Department	MATHEMATICS
Key Stage	KEY STAGE 3/4
Course Level	KS3/GCSE
Exam Board	EDEXCEL

Unit Title	End Points	Substantive Knowledge What will they learn about in this topic?	Disciplinary Knowledge What subject concepts will be developed through this topic?	Assessment Method	Key Course Guides & Reading
F1	Students will develop their number sense and appreciation of place value. They will begin to use mathematical instruments. Students will consider problems involving time. Students will discuss the concept of division of the whole and begin to appreciate ideas of inequality	NUMBER: •Understand and describe place value •Be able to round numbers to 1 or 2 decimal places. •Be able to order negative integers and decimals •Be able to find the lowest common multiple SHAPE: •Be able to construct an angle using both sides of a protractor •Introduce the terms interior and exterior angles. •Be able to identify parallel lines and identify parallelograms and trapezia •Be able to solve problems with time including bus/train timetables etc. RATIO AND PROPORTION: •Be able to add and subtract fractions with unequal denominators •Be able to calculate perimeter using fractional dimensions •Be able to construct a ratio •Be able to share objects in a ratio NUMBER: •Be able to use inequality signs applied to decimals and integers • Be able to find the HCF and work with prime factorisations. • BIDMAS •Apply the laws of indices to integers	Precision of measurement, problem solving, number sense: place value and size of numbers, order of operations	Cumulative topic test	F1 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Place Value Round Decimal Place Construct Interior Angle Exterior Angle Parallel Parallelogram Trapezium Fraction Numerator Denominator Division Perimeter Ratio Inequality Index / Indices Multiple LCM Prime number Factor HCF Prime Factorisation

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F2	Students are introduced to the idea of algebra and abstraction. They will begin to understand the basic laws of algebra and the concept of variables and unknowns. They will begin to translate problems into algebra. Students will begin to appreciate the fundamentals of statistics, considering the need for taking a sample and beginning to explore measures of central tendency and spread. They will construct and interpret some simple statistical diagrams. Students will begin to tackle problems where they are required to find the area of more complex shapes. They will develop their geometric reasoning	ALGEBRA •Understand the notion of using letters to stand for unknown quantities •Be able to substitute integers into expressions •Be able to collect like terms DATA •Understand the basic idea of why we would take a sample •Be able to calculate the range and appreciate that it gives information about the spread of the data •Be able to calculate the mean and range from an ungrouped frequency table •Be able to compare two data sets and make comments in context about the mean and the range •Be able to construct a stem and leaf diagram and a pie chart •Be able to find the mean from a stem and leaf diagram and a bar chart •Interpret and complete a pictogram SHAPE •Be able to find the area trapezia •Be able to identify corresponding, alternate and supplementary angles •Be able to construct a triangle using protractor and compasses. •Be able to describe a motion using vector notation •Be able to draw a vector on a grid	Precision of measurement, problem solving, algebraic reasoning, geometric reasoning, statistical interpretation	Cumulative topic test	F2 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Variable Unknown Substitution Like Terms Sample Range Mean Spread Average Frequency Table Stem and Leaf Pictogram Bar Chart Area Corresponding angles Supplementary angles Alternate angles Vector Expand Brackets Equation

	skills to include parallel line angles and will use their knowledge of construction from F1 to explore triangles. They meet dynamics for the first time, considering different representations of motion.	ALGEBRA •Be able to interpret a worded problem using algebra •Be able to collect like terms involving products and powers •Be able to apply the laws of indices to algebraic expressions •Be able to expand brackets •Distinguish between expressions and equations •Be able to solve simple one step equations			Term Formula Expression One Step Equation

