

Curriculum Design 2023-24

Maths							
		Term1		Term2		Term3	
		Term 1.1	Term 1.2	Term 2.1	Term 2.2	Term 3.1	Term 3.2
	Theme	Algebraic Thinking	Place Value and Proportion	Applications of Number	Directed Number	Lines and Angles	Reasoning with Number
	Concept	Problem Solving, Critical Thinking & Numerical Awareness					
7	Skills Knowledge	<p>Sequences: Describe and continue sequences Predict and check next term(s) Sequences in a table and graphically Linear and non-linear sequences Continue linear sequences Continue non-linear sequences Explain the term-to-term rule Find missing term(s)</p> <p>Understand and use algebraic notation Given the numerical input, find the output of a single function machine Use inverse operations to find the input given the output Use diagrams and letters with single function machines Find the function machine given a simple expression Substitute values into single operation expressions Find numerical inputs and outputs for a series of two function machines Use diagrams and letters with a series of two function machines Find the function machines given a two-step expression Substitute values into two step expressions Generate sequences given an algebraic rule Represent on and two-step functions graphically</p> <p>Equality and Equivalence Understand the meaning of equality Understand and use fact families, numerically and algebraically</p>	<p>Place value and ordering Integers and decimals Recognise the place value of any number in an integer up to one billion Understand and write integers up to one billion in words and figures Work out intervals on a number line Position integers on a number line Round integers to the nearest power of ten Compare two numbers using =, <, >, ≤, ≥ Order a list of integers Find the range of a set of numbers Find the median of a set of numbers Understand place value for decimals Position decimals on a number line Compare and order any number up to one billion Round a number to 1 significant figure Write 10,100, 1000 etc. as powers of ten Write position integers in the form $A \times 10^n$ Investigate negative powers of ten Write decimals in the form $A \times 10^n$</p> <p>Fraction, decimal and percentage equivalence Represent tenths and hundredths as diagrams Represent tenths and hundredths on number line Interchange between fractional and decimal number lines</p>	<p>Solving problems with addition and subtraction Properties of addition and subtraction Mental strategies for addition and subtraction Use formal methods for addition of integers Use formal methods for addition of decimals Use formal methods for subtraction of integers Use formal methods for subtraction of decimals Choose the most appropriate method: mental strategies, formal written or calculator Solve problems in the context of perimeter Solve financial maths problems Solve problems involving tables and timetables Solve problems with frequency trees Solve problems with bar charts and line charts Add and subtract numbers given in standard form</p> <p>Solving problems with multiplication and division Properties of multiplication and division Understand and use factors Understand and use multiples Multiply and divide integers and decimals by powers of 10 Multiply by 0.1 and 0.01 Convert metric units Use formal methods to multiply integers Use formal methods to multiply decimals Use formal methods to divide integers Use formal methods to divide decimals</p>	<p>Operations and equations with directed number Understand and use representations of directed numbers Order directed numbers using lines and appropriate symbols Perform calculations that cross zero Add directed numbers Subtract directed numbers Multiplication of directed numbers Multiplication and division of directed numbers Use a calculator for directed number calculations Evaluate algebraic expressions with directed numbers Introduction to two-step equations Solve two step equations Use order of operations with directed numbers Root of positive numbers Explore higher power and roots</p> <p>Addition and subtraction of fractions Understand representations of fractions Convert between mixed number and fractions Add and subtract unit fractions with the same denominator Add and subtract fractions with the same denominator Add and subtract fractions from integers expressing the answer as a single fraction Understand and use equivalent fractions Add and subtract fractions where denominators share a simple common multiple Add and subtract fractions with any denominator Add and subtract improper fractions and mixed numbers</p>	<p>Constructing, measuring, and using geometric notion Understand and use letter and labelling conventions including those for geometric figures Draw and measure line segments including geometric figures Understand angles as a measure of turn Classify angles Measure angles up to 180° Draw angles up to 180° Draw and measure angles between 180° and 360° Identify perpendicular and parallel lines Recognise types of triangles Recognise types of quadrilateral Identify polygons up to a decagon Construct triangles using SSS Construct triangles using SSS, SAS, and ASA Construct more complex polygons Interpret simple pie charts using proportion Interpret pie charts using a protractor Draw pie charts</p> <p>Developing geometric reasoning Understand and use the sum of angles at a point Understand and use the sum of angles on