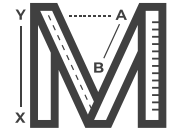


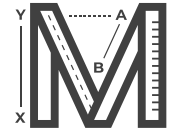


CURRICULUM PLANS

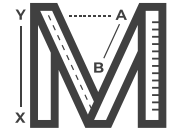
MATHS YEAR 7



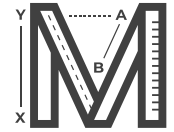
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2	AREs
<p>Topic: Analysing and displaying data.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Drawing and interpreting a range of graphs and charts. Know, use and interpret averages and range. <p>Prior learning:</p> <ul style="list-style-type: none"> Using four operations. Reading scales and tables. Ordering numbers. 	<p>Topic: Number.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Be confident to use written method for four operations. Recognise and use different types of numbers. Use estimates and inverse calculations. <p>Prior learning:</p> <ul style="list-style-type: none"> Know multiplication facts and tables. Knowledge of column addition and subtraction. Order of operations. <p>Topic: Expressions, formulae and functions</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Use function machine, input and output. Setting up and using algebraic expressions. Collecting like term. Multiply and divide simple expressions. Use substitution. <p>Prior learning:</p> <ul style="list-style-type: none"> Substituting into simple formulae given in words. Use negative numbers. 	<p>Topic: Decimals and measures.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Order, round and estimate with decimals. Be confident to use written methods for decimals and four operations. Convert between different types of measures. Work out area and perimeter of compound shapes made from rectangles. <p>Prior learning:</p> <ul style="list-style-type: none"> Measure and draw lines. Work out area and perimeter of rectangles. Multiply and divide by 10,100,1000. <p>Topic: Fractions and percentages</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Add and subtract with fractions including mixed numbers. Compare, order, simplify and use equivalent fractions. Convert between fractions, decimals and percentages. Calculate percentages of amount using mental, written and calculator methods. <p>Prior learning:</p> <ul style="list-style-type: none"> Use fraction notation to describe parts of a whole. Add and subtract fractions with same denominator. Understand percentage as parts per 100. 	<p>Topic: Probability.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Be confident at using probability scale. Calculate probabilities and use probability notation. Understand the difference between theoretical and experimental probability. <p>Prior learning:</p> <ul style="list-style-type: none"> Probability language. Writing, simplifying and adding fractions. Adding and subtracting decimals. <p>Topic: Ratio and proportion.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Use simple proportion and unitary method Use fractions and percentages to work with proportion and ratio. Simplify, share and solve problems with ratio. <p>Prior learning:</p> <ul style="list-style-type: none"> Four operations including decimals. Finding the HCF and LCM. Converting metric measures. 	<p>Topic: Lines and angles.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Describe, draw and label lines, angles and triangles. Use the rules to calculate angles on a straight line, around a point and vertically opposite. Find interior and exterior angles in triangles and quadrilaterals. <p>Prior learning:</p> <ul style="list-style-type: none"> Naming and estimating angles. Know parallel and perpendicular lines. Drawing and measuring angles. <p>Topic: Sequences and graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Generate, find and use terms of a sequence including finding and using nth term. Describe and continue sequences from patterns and describe how the pattern would grow Link linear graphs to sequences, know how to fill a table of values and plot linear graphs. <p>Prior learning:</p> <ul style="list-style-type: none"> Recognise and continue simple sequences. Plot coordinates in the first quadrant. 	<p>Topic: Transformations.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Describe and perform rotations, translations, reflections and enlargements. Transform shapes using a combination of transformations. <p>Prior learning:</p> <ul style="list-style-type: none"> Lines of symmetry and order of rotation. Draw and read lines parallel to x and y axis. 	<ul style="list-style-type: none"> I can calculate averages and interpret their meaning. I can solve problems involving positive and negative numbers. I can use correct algebraic notation, simplifying expressions where appropriate. I can use and interpret decimals, applying place value skills to solve problems. I can use rounding and estimation to solve problems. I can add and subtract fractions and mixed numbers. I can calculate percentages and use equivalence of fractions, decimals and percentages where appropriate. I can understand the probability scale and calculate probabilities of single events. I can use and interpret ratio and proportion. I can identify and use angle facts to solve problems.



