Curriculum Mapping

Mathematics						

		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
7	Skills Knowledge Concept	**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) **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 **Equality and Equivalence** Understand the meaning of equality Understand and use fact families, numerically and algebraically Solve one-step linear equations involving +/-using inverse operations Solve one-step linear equations involving x/- using inverse operations Understand the meaning of like and unlike terms Understand the meaning of equivalence	**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 x 10n Investigate negative powers of ten Write decimals in the form A x 10n **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 Convert between fractions and decimals – tenths and hundredths Convert between fractions and decimals – fifths and quarters Convert between fractions and decimals – eighths and thousandths Understand the meaning of percentage using a hundred square Convert fluently between simple fractions, decimals and percentages Use and interpret pie charts	**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 **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 Understand and use order of operations Solve problems using the area of rectangles and parallelograms Solve problems using the area of triangles	**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 **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	**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 **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 Understand and use parallel line angle rules	**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 **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 **Prime numbers and proof** Find and use multiples Identify factors of numbers and expressions Recognise and identify prime numbers Recognise square and triangle numbers Find common factors of a set of numbers including HCF Find common multiples of a set of numbers including the LCM Write a number as a product of its prime factors

| | | Simply algebraic expressions by collecting like terms using the ≡ symbol. | Represent any fraction as a diagram Represent fractions on number lines Identify and use simple equivalent fractions Understand fractions as division Convert fluently between fractions, decimals and percentages Explore fractions above one, decimals and percentages. | Solve problems using the area of trapezia Solve problems using the mean Explore multiplication and division in algebraic expressions

Fractions & percentages of amounts
Find a fraction of a given amount Use a given fraction to find the whole and/or other fractions Find a percentage of a given amount using mental methods Find a percentage of a given amount using a calculator Solve problems with fractions greater than 1 and percentage greater than 100% | Use fractions in algebraic contexts | Use known facts to obtain simple proofs | Use a Venn diagram to calculate the HCF and LCM Make and test conjectures Use counterexamples to disprove a conjecture |
|---|---|---|---|---|---|---|---|

	Theme	**Proportional Reasoning**	**Representations**	**Algebraic Techniques**	**Developing Number**	**Developing Geometry**	**Representing with Data**
8	**Skills Knowledge Concept**	**Ratio and Scale**

Understanding the meaning and representation of ratio.
Understand and use ratio notation.
Solve problems involving ratios of the form 1:n or n:1
Solve proportional problems involving the ratio m:n
Divide a value into a given ratio.
Express ratios in their simplest integer form
H - Express ratios in the form 1:n
Compare ratios and related fractions.
Understand pi as the ratio between diameter and circumference.
H - Understand gradient of a line as a ratio

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

Multiplying and dividing fractions
Interpret maps using scale factors and ratio | **Working in the cartesian plane**
Work with coordinates in all four quadrants
Identify and draw lines that are parallel to the axes
Recognise and use the line y=x
Recognise and use the line y=kx
Recognise and use lines of the form y=x+a
Link y=kx to direct proportion problems
H - Explore the gradient of the line y=kx
Recognise and use lines of the form y=x+a
Explore graphs with negative gradients (y=-kx, y=a-x, x+y=a)
Link graphs to linear sequences
Plot graphs of the form y=mx+c
H - Explore non-linear graphs
H - Find the midpoint of a line segment

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 | **Brackets, equations and inequalities**
Form algebraic expressions
Use directed number with algebra
Multiply out a single bracket
Factorise into a single bracket
Expand multiple single brackets and simplify
H - Expand a pair of binomials
Solve equations, including with brackets
Form and solve equations with brackets
Understand and solve simple inequalities
Form and solve inequalities
H - Solve equations and inequalities with unknowns on both sides
H - Form and solve equations and inequalities with unknowns on both sides
Identify and use formulae, expressions, identities and equations

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

Indices
Adding and subtracting expressions with indices
Simplifying algebraic expressions by multiplying indices | **Fractions and Percentages**

Convert between decimals and percentages more than 1/100%
Percentage decrease with a multiplier
Calculate percentage increase and decrease using a multiplier
Express one number as a fraction or a percentage of another without a calculator
Express one number as a fraction or a percentage of another using calculator methods
Work with percentage change
Choose appropriate methods to solve percentage problems
H - Find the original amount given the percentage less than 100%
H - Find the original amount given the percentage more than 100%
H - Choose appropriate methods to solve complex percentage problems

Standard Index Form
Work with numbers greater than 1 in standard form
Investigate negative powers of 10 | **Angles in parallel lines and polygons**