a straight line Understand and use the equality of vertically opposite angles Know and apply the sum of angles in a triangle Know and apply the sum of angles in a quadrilateral Solve angle problems using properties of triangles and quadrilaterals Solve complex angle problems Find and use the angle sum of any polygon Investigate angles in parallel lines</p>	<p>Developing number sense Know and use mental addition and subtraction strategies for integers Know and use mental multiplications and division strategies for integers Know and use mental arithmetic strategies for decimals Know and use mental arithmetic strategies for fractions Use factors to simplify calculations Use estimation as a method for checking mental calculations Use known number facts to derive other facts Use known algebraic facts to derive other facts Know when to use a mental strategy, formal written method or a calculator</p> <p>Sets and Probability Identify the represent sets Interpret and create Venn diagrams Understand and use the intersection of sets Understand and use the union of sets Understand and use the complement of a set Know and use the vocabulary of probability</p> <p>Prime numbers and proof Find and use multiples Identify factors of numbers and expressions Recognise and identify prime numbers</p>

		<p>Solve one-step linear equations involving +/-using inverse operations</p> <p>Solve one-step linear equations involving x/- using inverse operations</p> <p>Understand the meaning of like and unlike terms</p> <p>Understand the meaning of equivalence</p> <p>Simply algebraic expressions by collecting like terms using the \equiv symbol.</p>	<p>Convert between fractions and decimals – tenths and hundredths</p> <p>Convert between fractions and decimals – fifths and quarters</p> <p>Convert between fractions and decimals – eighths and thousandths</p> <p>Understand the meaning of percentage using a hundred square</p> <p>Convert fluently between simple fractions, decimals and percentages</p> <p>Use and interpret pie charts</p> <p>Represent any fraction as a diagram</p> <p>Represent fractions on number lines</p> <p>Identify and use simple equivalent fractions</p> <p>Understand fractions as division</p> <p>Convert fluently between fractions, decimals and percentages</p> <p>Explore fractions above one, decimals and percentages.</p>	<p>Understand and use order of operations</p> <p>Solve problems using the area of rectangles and parallelograms</p> <p>Solve problems using the area of triangles</p> <p>Solve problems using the area of trapezia</p> <p>Solve problems using the mean</p> <p>Explore multiplication and division in algebraic expressions</p> <p>Fractions & percentages of amounts</p> <p>Find a fraction of a given amount</p> <p>Use a given fraction to find the whole and/or other fractions</p> <p>Find a percentage of a given amount using mental methods</p> <p>Find a percentage of a given amount using a calculator</p> <p>Solve problems with fractions greater than 1 and percentage greater than 100%</p>	<p>Use fractions in algebraic contexts</p>	<p>Understand and use parallel line angle rules</p> <p>Use known facts to obtain simple proofs</p>	<p>Recognise square and triangle numbers</p> <p>Find common factors of a set of numbers including HCF</p> <p>Find common multiples of a set of numbers including the LCM</p> <p>Write a number as a product of its prime factors</p> <p>Use a Venn diagram to calculate the HCF and LCM</p> <p>Make and test conjectures</p> <p>Use counterexamples to disprove a conjecture</p>
	Wider Curriculum						
8	Theme	Proportional Reasoning	Representations	Algebraic Techniques	Developing Number	Developing Geometry	Problem Solving, Critical Thinking & Numerical Awareness
	Concept	Problem Solving, Critical Thinking & Numerical Awareness					
	Skills Knowledge	<p>Ratio and Scale</p> <p>Understanding the meaning and representation of ratio. Understand and use ratio notation.</p> <p>Solve problems involving ratios of the form 1:n or n:1</p> <p>Solve proportional problems involving the ratio m:n</p> <p>Divide a value into a given ratio.</p> <p>Express ratios in their simplest integer form</p> <p>H - Express ratios in the form 1:n</p> <p>Compare ratios and related fractions.</p> <p>Understand pi as the ratio between diameter and circumference.</p> <p>H - Understand gradient of a line as a ratio</p>	<p>Working in the cartesian plane</p> <p>Work with coordinates in all four quadrants</p> <p>Identify and draw lines that are parallel to the axes</p> <p>Recognise and use the line $y=x$</p> <p>Recognise and use the line $y=kx$</p> <p>Recognise and use lines of the form $y=x+a$</p> <p>Link $y=kx$ to direct proportion problems</p> <p>H - Explore the gradient of the line $y=kx$</p> <p>Recognise and use lines of the form $y=x+a$</p> <p>Explore graphs with negative gradients ($y=-kx$, $y=a-x$, $x+y=a$)</p> <p>Link graphs to linear sequences</p>	<p>Brackets, equations and inequalities</p> <p>Form algebraic expressions</p> <p>Use directed number with algebra</p> <p>Multiply out a single bracket</p> <p>Factorise into a single bracket</p> <p>Expand multiple single brackets and simplify</p> <p>H - Expand a pair of binomials</p> <p>Solve equations, including with brackets</p> <p>Form and solve equations with brackets</p> <p>Understand and solve simple inequalities</p> <p>Form and solve inequalities</p> <p>H - Solve equations and inequalities