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F3	Students will begin to explore equivalent forms, converting between fractions, decimals and percentages. They will develop their fluency in calculation, applying the four operations to mixtures of fractions, decimals and percentages and consider how to order numbers expressed in different forms. Students will begin to appreciate the use of percentages for standardisation and comparison. Students will extend their learning about size to consider scale drawings and enlargements. Students will extend their learning about statistics to consider the suitability of the mean average and alternative measures of central tendency. They will be	RATIO AND PROPORTION •Be able to convert decimals into fractions and vice versa •Be able to multiply and divide fractions, including fraction by fraction, fraction by integer, integer by fraction, and problems involving mixed numbers •Apply this to area problems including areas of parallelograms and trapezia •Be able to order fractions, decimals, integers, mixed numbers and apply inequality signs DATA •Understand that if data has extreme values the mean and range may not be the best to use •Be able to calculate the median from a list of data •Be able to identify the mode •Be able to calculate the median from a frequency table (ungrouped) •Be able to compare two data sets giving in context comments about the median •Be able to make appropriate statements about probability using “likely, unlikely, certain etc” •Understand the probability scale and that probabilities sum to 1 •Find simple probabilities from experiments RATIO AND PROPORTION •Be able to calculate a percentage of an amount •Be able to find one quantity as a percentage of another •Be able to convert between fractions, decimals and percentages	Problem solving, algebraic techniques, equivalent forms, suitability of averages, concept of probability, percentages for standardisation, concept of similarity	Cumulative topic test	F3 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Integer Rational Number Median Mode Probability Experiment Percentage Scale Drawing Scale Factor Enlargement Two Step Equations Sequence Triangular Numbers Square Numbers Cube Numbers Arithmetic Sequence Nth term

	introduced to the concept of the probability scale, working with quantitative and qualitative measures of probability. Students will extend their algebraic toolkit to consider two step equations. They will begin to explore patterns and sequences of numbers.	•Be able to work with ratios in recipe and conversion problems •Be able to interpret and construct scale diagrams •Be able to identify a scale factor between similar shapes •Be able to enlarge shapes without a centre ALGEBRA •Be able to solve two step equations including those involving brackets (unknown on one side) •Be able to recognise sequences of triangular, square and cube numbers •Be able to calculate the nth term of an arithmetic sequence			

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F4	Students will continue work on rounding and estimation to consider significant figures. They will meet the concept of percentage change and work with percentages larger than 100%. Students will consider the concept of congruence and consider under which transformations congruence is preserved. They will meet the remaining three transformations. Students will extend their idea of area to work with compound shapes and consider the surface area of solids. They will begin to explore the properties of the circle. Students will explore experimental and theoretical probability and work with sample space diagrams. They will be introduced to scatter diagrams, draw conclusions from these and discuss limitations.	NUMBER •Be able to round to a given number of significant figures •Be able to estimate the answers to calculations and check answers using estimation •Apply estimation to shape problems •Calculate percentage change •Work with percentages greater than 100% SHAPE •Define congruence and apply the definition to simple examples •Be able to translate a shape by a vector and describe a translation. Consider the orientation and size of the resulting shape (congruence) •Calculate the area of compound shapes •Be able to calculate the surface area of a cuboid, triangular prism, pyramid •Be able to calculate the area and circumference of a circle •Be able to rotate and reflect shapes. Consider the orientation and size of the resulting shape DATA •Understand the difference between experimental and theoretical probability and appreciate that the more repetitions of an experiment the more accurate the probability •Be able to construct a sample space and calculate probabilities •Be able to plot a scatter diagram •Be able to draw conclusions from a scatter diagram, describe correlation and understand that correlation does not necessarily imply causation •Be able to identify an outlier from a scatter diagram	Problem solving, estimation, congruence, difference between theory and experiment, correlation and causation, concept of Pi and irrational/ transcendental numbers	Cumulative topic test	F4 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Significant Figure Estimation Percentage change Congruence Translation Reflection Rotation Surface Area Prism Pyramid Radius Circumference Chord Tangent Orientation Experimental probability Theoretical probability Sample Space Scatter Diagram Line of Best Fit Correlation Causation Linear Outlier

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F5	Students will continue to consider the concept of proportion, to now include specific situations of direct and inverse proportion. Students will explore the properties of the special quadrilaterals and will be introduced to the concept of volume. They will begin to work with plans and elevations. Students will develop their algebraic toolkit to consider equations with unknowns on both sides and begin to factorise linear expressions. Students will apply their knowledge of measures of central tendency to grouped frequency tables and consider the limitations of these calculations. Students will be introduced to standard form and begin to work	RATIO AND PROPORTION •Be able to convert a ratio into a fraction •Understand the concept of proportion •Be able to solve problems involving direct and inverse proportion SHAPE •Revisit properties of special quadrilaterals •Calculate volumes of standard cubes and cuboids made of cubes •Know the properties of kites and rhombi •Interpret plans and elevations of a 3D shape •Calculate volumes of standard prisms including cylinders ALGEBRA •Be able to solve equations with unknowns on both sides •Be able to substitute decimals and fractions into expressions •Be able to factorise linear expressions DATA •Apply knowledge of inequalities to grouped frequency tables •Be able to identify the modal class and estimate the mean from a grouped frequency table •Find the class containing the median from a grouped frequency table	Problem solving, proportion, volume, plans and elevations, families of shapes, algebraic techniques, grouped frequency, standard form, growth and decay problems, financial mathematics: interest	Cumulative topic test	F5 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Direct Proportion Inverse Proportion Quadrilateral Diagonal Perpendicular Parallel Adjacent Kite Rhombus Volume Cube Cuboid Cylinder Plan Elevation Factorise Modal class Standard Form Multipliers Simple interest Compound interest