REVIEW STEP - Understand basic angle rules and notation
Investigate angles between parallel lines and the transversal
Identify and calculate with alternate and corresponding angles
Identify and calculate with co-interior, alternate and corresponding angles
Solve complex problems with parallel line angles
Construct triangles and special quadrilaterals
Identify and calculate with sides and angles in special quadrilaterals.
H - Understand and use the properties of diagonals of quadrilaterals
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

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. | **The Data Handling Cycle**
Set up a statistical enquiry
Design and criticise questionnaires
Draw and interpret multiple bar charts
Draw and interpret pie charts
Draw and interpret line graphs
Choose the most appropriate diagram for a given set of data
Represent and interpret grouped quantitative data
Find and interpret the range
Compare distributions using charts
Identify misleading graphs

Measures of Location
Understand and use the mean, median and mode
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 |

		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	Represent data in two-way tables **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	Simplifying algebraic expressions by dividing indices Using the addition law for indices Using the addition and subtraction law H - Exploring powers of powers	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 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	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 **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)	
9	Theme	Number	Number & Algebra	Algebra/Geometry	Geometry	Statistics	Statistics
9	Foundation 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 Apply systematic Listing Strategies **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 Simplifying ratio	**Foundation Number 4** Rounding including significant figures Estimation Order of operations Writing numbers in standard form **Foundation Algebra 1** Simplifying expressions Simplifying indices Expanding single brackets Factorising single brackets Expand and simplify double brackets **Foundation Algebra 2** Using function machines Solving equations Forming equations	**Foundation Algebra 4** Drawing quadratic graphs Roots and Turning Points Simultaneous linear equations **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	**Foundation Geometry 2** Symmetries Translations Rotations Reflections Enlargements **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 Surface area of prisms Volume of a prism inc cylinder Compound units (link with ratio)	**Foundation Statistics 1** Types of data and sampling Questionnaires Frequency and Two way tables Sample space diagrams **Foundation Statistics 2** Averages and the range for listed data Averages from a table including estimating Spread **Foundation Statistics 3** Scatter graphs- include causation/correlation Pie charts Bar charts, pictograms and vertical line charts	**Foundation Statistics 4** Simple probability Mutually exclusive events Relative and Theoretical Frequency

Foundation (top row)

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

Foundation Number 3
Using place value/related calculations
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
Money problems

Solving linear inequalities inc. use of a number line
Substitution
Generating a sequence
Finding the nth term of linear sequences
Laws of indices with algebra

Foundation Algebra 3
Solve coordinate problems
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 lines

Foundation Geometry 4
Pythagoras' theorem
Calculating with column vectors

Higher Skills Knowledge Concept

Higher Number 1
Factors, Multiples and Primes
Commutative law
Evaluate Powers
Understanding Squares, Cubes and Roots, reciprocals
Product of prime factors
HCF and LCM
HCF and LCM Worded Problems

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
Percentage Worded problems
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

Higher Number 3
Equivalent Fractions
Simplification of Fractions

Higher Number 4
Order of operations
Rounding including significant figures
Estimation
Finding upper and lower bounds
Error Intervals
Calculations with upper and lower bounds
Writing numbers in standard form
Calculating with numbers in standard form

Higher Number 5
Simplifying and calculating with surds
Non-algebraic direct and inverse proportion
Algebraic direct and inverse proportion

Higher Algebra 1
Expand and simplify algebraic expressions including double and triple brackets
Factorising including quadratic
Factorise Quadratics including ax2 + bx +c
Solving linear equations
Forming equations
Solving linear inequalities

Higher Algebra 4
Drawing quadratic graphs
Solving quadratic equations by factorisation
The difference of two squares
Roots and Turning Points
Sketching quadratic graphs
Solving quadratic equations - Formula
Simultaneous linear equations

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)

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

Higher Geometry 2
Translations
Rotations
Reflections
Enlargements
Enlargement of negative scale factors
Invariant points
Transformations - Combined
Similar shapes inc fractional/negative scale factors
Using congruent triangles

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
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
Compound units (link with ratio)
Using density formula

Higher Geometry 4
Pythagoras' theorem
Pythagoras in 3D
Trigonometry - SOH CAH TOA
Exact values of Sin/Cos/Tan 0/30/45/60/90
Sine and cosine rules
Areas of triangles using 1/2absinC
Calculations with column vectors
Calculations with vectors using algebra