with unknowns on both sides</p> <p>H - Form and solve equations and inequalities with unknowns on both sides</p>	<p>Fractions and Percentages</p> <p>Convert between decimals and percentages more than 1/100%</p> <p>Percentage decrease with a multiplier</p> <p>Calculate percentage increase and decrease using a multiplier</p> <p>Express one number as a fraction or a percentage of another without a calculator</p> <p>Express one number as a fraction or a percentage of another using calculator methods</p> <p>Work with percentage change</p> <p>Choose appropriate methods to solve percentage problems</p> <p>H - Find the original amount given the percentage less than 100%</p> <p>H - Find the original amount given the percentage more than 100%</p>	<p>Angles in parallel lines and polygons</p> <p>REVIEW STEP - Understand basic angle rules and notation</p> <p>Investigate angles between parallel lines and the transversal</p> <p>Identify and calculate with alternate and corresponding angles</p> <p>Identify and calculate with co-interior, alternate and corresponding angles</p> <p>Solve complex problems with parallel line angles</p> <p>Construct triangles and special quadrilaterals</p> <p>Identify and calculate with sides and angles in special quadrilaterals.</p> <p>H - Understand and use the properties of diagonals of quadrilaterals</p>	<p>The Data Handling Cycle</p> <p>Set up a statistical enquiry</p> <p>Design and criticise questionnaires</p> <p>Draw and interpret multiple bar charts</p> <p>Draw and interpret pie charts</p> <p>Draw and interpret line graphs</p> <p>Choose the most appropriate diagram for a given set of data</p> <p>Represent and interpret grouped quantitative data</p> <p>Find and interpret the range</p> <p>Compare distributions using charts</p> <p>Identify misleading graphs</p> <p>Measures of Location</p> <p>Understand and use the mean, median and mode</p>

		<p>Multiplicative Change Solve problems involving direct proportion. Explore conversion graphs. Convert between currencies. H - Explore direct proportion graphs. Explore relationships between similar shapes. Understand scale factors as multiplicative relationships. Draw and interpret scale diagrams</p> <p>Multiplying and dividing fractions Interpret maps using scale factors and ratio Represent multiplication of fractions Multiply a fraction by an integer Multiply a fraction by an integer Find the product of a pair of unit fractions Find the product of a pair of any fractions Divide an integer by a fraction Divide a fraction by a unit fraction Understand and use the reciprocal Divide any pair of fractions H - Multiply and divide improper and mixed fractions H - Multiply and divide algebraic fractions</p>	<p>Plot graphs of the form $y=mx+c$ H - Explore non-linear graphs H - Find the midpoint of a line segment</p> <p>Representing Data Draw and interpret scatter graphs Understand and describe linear correlation Draw and use line of best fit Identify non-linear relationships Identify different types of data Read and interpret ungrouped frequency tables Read and interpret grouped frequency tables Represent grouped discrete data Represent continuous data grouped into equal classes Represent data in two-way tables</p> <p>Tables and Probability Construct sample spaces for 1 or more events Find probabilities from sample space Find probabilities from two-way tables Find probabilities from Venn diagrams H - Use the product rule for finding the total number of possible outcomes</p>	<p>Identify and use formulae, expressions, identities and equations</p> <p>Sequences Generate sequences given a rule in words Generate sequences given a simple algebraic rule Generate sequences given a complex algebraic rule H - Find the rule for the nth term of a linear sequence</p> <p>Indices Adding and subtracting expressions with indices Simplifying algebraic expressions by multiplying indices Simplifying algebraic expressions by dividing indices Using the addition law for indices Using the addition and subtraction law H - Exploring powers of powers</p>	<p>H - Choose appropriate methods to solve complex percentage problems</p> <p>Standard Index Form Work with numbers greater than 1 in standard form Investigate negative powers of 10 Work with numbers between 0 and 1 in standard form Compare and order numbers in standard form Mentally calculate with numbers in standard form Add and subtract numbers in standard form Multiply and divide numbers in standard form Use a calculator to work with numbers in standard form H - Understand and use negative indices H - Understand and use fractional indices</p> <p>Number Sense Round numbers to a number of decimal places H - Understand and use error interval notation Calculate with money Convert metric units of weight and capacity H - Convert metric units of area H - Convert metric units of volume Solve problems involving time and the calendar</p>	<p>Understand and use the sum of exterior angles of any polygon Understand and use the sum of interior angles of any polygon Calculate missing interior angles in regular polygons H - Prove simple geometric facts H - Construct an angle bisector H - Construct a perpendicular bisector of a line segment</p> <p>Area of trapezia and circles Calculate the area of a trapezium Calculate the perimeter and area of compound shapes Investigate the area of a circle. Calculate the area of a circle and parts of a circle without a calculator Calculate the area of a circle and parts of a circle with a calculator</p> <p>Line Symmetry and Reflection Recognise line symmetry. Reflect a shape in a horizontal or vertical line (shapes touching the line) Reflect a shape in a horizontal or vertical line 2 (shapes not touching the line) Reflect a shape in a diagonal line (shapes touching the line) Reflect a shape in a diagonal line 2 (shapes not touching the line)</p>	<p>Choose the most appropriate average H - Find the mean from an ungrouped frequency table H - Find the mean from a grouped frequency table Identify outliers Compare distributions using averages and the range</p>