	with numbers expressed in this form. They will extend their work on percentage change to consider percentage increase and decrease and will apply this knowledge to problems of simple and compound interest in financial mathematics	NUMBER •Be able to express a number in standard form •Apply the four operations to standard form •Be able to calculate percentage increase or decrease •Be able to apply percentage multipliers to simple and compound interest problems			

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F6	Students are introduced to the concept of graphing and algebraic functions. They will explore ideas of gradient and link this to finding speed from a distance time graph. Students will begin to appreciate the use of graphs and how concepts such as finding gradient and y-intercept apply to different concepts. Students will use their knowledge of percentages to consider reverse percentages problems. Students will begin work with compound measures with a focus on distance, speed and time. They will extend their learning about functions to consider the equations and graphs of non-linear functions and apply these ideas to distance time graphs.	GRAPHS •Be able to generate coordinates from linear functions using substitution and plot these on a graph •Be able to identify the y-intercept of a straight line graph •Be able to calculate the gradient of a line using a gradient triangle •Appreciate the link between solving an equation using algebraic manipulation and the graph of the line NUMBER •Reverse percentages RATIO AND PROPORTION •Be able to work with compound measures such as speed, rates of pay •Know the formula connecting speed, distance and time •Be able to calculate missing quantities from speed, distance and time GRAPHS •Be able to draw a distance time graph •Be able to draw a speed time graph •Interpret the gradient of a distance time graph as speed •Plot graphs of non-linear equations: quadratic and reciprocal functions only •Appreciate that distance and speed time graphs may be curved	Problem solving, graphical representations, rate of change, non-linear relationships, compound measures, reverse percentages, unequal sharing	Cumulative topic test	F6 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Coordinate Linear Function Y-intercept Gradient Compound Measure Formula Triangle Units of measure

	Students will learn how to divide quantities in a ratio	RATIO AND PROPORTION •Be able to share quantities in a ratio •Be able to find missing pieces of a ratio from worded problems			

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F7	Students will extend their understanding of functions to meet formal function notation. They will begin to re-arrange formulas and apply formal methods for solving linear inequalities. Students will meet the concept of bearings and their use in scale diagrams. Students will explore upper and lower bounds and limits of accuracy. They will learn the formal definition of a reciprocal and work with fractional indices. They will extend their algebraic toolkit to include factorising quadratic equations. They will meet Pythagoras' theorem and SOHCAHTOA. Students will extend their work on the coordinate geometry	ALGEBRA •Be able to interpret and construct a simple function machine and begin to understand function notation f(x) •Be able to change the subject of a formula where the unknown appears once •Solve linear inequalities and express their solution on a number line SHAPE •Be able to measure the bearing of two objects •Be able to draw a bearing •Apply knowledge of scale drawings to bearing problems •Apply knowledge of conversions between measurements of distance to bearings problems •Apply speed, distance time calculations to bearings NUMBER •Calculate with multiples of Pi •Calculate upper and lower bounds and apply these to problem solving questions •Be able to find the reciprocal of a number •Be able work with fractional indices ALGEBRA •Be able to expend double brackets •Be able to factorise and solve simple quadratics equations where the coefficient of x^2 is one •Difference of two squares •Problem solving involving quadratic equations	Problem solving, algebraic techniques, formal function notation, bearings, limits of accuracy, the reciprocal, the coordinate geometry of the right-angled triangle	Cumulative topic test	F7 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Function Change of the subject of the formula Linear Inequality Bearing Pi Bounds Accuracy Reciprocal Quadratic equation Pythagoras' Theorem Trigonometry Adjacent Hypotenuse Opposite SOHCAHTOA Inverse trigonometric function Arc Sector

	of the circle, working with arcs and sectors.	SHAPE •Be able to use Pythagoras' Theorem •Be able to use SOHCAHTOA •Calculate arc length and area of sectors			