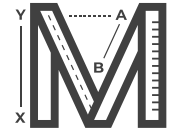
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2	AREs
<p>Topic: Number.</p> <p>Overview of knowledge, understanding and skills (key concepts): Use mental methods for multiplication including doubling and halving, rounding and adjusting.</p> <ul style="list-style-type: none"> Use divisibility rules. Four operations with positive and negative integers and decimals. Calculate using squares, square roots, cubes and cube roots. <p>Prior learning:</p> <ul style="list-style-type: none"> Write numbers in index form. Multiply and divide by 10,100,1000. <p>Topic: Area, volume and measures.</p> <p>Overview of knowledge, understanding and skills (key concepts): Derive and use the formula for the area of a triangle, parallelogram and trapezium.</p> <ul style="list-style-type: none"> Sketch nets, draw 3D shapes on isometric grid and use plans and elevations. Calculate the area of compound shapes made from rectangles and triangles. <p>Prior learning:</p> <ul style="list-style-type: none"> Area of a rectangle. Names and properties of 3D shapes. 	<p>Topic: Averages, charts and graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Draw and interpret a range of graphs including pie charts, line graphs and scattergraphs. Choose the most appropriate average including reasons for answer. Use grouped tables to identify modal class and estimate range. <p>Prior learning:</p> <ul style="list-style-type: none"> Measure and draw angles. Use averages and range from raw data. Knowledge and understanding of scales. <p>Topic: Expressions, equations and formulae.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Understand, simplify and write expressions involving algebraic powers. Write, simplify and use algebraic formulae involving brackets and division. Solve one, two and three step equations. <p>Prior learning:</p> <ul style="list-style-type: none"> Simplify and write expressions. Collect like terms. Substitute into formula. 	<p>Topic: Real life graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Draw, use and interpret Conversion Graphs and distance-time graphs. Work out speed from distance time graph. Draw and interpret linear and non linear real life graphs from a range of sources. <p>Prior learning:</p> <ul style="list-style-type: none"> Draw and read from graph scales. Estimate a value from a scale. <p>Topic: Decimals and ratios.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Order, round and estimate with decimals Use written methods for four operations with decimals. Solve ratio and proportion problems including working with unit ratios and three or more part ratios. <p>Prior learning:</p> <ul style="list-style-type: none"> Rounding, estimating and multiplying integers and decimals. Simplifying ratio and using notation. 	<p>Topic: Angles.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Classify quadrilaterals by their geometric properties. Solve angle problems using properties of quadrilaterals. Identify and use different types of angles in parallel lines. Calculate the sum and each interior and exterior angle in polygons. <p>Prior learning:</p> <ul style="list-style-type: none"> Recognise and name types of angles. Angles on straight lines, full turns and vertically opposite angles. Angles in triangles and quadrilaterals. 	<p>Topic: Calculating with fractions.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Order fractions using common denominators Four operations with fractions including mixed numbers and simple algebraic fractions Work out reciprocal of a fraction. <p>Prior learning:</p> <ul style="list-style-type: none"> Simplify fractions and find equivalent fraction. Find fractions of amounts. Add and subtract fractions. <p>Topic: Straight line graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Plot a straight line graph and work out the gradient. Recognise and use the equation $y = mx + c$ for straight line graphs Recognise when values are in direct proportion. Draw and read from graphs of direct proportion. <p>Prior learning:</p> <ul style="list-style-type: none"> Plot coordinates in all four quadrants. Generate points from a rule. Recognise $y = x$ and $y = -x$. 	<p>Topic: Percentages, decimals and fractions.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Recognise recurring and terminating decimals. Order fractions, decimals and percentages using equivalence. Express one number as a percentage of another when the units are different. Use multipliers to work out percentages of amount. Use unitary method to solve reverse percentage problems. <p>Prior learning:</p> <ul style="list-style-type: none"> Work out percentages of amount and percentage increase and decrease. Work with equivalent fractions. 	<ul style="list-style-type: none"> I can accurately perform multistep problems with positive and negative numbers, including estimating. I can use and understand properties of number including factors, multiples, powers and primes. I can use and understand the properties of shapes, including converting between units. I can produce and interpret statistical charts and graphs. I can manipulate and simplify expressions and formulae and solve equations. I can produce and interpret a variety of real-life graphs. I can solve problems involving ratio, proportionality and decimals. I can use and interpret rules for angles between lines and in 2 dimensional shapes. I can calculate and solve problems with all 4 fraction operations. I can plot and interpret information from a linear graph. I can solve problems involving the equivalence between fractions, decimals and percentages.