	Wider Curriculum						
9	Theme	Number	Number & Algebra	Algebra/Geometry	Geometry	Statistics	Statistics
	Concept	Problem Solving, Critical Thinking & Numerical Awareness					
	Foundation Skills Knowledge Concept	<p>Foundation Number 1 Number Sense inc commutative law Factors, Multiples and Primes Evaluate Powers</p>	<p>Foundation Number 5 Rounding including significant figures Estimation Order of operations Writing numbers in standard form</p>	<p>Foundation Algebra 4 Drawing quadratic graphs Roots and Turning Points Simultaneous linear equations</p> <p>Foundation Geometry 1 Plans and elevations</p>	<p>Foundation Geometry 2 Symmetries Translations Rotations Reflections Enlargements</p> <p>Foundation Geometry 3</p>	<p>Foundation Statistics 1 Types of data and sampling Questionnaires Frequency and Two way tables Frequency Trees (link with ratio)</p> <p>Foundation Statistics 2</p>	<p>Foundation Statistics 4 Simple probability Mutually exclusive events Relative and Theoretical Frequency Sample space diagrams and probability of more than one event</p>

		<p>Understanding Squares, Cubes and Roots, reciprocals Product of prime factors HCF and LCM Worded problems Apply systematic listing strategies</p> <p>Foundation Number 2 Multiplication and Division of Integers Using place value/related calculations Calculations with decimals Find a % Increase/ decrease by a percentage inc. using a multiplier Percentage Change</p> <p>Foundation Number 3 Simplifying ratio including 1:n, n:1 Write ratios as fractions Divide a quantity (whole amount, part or difference) into a given ratio Proportion and recipes</p> <p>Foundation Number 4 Equivalent Fractions Simplification of Fractions Finding a fraction of an amount Ordering fractions, decimals and positive and negative integers Changing fractions to decimals Addition/subtraction of Fractions Multiplication/ division of Fractions Bank statements Profit and loss</p>	<p>Foundation Algebra 1 Algebraic notation and collecting like terms Laws of indices with algebra Expanding single brackets Factorising into single brackets Expand and simplify double brackets</p> <p>Foundation Algebra 2 Substitution Using function machines Solving equations Forming equations Solving linear inequalities inc. use of a number line Generating a sequence Finding the nth term of linear sequences</p> <p>Foundation Algebra 3 Solve coordinate problems Drawing straight line graphs from a table Gradients of lines inc. identifying parallel lines Understanding $y=mx+c$ Drawing straight line graphs from $y=mx+c$ Speed Distance Time Distance-time graphs</p>	<p>Nets Parallel lines and angles Angles in a triangle Properties of special triangles and quadrilaterals Angles in regular polygons Measuring and drawing angles</p>	<p>Metric Conversions Perimeter Area of rectangle, triangle, parallelogram, trapezium Properties of a circle Area and circumference of circles inc. answers in terms of Pi Compound units (link with ratio)</p> <p>Foundation Geometry 4 Pythagoras' theorem Calculating with column vectors</p>	<p>Averages and the range for listed data Averages from a table including estimating</p> <p>Foundation Statistics 3 Scatter graphs- include causation/correlation Pie charts Bar charts, pictograms and vertical line charts</p>	
	<p>Higher Skills Knowledge Concept</p>	<p>Higher Number 1 Factors, Multiples and Primes Evaluate Powers Understanding Squares, Cubes and Roots, reciprocals Product of prime factors HCF and LCM Worded Problems</p>	<p>Higher Number 5 Order of operations Rounding including significant figures Estimation Finding upper and lower bounds Error Intervals Calculations with upper and lower bounds</p>	<p>Higher Algebra 4 Drawing quadratic graphs Solving quadratic equations by factorisation The difference of two squares Roots and Turning Points Solving quadratic equations - Formula</p>	<p>Higher Geometry 1 Plans and elevations Parallel lines and angles Angles in a triangle Properties of special triangles and quadrilaterals Solving equations in angle problems Angles in regular polygons</p>	<p>Higher Geometry 3 Metric Conversions Perimeter Area of rectangle, triangle, parallelogram, trapezium Area of compound shapes Area and circumference of circles inc. answers in terms of Pi Compound units (link with ratio)</p>	<p>Higher Statistics 3 Drawing and Interpreting Pie Charts Drawing and interpreting scatter graphs-include causation/correlation Cumulative frequency</p> <p>Higher Statistics 4</p>