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F8	Students will extend their knowledge of compound measures to consider Pressure, Force and Area and Density, Mass and Volume problems. Students will begin to apply their knowledge of similar shapes to 2D problems. Students will extend their knowledge of probability to use tree diagrams. Students will be introduced to surds and apply their skills in algebraic manipulation to work with numbers in this form. Students will apply their understanding of ratio to a range of more complex ratio problems. Students will be introduced to simultaneous equations	RATIO AND PROPORTION •Work with PFA, DMV formulae •Problem solving with similar shapes (2D only) DATA •Solve problems involving tree diagrams •Understand the definitions of independent and mutually exclusive events NUMBER •Understand the definition of a surd •Understand how to simplify surds •Collect like terms involving surds •Expand brackets involving surds RATIO AND PROPORTION •Be able to solve “more than” and “less than” ratio problems •Be able to identify the strategy for solving a ratio problem •Be able to convert a ratio into 1:n ALGEBRA •Be able to create and solve two linear simultaneous equations	Problem solving, algebraic techniques, independence, mutually exclusive events, irrationality and forms of number, equations with multiple unknowns	Cumulative topic test	F8 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Pressure Force Density Mass Volume Tree Diagram Independent Dependent Mutually Exclusive Irrational Rational Surd Simultaneous Equations

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H1	Students will apply their knowledge of prime factorisation to find the HCF and LCM of larger numbers. They will extend their knowledge of the reciprocal to decimals and fractions. Students will be introduced to the basics of permutations and combinations. Students will extend their work on ruler and compass constructions to include loci problems and standard constructions. They will explore and prove the congruence criteria for triangles. Students will meet the quadratic formula and use this to find the roots of quadratic equations. Students will extend their work on direct and inverse proportion to	NUMBER • Find the HCF and LCM of numbers including using prime factorisation • Understand and be able to find the reciprocal of integers, decimals and fractions • Be able to estimate the answers to square and cube roots • Combinations and systematic listing SHAPE • Review the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from/at a given point, bisecting a given angle); use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line • Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS) • Review of Pythagoras' theorem and SOHCAHTOA ALGEBRA AND GRAPHS • Be able to use the quadratic formula • Be able to plot a quadratic function from a coordinate grid • Be able to find the roots of a quadratic function from a graph and from solving the equation	Problem solving, algebraic techniques, permutations and combinations, estimation, precision using mathematical instruments, loci, proof	Cumulative topic test	H1 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: HCF LCM Prime Factorisation Reciprocal Combinations Perpendicular Bisector Locus / Loci Congruence Quadratic Formula Roots

	include creating and using algebraic and graphical representations.	RATIO AND PROPORTION • solve problems involving direct and inverse proportion, including graphical and algebraic representations			

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H2	Students will extend their knowledge of surface area and volume to other 3D shapes. They will be introduced to truncation and draw comparisons with rounding. They will apply their knowledge of bounds to consider the limits of accuracy in scientific experiments. Students will extend their knowledge of transformations to include negative and fractional scale factor enlargements and invariant points. They will begin to consider more complex problems involving vectors. Students will extend their knowledge of sequences to Fibonacci and Geometric sequences and will extend their learning on the nth term to	NUMBER • Surface area and volume of cones, pyramids and spheres • Review of surface area, volume formulas • Be able to truncate numbers • Appreciate the difference between rounding and truncation • Use inequality notation to specify simple error intervals due to truncation or rounding • Apply and interpret limits of accuracy- upper and lower bounds • Apply bounds to functional problems including area, volume, distance speed time etc. • Select a final answer "to an appropriate degree of accuracy" by calculating bounds SHAPE • Review of 4 transformations including negative and fractional scale factors of enlargement • Be able to identify invariant points in a transformation • Add and subtract vectors in column format • Add two vectors given in diagrammatic form and display the result on a grid • Multiply a vector given in diagrammatic or column form by a scalar and display the result on a grid • Consider simple geometric problems involving vectors	Problem solving, algebraic techniques, limits of accuracy, invariance, motion, categorisation of patterns	Cumulative topic test	H2 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Cone Pyramid Sphere Hemisphere Truncation Bounds Invariant Fibonacci sequence Geometric sequence Exponential Velocity Acceleration Perpendicular bisector

