linear graphs, translating graphs and functions, reflecting and stretching graphs **Key Skills:** Write and solve direct proportion problems Draw, sketch, calculate and estimate from non-linear graphs	Practice examinations Exam preparation, GAP analysis and recall	Exam preparation, GAP analysis and recall	Exam preparation, GAP analysis and recall	