	<p>Laws of indices - multiplying and dividing Laws of indices - fractional and negative</p> <p>Higher Number 2 Multiplication and Division of Integers Calculations with decimals Find a % Increase/ decrease by a percentage inc. using a multiplier Percentage Change Simple Interest Compound interest and depreciation Reverse percentages</p> <p>Higher Number 3 Simplifying ratio Write ratios as fractions Write ratios in the form 1:n, n:1 Divide a quantity (whole amount, part or difference) into a given ratio Proportion and recipes</p> <p>Higher Number 4 Simplify and find equivalent fractions Ordering fractions, decimals and positive and negative integers Value for Money/Best Buys Finding a fraction of an amount Fractions 4 operations (+ - x ÷) Changing fractions to decimals Multi step problems using %, fractions and ratios with standard and compound units (eg time, length, prices, area, volume, mass, speed) Financial Maths - understand terms such as profit/loss, cost price, debit and credit</p>	<p>Writing numbers in standard form Calculating with numbers in standard form</p> <p>Higher Number 6 Simplifying and calculating with surds Non-algebraic direct and inverse proportion</p> <p>Higher Algebra 1 Expand and simplify algebraic expressions including double and triple brackets Factorising including quadratic Solving linear equations Forming equations 4 operations with algebraic fractions Solving linear inequalities Changing the subject of a formula Laws of indices with algebra Recurring decimals into fractions</p> <p>Higher Algebra 2 Substitution Identifying and using sequences - Fibonacci /Geometric/Quadratic Finding the nth term of linear sequences Finding the nth term of quadratic sequences</p> <p>Higher Algebra 3 Drawing straight line graphs from a table Understanding $y=mx+c$ Drawing straight line graphs from $y=mx+c$ Gradients of lines inc. identifying parallel and perpendicular lines Finding the equation of a straight line Parallel and perpendicular gradients Distance-time graphs Function Notation</p>	<p>Simultaneous linear equations Matching coefficients in identities</p> <p>Higher Algebra 5 Graphs of cubic, exponential and reciprocal functions Using real life graphs such as growth/decay Graphs of trigonometric functions Use graphs to solve equations Equation of circle with centre (0,0)</p>	<p>Triangle constructions inc constructing angle of 60° Perpendicular bisector Angle bisector</p> <p>Higher Geometry 2 Translations Rotations Reflections Enlargements Invariant points Similar shapes inc fractional/negative scale factors Using congruent triangles</p>	<p>Using density formula</p> <p>Higher Geometry 4 Pythagoras' theorem Pythagoras in 3D Trigonometry - SOH CAH TOA Trigonometry in 3D Calculations with column vectors Calculations with vectors using algebra</p> <p>Higher Statistics 1 Types of data and sampling Sample space diagrams Frequency and Two-way tables Frequency Trees (link with ratio)</p> <p>Higher Statistics 2 Averages and the range for listed data Reverse mean Averages from a table including estimating Problem solving with averages</p>	<p>Probability of single events Probability of multiple events including sample space diagrams Mutually exclusive events Relative and Theoretical Frequency Probability trees for independent events</p>
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Wider Curriculum								
Theme	Number	Number & Algebra	Algebra	Algebra & Geometry	Geometry	Statistics		
Concept	Problem Solving, Critical Thinking & Numerical Awareness							
10	Skills Knowledge Concept	Foundation Number 1 Number Sense inc commutative law Factors, Multiples and Primes Evaluate Powers Understanding Squares, Cubes and Roots, reciprocals Product of prime factors HCF and LCM HCF and LCM Worded Problems Apply systematic listing strategies Laws of indices- multiplying and dividing Laws of indices: negative Foundation Number 2 Multiplication and Division of Integers Calculations with decimals Find a % Increase/ decrease by a percentage inc. using a multiplier Percentage Change Simple Interest Compound interest and depreciation Reverse percentages Foundation Number 3 Simplifying ratio Write ratios as fractions Write ratios in the form 1:n, n:1 Divide a quantity (whole amount, part or difference) into a given ratio Proportion and recipes Non-algebraic direct and inverse proportion including graphical representations Foundation Number 4 Finding a fraction of an amount Simplification of Fractions	Foundation Number 5 Order of operations Rounding including significant figures Estimation Writing numbers in standard form Calculating with numbers in standard form Upper and Lower Bounds Error Intervals Truncation Foundation Algebra 1 Algebraic notation and collecting like terms Laws of indices with algebra Expanding single brackets Factorising into single brackets Expand and simplify double brackets Factorising into double brackets (a=1) The difference of two squares Foundation Algebra 2 Substitution Using function machines Solving equations Forming equations Solving linear inequalities inc. use of a number line Generating a sequence Finding the nth term of linear sequences Recognise and use Fibonacci and geometric sequences Changing the subject of a formula Foundation Algebra 3 Solve coordinate problems Drawing straight line graphs from a table Gradients of lines inc. identifying parallel lines Understanding $y=mx+c$ Drawing straight line graphs from $y=mx+c$	Foundation Algebra 4 Drawing quadratic graphs Roots and Turning Points Simultaneous linear equations Sketching quadratic graphs Solving quadratic equations by factorisation Foundation Geometry 1 Plans and elevations