Higher Statistics 1
Types of data and sampling
Sample space diagrams

Higher Statistics 3
Drawing and Intepreting Pie Charts
Drawing and intepreting scatter graphs-include causation/correlation
Time Series
Cumulative frequency
Box plots
Drawing Histograms

Higher Statistics 4
Simple probability
Mutually exclusive events
Relative and Theoretical Frequency
Probability trees for independent events
Probability trees for conditional probabilities
Set notation
Putting sets into Venn diagrams

	Number	Number & Algebra	Algebra	Algebra & Geometry	Geometry	Statistics
	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	Changing the subject of a formula Rearranging formulae with factorising Laws of indices with algebra **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 **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 Graphing straight line inequalities and finding regions Solving simultaneous equations graphically Distance-time graphs Function Notation			Frequency and Two way tables Frequency Trees (link with ratio) **Higher Statistics 2** Averages and the range for listed data Reverse mean Averages from a table including estimating Problem solving with averages	
10 / Theme	Number	Number & Algebra	Algebra	Algebra & Geometry	Geometry	Statistics
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	**Foundation Number 4** Rounding including significant figures Estimation Order of operations Writing numbers in standard form Calculating with numbers in standard form Apply and interpret limits of accuracy Error Intervals Truncation **Foundation Algebra 1** Simplifying expressions Simplifying indices Expanding single brackets	**Foundation Algebra 4** Drawing quadratic graphs Roots and Turning Points Simultaneous linear equations Sketching quadratic graphs Solving quadratic equations by factorisation Solving worded simultaneous linear equations **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	**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	**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 Sample space diagrams Frequency Trees (link with ratio) **Foundation Statistics 2** Averages and the range for listed data Averages from a table including estimating	**Foundation Statistics 4** Simple probability Mutually exclusive events Relative and Theoretical Frequency Set notation Venn Diagrams Probability Trees for independent events

Find a % Increase/ decrease by a percentage inc. using a multiplier Percentage Change Simple Interest 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 Compound interest and depreciation Reverse percentages Percentage Worded problems Non-algebraic direct and inverse proportion including graphical representations **Foundation Number 3** Using place value/related calculations 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 Money problems Value for Money Multi step problems using %, fractions and ratios with standard and compound units (eg time, length, prices, area, volume, mass, speed) Fractions worded problems	Factorising single brackets Expand and simplify double brackets Factorising double brackets The difference of two squares **Foundation Algebra 2** Using function machines Solving equations Forming equations Solving linear inequalities inc. use of a number line Substitution Generating a sequence Finding the nth term of linear sequences Laws of indices with algebra Changing the subject of a formula Recognise and use fibonacci and geometric sequences **Foundation Algebra 3** Solve coordinate problems 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 lines Solving simultaneous equations graphically Sketch graphs of simple cubic and reciprocal functions Speed Distance Time Distance-time graphs	Triangle constructions inc constructing angle of 60˚ Perpendicular bisector Angle bisector Solving equations in angle and shape problems Bearings and scale drawings Loci	Surface area of prisms Volume of a prism inc cylinder Compound units (link with ratio) Surface area and volume of spheres, pyramids, cones Using density formula	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	
Higher Number 1 Factors, Multiples and Primes Commutative law Evaluate Powers Understanding Squares, Cubes and Roots, reciprocals Product of prime factors HCF and LCM HCF and LCM Worded Problems Combinations/product rule for counting Laws of indices- multiplying and dividing	**Higher Number 4** Order of operations Rounding including significant figures Estimation Finding upper and lower bounds Error Intervals Calculations with upper and lower bounds Writing numbers in standard form Calculating with numbers in standard form	**Higher Algebra 4** Drawing quadratic graphs Solving quadratic equations by factorisation The difference of two squares Roots and Turning Points Sketching quadratic graphs Solving quadratic equations - Formula Simultaneous linear equations Complete the Square and solving Proof of a quadratic expression always being positive	**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	**Higher Geometry 4** Pythagoras' theorem Pythagoras in 3D Trigonometry - SOH CAH TOA Exact values of Sin/Cos/Tan 0/30/45/60/90 Sine and cosine rules Areas of triangles using 1/2absinC Calculations with column vectors Calculations with vectors using algebra Trigonometry in 3D Vectors and ratio problems	**Higher Statistics 3** Drawing and Intepreting Pie Charts Drawing and intepreting scatter graphs-include causation/correlation Time Series Cumulative frequency Box plots Drawing Histograms Interpreting frequencies from a histogram

Laws of indices: fractional and negative

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
Percentage Worded problems
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

Higher Number 3
Equivalent Fractions
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