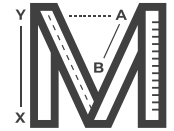
AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2	PQEs
<p>Topic: Indices and Standard Form.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Simplify expressions using the laws of indices. Use and understand numbers in standard form. <p>Prior learning:</p> <ul style="list-style-type: none"> Square and Cube numbers. Order of Operations. Multiply and Divide by 10, 100, 1000, ... <p>Topic: Dealing with Data.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> The Different types of data and how to collect and display it. Interpreting Data using a range of graphs and calculations. <p>Prior learning:</p> <ul style="list-style-type: none"> Reading from frequency tables and grouped frequency tables. Mean, mode, median and range from a list. Mean, mode, median and range from frequency tables. Plotting points on a scatter diagram. 	<p>Topic: Expressions and Formulae.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Write and solve equations with fractions and unknowns on both sides. Substitute into expressions with powers and roots. Write, use and rearrange formulae. Simplify and manipulate algebraic expressions with indices and brackets. <p>Prior learning:</p> <ul style="list-style-type: none"> Collecting like term.s Expanding single brackets. Substitute into formulae. Solving two step equations. <p>Topic: Multiplicative Reasoning.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Find a value after a percentage change and work out a percentage change. Solve problems involving compound measures. Solve best buy problems. Solve problems involving inverse proportion. <p>Prior learning:</p> <ul style="list-style-type: none"> Calculate using percentage multipliers. Fraction, decimal, percentage equivalents. Area and volume. Unit Ratio. 	<p>Topic: Constructions.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Construct angle and line bisectors Construct triangles from a variety of conditions. Construct accurate scale diagrams. <p>Prior learning: Measure and draw lines and angle. Convert between metric units of measurement. Reading scales.</p> <p>Topic: Sequences, inequalities, Equations and Proportion.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Find and work with the rule for linear and quadratic sequences. Recognise and continue different types of sequence. Represent inequalities on a number line and solve them. Solve equations with fractions and unknowns on both sides. Represent direct and inverse proportion algebraically. <p>Prior learning:</p> <ul style="list-style-type: none"> Solve equations with unknowns on both sides. The meaning of inequality symbol.s Substitution. Square and Cube roots. 	<p>Topic: Circles, Pythagoras and Prisms.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Find the area of circles and parts of circles. Find the circumference of circles and perimeter of parts of circles. Use Pythagoras to find unknown lengths in right angled triangles. Find volume and surface area of right prisms and cylinders. Calculate using the upper and lower bounds of a measurement. <p>Prior learning:</p> <ul style="list-style-type: none"> Area of 2d rectilinear shapes. Volume of a cuboid. Rounding to decimal places and significant figures. Converting between metric units. 	<p>Topic: Graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Plot linear graphs using knowledge of gradient and intercept. Solve problems involving the intersection of two graphs. Plot quadratic graphs. Draw and interpret other graphs including cubic and inverse proportion. <p>Prior learning:</p> <ul style="list-style-type: none"> Substitution into functions to find coordinates. Equations of lines parallel to x and y axis. Recognising the gradient and intercept of a linear function. <p>Topic: Probability.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Probabilities of mutually exclusive events. Experimental and Theoretical Probability. - Probabilities from sample space diagrams and two way tables. - Draw and interpret venn diagrams. <p>Prior learning:</p> <ul style="list-style-type: none"> Single event probability. Fraction, decimal and percentage equivalence. Calculating with fractions and percentages. 	<p>Topic: Comparing Shapes.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Similarity and Congruent Shapes. Perform and describe enlargements by positive and fractional scale factors. Use Sine, Cosine and Tangent to find missing lengths in right angled triangles. Use Sine, Cosine and Tangent to find missing angles in right angled triangles. <p>Prior learning:</p> <ul style="list-style-type: none"> Symmetry. Enlargement Area of Triangles. Simplifying and Unit Ratio. 	<ul style="list-style-type: none"> I can use the laws of indices and understand place value of numbers in standard form. I can manipulate and simplify expressions, rearrange formulae, solve equations and represent inequalities. I can gather, present and analyse data in a variety of forms. I can apply proportional reasoning to percentages, value for money problems and compound measures. I can draw and use constructions and use scales on maps and diagrams. I can find area and circumference of circles, and find the volume and surface area of 3D shapes. I can choose and apply formulae to find missing lengths and angles in right angled triangles. I can work with linear and quadratic sequences, and draw linear and quadratic graphs. I can use and interpret the probabilities of more than one event. I can identify and solve problems involving congruent and similar shapes, perform and describe enlargements.



AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
<p>Topic: Number</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Calculations with positive and negative numbers, and decimals. Round to a given accuracy. Identify number properties including factors, multiples and primes. Index notation with integers. Product of prime factors and using this to find HCF and LCM. <p>Prior learning:</p> <ul style="list-style-type: none"> Four operations. Even and odd numbers. Place value. <p>Topic: Algebra.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Form and simplify expressions. Laws of indices with algebraic expressions. Substitute into formulae and expressions. Expand single brackets and factorise linear expressions. <p>Prior learning:</p> <ul style="list-style-type: none"> Order of operations. Find HCF of pairs of numbers. Operations with negative numbers. 	<p>Topic: Graphs, Tables and Charts.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Draw and read from frequency tables, two way tables, bar charts. Understand time series graphs and stem and leaf diagrams. Draw and interpret pie charts and scatter diagrams. <p>Prior learning:</p> <ul style="list-style-type: none"> Draw circles and measure angles. Express probabilities as fractions. Read values from graphs. <p>Topic: Fractions and Percentages.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Equivalent fractions, decimals and percentages Four operations with fractions Fractions and percentages of amounts Percentage increase and decreases <p>Prior learning:</p> <ul style="list-style-type: none"> Four operations. Simplifying fractions. Mixed numbers and improper fractions. 	<p>Topic: Equations, Inequalities and Sequences.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Solve linear equations using inverse operations. Inequalities on number lines and solving inequalities. Change the subject of a formula. Understand arithmetic sequences and find nth term rules. <p>Prior learning:</p> <ul style="list-style-type: none"> Understand inverse operations. Solve one step equations. Find next term of a sequence and term-to-term rules. <p>Topic: Angles.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Properties of 2D shapes and identifying congruency. Angles in parallel lines. Find interior and exterior angles of polygons. Form and solve equations from angle problems. Prior learning: Use a ruler and protractor confidently. Understand symmetry and parallel/perpendicular lines. Solve linear equations. 	<p>Topic: Averages and Range.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Find averages and range from a list or frequency table and use them to compare data. Estimate the mean from a grouped frequency table. Understand sampling and how to avoid bias. <p>Prior learning:</p> <ul style="list-style-type: none"> Find averages from raw data. Read and interpret frequency tables. Find midpoints of two values. <p>Topic: Perimeter, Area and Volume</p> <ul style="list-style-type: none"> Overview of knowledge, understanding and skills (key concepts): Find area and perimeter of compound shapes. Convert between metric units for area and volume. Find the volume and surface area of prisms. <p>Prior learning:</p> <ul style="list-style-type: none"> Understand vocabulary related to 2D and 3D shapes Find area of basic 2D shapes Substituting into formulae 	<p>Topic: Graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Draw and sketch graphs from the equation $y = mx + c$ Draw and interpret real life graphs. Draw and read distance/time graphs. <p>Prior learning:</p> <ul style="list-style-type: none"> Interpret different scales. Use distance/speed/time formulae. Find the equation of a line. <p>Topic: Transformations.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Perform and describe translations, reflections, rotations and enlargements. Use more than one transformation to make compound transformations. Describe combined transformations. <p>Prior learning:</p> <ul style="list-style-type: none"> Plot coordinates in all four quadrants. Understand scale factors and turn directions. <p>Topic: Ratio and Proportion.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Write and simplify ratios, including with decimals and write in the form 1:n. Use ratio to represent area and volume scale factors in similar shapes. Share into 2 and 3 part ratios. Use unitary method and ratio to solve proportion problems and value for money. Represent direct proportion graphically. <p>Prior learning:</p> <ul style="list-style-type: none"> Finding scale factors. Finding factors and HCF. Converting metric measures. 	<p>Topic: Right Angled Triangles</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Use Pythagoras to find missing sides on a right angled triangle Using trigonometry to find missing angles and sides in a right angled triangle Solve problems involving Pythagoras, trigonometry or both <p>Prior learning:</p> <ul style="list-style-type: none"> Familiarity with squares and square roots Substituting into and rearranging equations Using basic angle facts <p>Topic: Probability</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Calculate probabilities from single or mutually exclusive events Draw and find probabilities from two way tables and sample space diagrams Use experimental data and relative frequency Venn Diagrams - completing, understanding notation and finding probabilities Use frequency trees and tree diagrams <p>Prior learning:</p> <ul style="list-style-type: none"> Add and multiply fractions or decimals Writing one number as a fraction of another Listing outcomes



AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
<p>Topic: Number.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> know and apply the product of counting rule. use products of prime factors to find HCF and LCM. Understand and apply laws of indices. Use standard form in calculations Understand what is a surd and how to simplify them or rationalise the denominator of a fraction. <p>Prior learning:</p> <ul style="list-style-type: none"> Understanding of squares, cubes and roots and properties of numbers. Multiplying and dividing by powers of 10. Firm grasp of place value and four operations. Multiplying fractions. <p>Topic: Algebra.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Apply laws of indices to algebraic expressions. Expand and simplify brackets and factorise linear and quadratic expressions. Solve (and form) equations involving fractions and brackets. Rearranging formulae and understanding the meaning of expression, equations, formulae and identity. Understand and use rules for various types of sequence. <p>Prior learning:</p> <ul style="list-style-type: none"> Expanding a single bracket and simplifying algebraic expressions. Solving two step equations, including fractions and powers. Substitute into expressions and simple formulae. 	<p>Topic: Interpreting and Representing Data.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> construct and use various charts and diagrams, including stem and leaf, frequency polygons, pie charts, time series graphs and scatter graphs. find averages from grouped frequency tables. <p>Prior learning:</p> <ul style="list-style-type: none"> Read scales on graphs. Use inequality notation. Find averages and range from raw data. <p>Topic: Fractions, Ratio and Percentages.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Calculations with fractions and mixed numbers. Work with ratios and sharing quantities. Convert between currencies and measures. Work with percentages, including increases/decreases and reversals. <p>Prior learning:</p> <ul style="list-style-type: none"> Percentages of amounts. Common factors. Ratio notation and simplifying. 	<p>Topic: Angles and Trigonometry</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Understand angles in polygons Use Pythagoras Theorem and apply in various context Find lengths and angles in right angled triangles using trigonometry Know key exact values for sin cos and tan <p>Prior learning:</p> <ul style="list-style-type: none"> Rearrange simple equations and formulae Recall properties of triangles and quadrilaterals and basic angle facts <p>Topic: Graphs</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Understand graphs of linear functions Understand distance-time and velocity time graphs Interpret real life graphs and identify direct proportion Find midpoints of line segments and work with parallel and perpendicular lines Draw and use quadratic and cubic graphs <p>Prior learning:</p> <ul style="list-style-type: none"> plot and recognise coordinates use and draw conversion graphs use compound measures e.g speed 	<p>Topic: Area and Volume.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Area and perimeter of trapeziums and compound shapes. Convert between area and volume units. Use limits of accuracy in calculations. Area and circumference for circles and partial circles. Surface area and volume of 3D shapes. <p>Prior learning:</p> <ul style="list-style-type: none"> Know names, properties and draw nets of 3D shapes. Use Pythagoras Theorem. Substitution. <p>Topic: Transformations and Constructions.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Drawing plans and elevations. Draw and describe transformations. Solve problems involving scales and bearings. Construct bisectors, triangles and loci. <p>Prior learning:</p> <ul style="list-style-type: none"> Recognise 2D shapes. Plot coordinates and draw horizontal or vertical lines from the equation. Convert metric measures. 	<p>Topic: Equations and Inequalities.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Solve quadratic equations by factorising, formula or completing the square. Solve simultaneous equations, including both linear or with one quadratic. Solve linear inequalities. <p>Prior learning:</p> <ul style="list-style-type: none"> Substitute into and solve linear equations Factorise quadratic equations. Understand inequality symbols. <p>Topic: Probability</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Find the probability of combined events, including sample space diagrams. Find the probability of mutually exclusive events and events not happening. Work with experimental probability and expectation. Use frequency trees, Venn Diagrams and probability trees. Work with probability of conditional events. <p>Prior learning:</p> <ul style="list-style-type: none"> Understand the probability scale. Work with fractions and decimals. List all outcomes for events. Use two-way tables. 	<p>Topic: Multiplicative Reasoning.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> Find amounts after repeated percentage change. Find the rate of change in various contexts. Convert between measures of speed and find speed and acceleration. Compound measure. Derive and use formulae for direct and inverse proportion. <p>Prior learning:</p> <ul style="list-style-type: none"> Percentage of amounts. Know the formulae for speed density and pressure. Work with direct and inverse proportion in worded contexts.