Nets Parallel lines and angles Angles in a triangle Properties of special triangles and quadrilaterals Angles in regular polygons Measuring and drawing angles Triangle constructions inc constructing angle of 60° Perpendicular bisector Angle bisector Solving equations in angle and shape problems Bearings Loci	Foundation Geometry 2 Symmetries Translations Rotations Reflections Enlargements Similar shapes inc fractional scale factors Using congruent triangles Foundation Geometry 3 Metric Conversions Perimeter Area of rectangle, triangle, parallelogram, trapezium Properties of a circle Area and circumference of circles inc. answers in terms of Pi Compound units (link with ratio) Surface area of prisms Volume of a prism inc cylinder Surface area and volume of spheres, pyramids, cones Using density formula	Foundation Geometry 4 Pythagoras' theorem Calculating with column vectors Trigonometry - SOH CAH TOA Exact values of Sin/Cos/Tan 0/30/45/60/90 Foundation Statistics 1 Types of data and sampling Questionnaires Frequency and Two way tables Frequency Trees (link with ratio) Foundation Statistics 2 Averages and the range for listed data Averages from a table including estimating Spread Reverse mean Averages problem solving Foundation Statistics 3 Scatter graphs- include causation/correlation Pie charts Bar charts, pictograms and vertical line charts Time Series	Foundation Statistics 4 Simple probability Mutually exclusive events Relative and Theoretical Frequency Sample space diagrams and probability of more than one event Set notation Venn Diagrams Probability Trees for independent events	

		<p>Equivalent Fractions Changing fractions to decimals Ordering fractions, decimals and integers Addition/subtraction of Fractions Multiplication/division of Fractions Bank statements Profit and loss Money problems including value for money Multi step problems using %, fractions and ratios with standard and compound units (eg time, length, prices, area, volume, mass, speed)</p>	<p>Speed Distance Time Distance-time graphs Solving simultaneous equations graphically Sketch graphs of simple cubic and reciprocal functions</p>				
		<p>Higher Number 1 Factors, Multiples and Primes Evaluate Powers Understanding Squares, Cubes and Roots, reciprocals Product of prime factors HCF and LCM Worded Problems Laws of indices - multiplying and dividing Laws of indices - fractional and negative Combinations/product rule for counting</p> <p>Higher Number 2 Multiplication and Division of Integers Calculations with decimals Find a % Increase/ decrease by a percentage inc. using a multiplier Percentage Change Simple Interest Compound interest and depreciation Reverse percentages</p> <p>Higher Number 3 Simplifying ratio Write ratios as fractions Write ratios in the form 1:n, n:1 Divide a quantity (whole amount, part or difference) into a given ratio</p>	<p>Higher Number 5 Order of operations Rounding including significant figures Estimation Finding upper and lower bounds Error Intervals Writing numbers in standard form Calculating with numbers in standard form Calculations with upper and lower bounds Truncation</p> <p>Higher Number 6 Simplifying and calculating with surds Non-algebraic direct and inverse proportion Graphs of direct and inverse proportion Algebraic direct and inverse proportion Expanding brackets with surds Rationalising the denominator</p> <p>Higher Algebra 1 Expand and simplify algebraic expressions including double and triple brackets Factorising including quadratic Solving linear equations Forming equations</p>	<p>Higher Algebra 4 Drawing quadratic graphs Solving quadratic equations by factorisation The difference of two squares Solving quadratic equations - Formula Simultaneous linear equations Matching coefficients in identities Complete the Square and solving Roots and Turning Points Sketching quadratic graphs Proof of a quadratic expression always being positive Solving algebraic fraction equations resulting in a quadratic Quadratic inequalities Simultaneous equations with a quadratic</p> <p>Higher Algebra 5 Graphs of cubic, exponential and reciprocal functions Using real life graphs such as growth/decay Graphs of trigonometric functions Use graphs to solve equations Equation of circle with centre (0,0) Equation of a tangent to a circle</p>	<p>Higher Geometry 1 Plans and elevations Parallel lines and angles Angles in a triangle Properties of special triangles and quadrilaterals Solving equations in angle problems Angles in regular polygons Triangle constructions inc constructing angle of 60° Perpendicular bisector Angle bisector Loci Bearings (not including trigonometry) Using circle theorems Proving circle theorems</p> <p>Higher Geometry 2 Translations Rotations Reflections Enlargements Invariant points Similar shapes inc fractional/negative scale factors Using congruent triangles Similar shapes- area and volume scale factor problems Proving triangles are congruent Enlargement of negative scale factors Transformations - Combined</p> <p>Higher Geometry 3 Metric Conversions Perimeter</p>	<p>Higher Geometry 4 Pythagoras' theorem Pythagoras in 3D Trigonometry - SOH CAH TOA Trigonometry in 3D Calculations with column vectors Calculations with vectors using algebra Exact values of Sin/Cos/Tan 0/30/45/60/90 Sine and cosine rules Areas of triangles using $\frac{1}{2}ab\sin C$ Vectors and ratio problems Proving vectors are