	quadratic sequences. Students will link this learning to the graphs of standard functions. Students will develop their understanding of the geometry of the straight line to consider more complex problems. They will construct distance and velocity time graphs and use these to interpret motion.	ALGEBRA AND GRAPHS • Be able to recognise and use sequences of triangular, square and cube numbers, Fibonacci type sequences (to include algebraic Fibonacci sequences, extension to simultaneous equations), • Be able to find the nth term of a simple quadratic sequence • Sequences given in pictures • Be able to recognise simple geometric progressions and substitute integers into formulas of the type r^n (where n is an integer, and r is a rational number > 0) to generate a higher term of the sequence • Be able to plot and recognise a linear, quadratic, cubic, reciprocal and exponential graph and match these to possible given equations • Be able to expand triple brackets			
		ALGEBRA AND GRAPHS • use the form y = mx + c to identify parallel lines; find the equation of the line through two given points or through one point with a given gradient • be able to plot a distance time graph consisting of straight lines and calculate the speed • be able to plot a velocity time graph consisting of straight lines and find the acceleration and distance travelled			

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H3	Students will meet the trigonometric graphs and consider the definition of sine, cosine, and tangent for angles greater than 90 degrees. They will learn trigonometric techniques to apply to non-right-angled triangles. Students will extend their knowledge of probability to work with more complex set notation and more challenging problems involving Venn and Tree Diagrams. They will learn to calculate conditional probability. Students will explore how to convert recurring decimals into fractions and will extend their knowledge of surds to consider rationalisation of the denominator. Students will apply their knowledge of percentages and	RATIO AND PROPORTION • Recognise the graphs of sin, cos and tan and infer properties of periodicity and sin(θ) = sin(180 – θ) • Know the exact values of sin θ and cos θ for θ = 0°, 30°, 45°, 60° and 90°; know the exact value of tan θ for θ = 0°, 30°, 45° and 60° • SOHCAHTOA non calculator questions • Sine, cosine and 1/2absinC for non-right angled triangles DATA • Find simple probabilities from experiments and understand that empirical unbiased samples tend towards theoretical probability distributions, with increasing sample size • Enumerate sets and combinations of sets systematically, using tables, grids, sample spaces, Venn diagrams and tree diagrams • Apply set notation to Venn Diagrams • Calculate conditional probabilities from Venn Diagrams and two way tables NUMBER • Review of the four operations with fractions to include algebra in the numerator • Convert a recurring decimal into a fraction • Four operations with recurring decimals by conversion into fractions • Four operations with surds, including simplification • Rationalising denominator	Problem solving, algebraic techniques, trigonometry, set theory, conditional events, rationalisation, growth and decay, methods of approximation	Cumulative topic test	H3 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Trigonometric functions Period Bias / unbiased Set notation Venn Diagrams Conditional Recurring decimal Surd Rationalisation Decay Tangent Gradient

	multipliers to more sophisticated growth and decay problems. Students will explore solving simultaneous equations graphically. They will consider methods of approximation to answer rate of change problems and consider how to find the approximate area under a curve	RATIO AND PROPORTION • Work with multipliers and percentages greater than 100. • Set up, solve and interpret the answers in growth and decay problems, including compound interest • Know the difference between simple interest and compound interest • Reverse percentages ALGEBRA AND GRAPHS • Solve two simultaneous equations in two variables (linear/linear algebraically) • Derive an equation (or two simultaneous equations) given a context, solve the equation(s) and interpret the solution • Find the solution to simultaneous equations by seeing where two lines cross • Use trapezia to divide up the area under a curve and calculate the areas of these • Draw a tangent to find the gradient of a curve • Interpret the gradient of a straight line graph as a rate of change • Apply these to distance-time and velocity-time graphs which are curved		