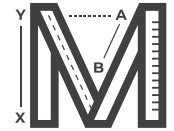


AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1 / SUMMER 2
<p>Topic: Multiplicative reasoning.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Use percentages to solve problems including compound interest, percentage change and reverse percentages. • Know and apply compound measures. • Solve direct and inverse proportion problems. <p>Prior learning:</p> <ul style="list-style-type: none"> • Finding percentages of amount. • Rearranging and manipulating equations. • Work out percentage increase/decrease. <p>Topic: Constructions, loci and bearings.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Sketch plans, elevations, nets. • Use scales in maps and scale drawings. • Perform constructions confidently and use the knowledge to solve loci problems. <p>Prior learning:</p> <ul style="list-style-type: none"> • Know the properties and types of shapes. • Recall angle facts including parallel lines. • Use of mathematical equipment - rulers, protractors, compass. 	<p>Topic: Quadratic equations and graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Expanding and factorising quadratics. • Draw and interpret quadratic graph. • Solve quadratic equations. <p>Prior learning:</p> <ul style="list-style-type: none"> • Expanding brackets. • Use inverse operations to solve equations. • Manipulate algebraic expression. <p>Topic: Perimeter, area and volume.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Work with area and perimeter of circle including arc lengths and sectors using calculator and non-calculator methods. • Find volume and surface area of cylinder, cones, spheres and pyramids. • Use the surface area and volume formula to solve compound shape problems and work inversely. <p>Prior learning:</p> <ul style="list-style-type: none"> • Substitute and rearrange simple formula. • Use fractions of amount. • Know how to calculate area of common 2D shapes. 	<p>Topic: Fractions, indices and standard form.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Use the laws of indices. • Write numbers in standard form and apply four operations with numbers in standard form. • Use calculator to perform calculations with indices. <p>Prior learning:</p> <ul style="list-style-type: none"> • Work with four operations of fractions. • Write numbers in index forms. • Recall the index laws for multiplying and dividing positive integer. <p>Topic: Congruence, similarity and vectors.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Identify similar and congruent shapes using the appropriate conditions for similarity and congruency. • Find scales factors and use these to work out missing lengths. • Identify a movement as a vector and represent this in a column vector, find multiples of a vector. <p>Prior learning:</p> <ul style="list-style-type: none"> • Know the properties of alternate, corresponding and vertically opposite angles. • Measure lines and angles and using compasses, ruler and protractor, and construct standard constructions. • Recognise and enlarge shapes and calculate scale factors. 	<p>Topic: More algebra.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Draw and interpret non-linear graphs including cubics and reciprocals. • Solve simultaneous equations graphically and algebraically. • Rearrange more complex formulae • Use algebra to prove properties about numbers. <p>Prior learning:</p> <ul style="list-style-type: none"> • Draw linear graphs. • Recall and use the priority of operations and use of inequality symbols. • Plot coordinates and sketch simple functions with a table of values. 	<p>This time is used to consolidate learning using QLAs from mocks and prepare for the GCSE exams.</p>