parallel or form a straight line</p> <p>Higher Statistics 1 Types of data and sampling Sample space diagrams Frequency and Two-way tables Frequency Trees</p> <p>Higher Statistics 2 Averages and the range for listed data Reverse mean Averages from a table including estimating Problem solving with averages</p>	<p>Higher Statistics 3 Drawing and Interpreting Pie Charts Drawing and interpreting scatter graphs-include causation/correlation Interpreting line graphs Cumulative frequency Box plots Drawing Histograms Interpreting frequencies from a histogram Finding averages and quartiles from a histogram</p> <p>Higher Statistics 4 Probability of single events Probability of multiple events including sample space diagrams Mutually exclusive events Relative and Theoretical Frequency Probability trees for independent events Probability trees for conditional probabilities Set notation Putting sets into Venn diagrams Probability in Venn diagrams including conditional probabilities Probability trees with algebra</p>

		<p>Proportion and recipes Advanced Ratio Approaches</p> <p>Higher Number 4 Simplify and find equivalent fractions Ordering fractions, decimals and positive and negative integers Value for Money/Best Buys Finding a fraction of an amount Fractions 4 operations (+ - x ÷) Changing fractions to decimals Multi step problems using %, fractions and ratios with standard and compound units (eg time, length, prices, area, volume, mass, speed) Financial Maths - understand terms such as profit/loss, cost price, debit and credit Simplification of Fractions Ordering fractions, decimals and positive and negative integers Value for Money/Best Buys Finding a fraction of an amount Addition/subtraction of Fractions Multiplication/ division of Fractions Changing fractions to decimals Recurring decimals into fractions Multi step problems using %, fractions and ratios with standard and compound units (eg time, length, prices, area, volume, mass, speed) Financial Maths - understand terms such as profit/loss, cost price, debit and credit</p>	<p>4 operations with algebraic fractions Solving linear inequalities Changing the subject of a formula Laws of indices with algebra Recurring decimals into fractions Factorise Quadratics including $ax^2 + bx + c$ Rearranging formulae with factorising Represent the solution set on a number line, using set notation and on a graph Solve equations involving algebraic fractions - linear Solving equations from ratio problems Simplifying algebraic fractions</p> <p>Higher Algebra 2 Substitution Identifying and using sequences - Fibonacci /Geometric/Quadratic Finding the nth term of linear sequences Finding the nth term of quadratic sequences Using an iterative formula Ratio to an equation Algebraic proof involving odd, even, consecutive numbers, and divisibility</p> <p>Higher Algebra 3 Drawing straight line graphs from a table Understanding $y=mx+c$ Drawing straight line graphs from $y=mx+c$ Gradients of lines inc. identifying parallel and perpendicular lines Finding the equation of a straight line Parallel and perpendicular gradients Distance-time graphs Function Notation Graphing straight line inequalities and finding regions Solving simultaneous equations graphically Velocity-time graphs Inverse Functions</p>	<p>Transformation of functions $y = f(x) + a$, $y = f(x+a)$, $y=-f(x)$, $y=f(-x)$ ONLY Gradients as a rate of change (not differentiation) Calculate or estimate the area under a graph (not integration) Solving equations when x is the power</p>	<p>Area of rectangle, triangle, parallelogram, trapezium Area of compound shapes Area and circumference of circles inc. answers in terms of Pi Compound units (link with ratio) Using density formula Area and perimeter of sectors Surface area of prisms Volume of a prism inc cylinder Surface area and volume of Spheres, Pyramids, Cones Surface area and volume of a frustum Problem solving with density Rate of change/flow with volume</p>		
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			Composite Functions				
	Wider Curriculum						
	Theme	Number	Algebra	Geometry	Statistics	Revision Topics	Revision Topics
	Concept	Problem Solving, Critical Thinking & Numerical Awareness					
11	Skills Knowledge Concept	<p>Foundation Number 1 Number Sense inc commutative law Factors, Multiples and Primes Evaluate Powers Understanding Squares, Cubes and Roots, reciprocals Product of prime factors HCF and LCM HCF and LCM Worded Problems Apply systematic listing strategies Laws of indices- multiplying and dividing Laws of indices: negative</p> <p>Foundation Number 2 Multiplication and Division of Integers Calculations with decimals Find a % Increase/ decrease by a percentage inc. using a multiplier Percentage Change Simple Interest Compound interest and depreciation Reverse percentages</p> <p>Foundation Number 3 Simplifying ratio Write ratios as fractions Write ratios in the form 1:n, n:1 Divide a quantity (whole amount, part or difference) into a given ratio Proportion and recipes</p>	<p>Foundation Algebra 2 Substitution Using function machines Solving equations Forming equations Solving linear inequalities inc. use of a number line Generating a sequence Finding the nth term of linear sequences Recognise and use Fibonacci and geometric sequences Changing the subject of a formula</p> <p>Foundation Algebra 3 Solve coordinate problems Drawing straight line graphs from