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H4	Students will be introduced to cumulative frequency and box plots. They will compare box plots and practice interpreting data in context. Students will apply their knowledge of trigonometry to problems involving circles. They will be introduced to the circle theorems. Students will interpret and construct plans and elevations of a 3D shape. Students will explore the quadratic graph in more detail. They will learn to find roots and turning points through plotting the graph and via an algebraic method. Students will consider estimation of roots and be able to use and	DATA • Find median and quartiles from a list of data • Construct a cumulative frequency diagram • Identify the median and quartiles from a c.f. diagram and construct a box plot • Compare two box plots and make comparisons in context SHAPE • Review: arc lengths, angles and areas of sectors of circles • Calculations involving estimation, ratios, exact answers in terms of π • Using 1/2absinC in a segment problem • Solve problems involving circle theorems • Interpret and construct plans and elevations of a 3D shape ALGEBRA AND GRAPHS • Identify and interpret roots, intercepts, turning points of quadratic functions graphically • Complete the square for a quadratic with a coefficient of one and use this to identify a turning point • Be able to identify when an equation has a root between two values by substitution • Be able to create and complete simple iterative processes	Problem solving, algebraic techniques, interpretation and analysis, proof, geometrical reasoning, iterative process, successive approximation, statistical techniques	Cumulative topic test	H4 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Median Cumulative Frequency Quartiles / Interquartile Range Arc Sector Segment Circle Theorems Tangent Chord Radius Perpendicular Plan Elevation Roots Intercept Turning Point / Vertex Iteration Histogram

	understand iterative processes. Students will be introduced to the histogram.	DATA • Draw a histogram • Find frequency from a histogram where the scales are given • Find the mean and median from a histogram			

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H5	Students will extend their understanding of function notation to solve simple problems. They will develop their algebraic toolkit to include rearranging more complex formulas, completing the square for quadratics where a is not one, and will apply the four operations to algebraic fractions. They will be introduced to the equation of a circle centred at the origin and apply their knowledge of perpendicular lines to find the equation of a tangent to the circle. Students will review bearings and tackle more complex problems involving bearings and trigonometry. Students will consider problems	ALGEBRA AND GRAPHS • Be able to find f(3), g(2) etc. • Be able to solve equations of the form f(x) = … • Be able to change the subject of a formula where the unknown appears more than once • Simple proofs – identities, counter example • Problem solving with inequalities e.g. the perimeter of this square is greater than the perimeter of this triangle • Recognise the equation of a circle centred at the origin SHAPE • Review bearings • Bearings questions involving trigonometry • Find the scale factor for similar shapes, work with similar areas and volumes ALGEBRA AND GRAPHS • Solve two simultaneous equations in two variables (quadratic/linear algebraically) • Find the solution to simultaneous equations by finding an intersection point • Complete the square when the coefficient of x^2 is different from one, use this to identify a turning point • Four operations with algebraic fractions • Use algebraic fractions to find unknowns in geometric sequences	Problem solving, algebraic techniques, function notation, coordinate geometry of the circle	Cumulative topic test	H5 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Function notation Change the subject of a formula Bearings Simultaneous Equations Intersection Complete the Square Algebraic fraction Geometric Sequence

	involving similarity in 3D shapes. Students will extend their knowledge of simultaneous equations to consider linear/quadratic pairs. They will begin to work with algebraic sequences.	SHAPE • Use facts about perpendicular gradients to find the equation of perpendicular lines • Find the equation of the tangent to a circle centred at the origin at a given point • Problem solving with equation of a circle			

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H6	Students will extend their learning about function notation to consider composite and inverse functions. They will then consider transformations of standard functions. Students will extend their knowledge of inequalities to consider inequalities in two variables and quadratic inequalities. Students will meet complex vector problems. Students will explore proof at a higher level, considering statements about multiples, odd and even numbers, and proving the standard circle theorems. Students will apply their knowledge of Pythagoras' Theorem and trigonometry to problems involving 3D shapes.	ALGEBRA AND GRAPHS • Find composite and inverse functions • Transformations of functions to include translations and reflections only • Apply transformations to standard functions, including the trigonometric graphs • Solve inequalities in two variables by sketching • Solve quadratic inequalities • Solve vector problems • Prove the standard circle theorems SHAPE • Pythagoras' Theorem and trigonometry in 3D	Problem solving, algebraic techniques, operations with functions, proof	Cumulative topic test	H6 BAM in padlet Please revise these words from the mathematical dictionary in the padlet: Composite Function Inverse Function Transformations of functions Translation Vector Stretch Quadratic inequalities