CURRICULUM PLANS

MATHS HIGHER YEAR 11



AUTUMN 1	AUTUMN 2	SPRING 1	SPRING 2	SUMMER 1	SUMMER 2
<p>Topic: Similarity and congruency.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Know and use the properties of congruency and prove two shapes are congruent. • Find length, area and volume scale factors and use these to find missing values. <p>Prior learning:</p> <ul style="list-style-type: none"> • Recognise and enlarge shapes and calculate scale factors. • Know how to calculate area and volume in various metric measures. • Measure lines and angles, and use compasses, ruler and protractor to construct standard constructions. <p>Topic: More trigonometry.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Know and use the non-right angle trigonometry formulae to find missing values. • Sketch, interpret and use trigonometry graphs. • Use Pythagoras and Trigonometry in 3D. <p>Prior learning:</p> <ul style="list-style-type: none"> • Recall and apply Pythagoras' Theorem and trigonometric ratios. • Know the exact values of sin and cos. • Substitute into formulae. • Use bearings. 	<p>Topic: Further Statistics.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Draw, use and interpret cumulative frequency graphs, box plots and histograms. • Compare two sets of data. • Understand and use random and stratified sampling. <p>Prior learning:</p> <ul style="list-style-type: none"> • Understand the data handling cycle and know the difference between discrete and continuous data. • Find the averages from raw data and tables. <p>Topic: Equations and graphs.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Solve simultaneous equations graphically. • Represent and draw inequality regions. • Plot, use and interpret quadratic, cubic and reciprocal graphs. • Use iterative methods. <p>Prior learning:</p> <ul style="list-style-type: none"> • Solve linear equations. • Solve simultaneous equations algebraically. • Know and draw graphs of circles. • Solve quadratic equations by factorising. 	<p>Topic: Circle Theorems.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Know and use Circle Theorems to solve angle problems in circle giving reasons. • Find the equation of a circle. • Find the equation of a tangent to a circle at a given point. <p>Prior learning:</p> <ul style="list-style-type: none"> • Find equations of linear graphs. • Label and know parts of circles. • Use angle facts in triangles and quadrilaterals. <p>Topic: More algebra.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Rearrange equations involving powers and where factorising is needed. • Four operations with algebraic fractions. • Simplify algebraic fractions through factorising. • Use algebraic proof. • Rationalise denominator with surds. <p>Prior learning:</p> <ul style="list-style-type: none"> • Simplify surds. • Four operations with fractions. • Manipulate algebraic expressions. • Use quadratic formula. 	<p>Topic: Vectors and geometric proof.</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Draw, understand and interpret vector notation. • Find the distance between two points as a vector. • Problem solve in 2D with vectors. • Understand when vectors are parallel and colinear. <p>Prior learning:</p> <ul style="list-style-type: none"> • Express the relationship between two quantities as a ratio. • Use vectors to describe translations. • Recall the properties of triangles and quadrilaterals. • Recall and use Pythagoras' Theorem. <p>Topic: Proportion and graphs</p> <p>Overview of knowledge, understanding and skills (key concepts):</p> <ul style="list-style-type: none"> • Set up and use equations for direct and inverse proportion involving powers and roots. • Represent proportion graphically. • Calculate instantaneous and average rate of change • Work out area under the graph including curves. <p>Prior learning:</p> <ul style="list-style-type: none"> • Draw linear and quadratic graphs. • Write statements of direct proportion and forming an equation to find values. • Recognise graphs showing proportion. 	<p>This time is used to consolidate learning using QLAs from mocks and prepare for the GCSE exams.</p>	