a table Gradients of lines inc. identifying parallel lines Understanding $y=mx+c$ Drawing straight line graphs from $y=mx+c$ Speed Distance Time Distance-time graphs Solving simultaneous equations graphically Sketch graphs of simple cubic and reciprocal functions</p> <p>Foundation Algebra 4 Drawing quadratic graphs Roots and Turning Points Simultaneous linear equations Sketching quadratic graphs Solving quadratic equations by factorisation</p>	<p>Foundation Geometry 1 Plans and elevations Nets Parallel lines and angles Angles in a triangle Properties of special triangles and quadrilaterals Angles in regular polygons Measuring and drawing angles Triangle constructions inc constructing angle of 60° Perpendicular bisector Angle bisector Solving equations in angle and shape problems Bearings Loci</p> <p>Foundation Geometry 2 Symmetries Translations Rotations Reflections Enlargements Similar shapes inc fractional scale factors Using congruent triangles</p> <p>Foundation Geometry 3 Metric Conversions Perimeter Area of rectangle, triangle, parallelogram, trapezium Properties of a circle Area and circumference of circles inc. answers in terms of Pi Compound units (link with ratio) Surface area of prisms Volume of a prism inc cylinder</p>	<p>Foundation Statistics 1 Types of data and sampling Questionnaires Frequency and Two way tables Frequency Trees (link with ratio)</p> <p>Foundation Statistics 2 Averages and the range for listed data Averages from a table including estimating Spread Reverse mean Averages problem solving</p> <p>Foundation Statistics 3 Scatter graphs- include causation/correlation Pie charts Bar charts, pictograms and vertical line charts Time Series</p> <p>Foundation Statistics 4 Simple probability Mutually exclusive events Relative and Theoretical Frequency Sample space diagrams and probability of more than one event Set notation Venn Diagrams Probability Trees for independent events</p>	<p>The focus is on Exam preparation which includes key exam topics, bespoke revision materials and exam paper practice.</p>	

	<p>Non-algebraic direct and inverse proportion including graphical representations</p> <p>Foundation Number 4 Finding a fraction of an amount Simplification of Fractions Equivalent Fractions Changing fractions to decimals Ordering fractions, decimals and integers Addition/subtraction of Fractions Multiplication/division of Fractions Bank statements Profit and loss Money problems including value for money Multi step problems using %, fractions and ratios with standard and compound units (eg time, length, prices, area, volume, mass, speed)</p> <p>Foundation Number 5 Order of operations Rounding including significant figures Estimation Writing numbers in standard form Calculating with numbers in standard form Upper and Lower Bounds Error Intervals Truncation</p> <p>Foundation Algebra 1 Algebraic notation and collecting like terms Laws of indices with algebra Expanding single brackets Factorising into single brackets Expand and simplify double brackets Factorising into double brackets (a=1) The difference of two squares</p>		<p>Surface area and volume of spheres, pyramids, cones Using density formula</p> <p>Foundation Geometry 4 Pythagoras' theorem Calculating with column vectors Trigonometry - SOH CAH TOA Exact values of Sin/Cos/Tan 0/30/45/60/90</p>			
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	<p>units (eg time, length, prices, area, volume, mass, speed) Financial Maths - understand terms such as profit/loss, cost price, debit and credit</p> <p>Higher Number 5 Order of operations Rounding including significant figures Estimation Finding upper and lower bounds Error Intervals Writing numbers in standard form Calculating with numbers in standard form Calculations with upper and lower bounds Truncation</p>	<p>Higher Algebra 3 Drawing straight line graphs from a table Understanding $y=mx+c$ Drawing straight line graphs from $y=mx+c$ Gradients of lines inc. identifying parallel and perpendicular lines Finding the equation of a straight line Parallel and perpendicular gradients Distance-time graphs Function Notation Graphing straight line inequalities and finding regions Solving simultaneous equations graphically Velocity-time graphs Inverse Functions Composite Functions</p>	<p>Angle bisector Loci Bearings (not including trigonometry) Using circle theorems Proving circle theorems</p> <p>Higher Geometry 2 Translations Rotations Reflections Enlargements Invariant points Similar shapes inc fractional/negative scale factors Using congruent triangles Similar shapes- area and volume scale factor problems Proving triangles are congruent Enlargement of negative scale factors Transformations - Combined</p> <p>Higher Geometry 3 Metric Conversions Perimeter Area of rectangle, triangle, parallelogram, trapezium Area of compound shapes Area and circumference of circles inc. answers in terms of Pi Compound units (link with ratio) Using density formula Area and perimeter of sectors Surface area of prisms Volume of a prism inc cylinder Surface area and volume of Spheres, Pyramids, Cones Surface area and volume of a frustum Problem solving with density Rate of change/flow with volume</p>	<p>trees for conditional probabilities Set notation Putting sets into Venn diagrams Probability in Venn diagrams including conditional probabilities Probability trees with algebra</p>		
Wider Curriculum						