Truncation
Rounding to an appropriate degree of accuracy

Higher Number 5
Simplifying and calculating with surds
Non-algebraic direct and inverse proportion
Algebraic direct and inverse proportion
Expanding brackets with surds
Rationalising the denominator
Graphs of direct and inverse proportion

Higher Algebra 1
Expand and simplify algebraic expressions including double and triple brackets
Factorising including quadratic
Factorise Quadratics including $ax^2 + bx +c$
Solving linear equations
Forming equations
Solving linear inequalities
Changing the subject of a formula
Rearranging formulae with factorising
Laws of indices with algebra
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

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
Algebraic proof involving odd, even, consecutive numbers, and divisibility

Higher Algebra 3
Drawing straight line graphs from a table
Understanding y=mx+c

Solving algebraic fraction equations resulting in a quadratic
Quadratic inequalities
Matching coefficients in identities
Simultaneous equations with a quadratic

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
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

Loci
Bearings (not including trigonometry)
Using circle theorems
Proving circle theorems

Higher Geometry 2
Translations
Rotations
Reflections
Enlargements
Enlargement of negative scale factors
Invariant points
Transformations - Combined
Similar shapes inc fractional/negative scale factors
Using congruent triangles
Similar shapes- area and volume scale factor problems
Proving triangles are congruent

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
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
Compound units (link with ratio)
Using density formula
Problem solving with density
Rate of change/flow with volume

Proving vectors are parallel or form a straight line

Higher Statistics 1
Types of data and sampling
Sample space diagrams
Frequency and Two way tables
Frequency Trees (link with ratio)

Higher Statistics 2
Averages and the range for listed data
Reverse mean
Averages from a table including estimating
Problem solving with averages

Finding averages and quartiles from a histogram

Higher Statistics 4
Simple probability
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
Probability "and" and "or" questions

			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 Graphing straight line inequalities and finding regions Solving simultaneous equations graphically Distance-time graphs Function Notation Velocity-time graphs Inverse Functions Composite Functions				
11	Theme	Number	Algebra	Geometry	Statistics	Revision Topics	Revision Topics
11	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 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 Compound interest and depreciation Reverse percentages Percentage Worded problems	**Foundation Algebra 2** Using function machines Solving equations Forming equations Solving linear inequalities inc. use of a number line Substitution Generating a sequence Finding the nth term of linear sequences Laws of indices with algebra Changing the subject of a formula Recognise and use fibonacci and geometric sequences **Foundation Algebra 3** Solve coordinate problems 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 lines Solving simultaneous equations graphically Sketch graphs of simple cubic and reciprocal functions Speed Distance Time Distance-time graphs **Foundation Algebra 4** Drawing quadratic graphs Roots and Turning Points	**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 and scale drawings 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 Surface area of prisms	**Foundation Statistics 1** Types of data and sampling Questionnaires Frequency and Two way tables Sample space diagrams 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 Set notation Venn Diagrams Probability Trees for independent events	The focus is on Exam preparation which includes key exam topics, bespoke revision materials and exam paper practice.	

		Non-algebraic direct and inverse proportion including graphical representations	Simultaneous linear equations Sketching quadratic graphs Solving quadratic equations by factorisation Solving worded simultaneous linear equations	Volume of a prism inc cylinder Compound units (link with ratio) Surface area and volume of spheres, pyramids, cones Using density formula			
		Foundation Number 3 Using place value/related calculations 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 Money problems Value for Money Multi step problems using %, fractions and ratios with standard and compound units (eg time, length, prices, area, volume, mass, speed) Fractions worded problems		**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 Number 4 Rounding including significant figures Estimation Order of operations Writing numbers in standard form Calculating with numbers in standard form Apply and interpret limits of accuracy Error Intervals Truncation					
		Foundation Algebra 1 Simplifying expressions Simplifying indices Expanding single brackets Factorising single brackets Expand and simplify double brackets Factorising double brackets The difference of two squares					
		Higher Number 1 Factors, Multiples and Primes Commutative law Evaluate Powers	**Higher Number 5** Simplifying and calculating with surds	**Higher Algebra 4** Drawing quadratic graphs Solving quadratic equations by factorisation	**Higher Geometry 4** Pythagoras' theorem Pythagoras in 3D	The focus is on Exam preparation which includes key exam topics, bespoke revision	

Understanding Squares, Cubes and Roots, reciprocals Product of prime factors HCF and LCM HCF and LCM Worded Problems Combinations/product rule for counting Laws of indices- multiplying and dividing Laws of indices: fractional and negative **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 Percentage Worded problems 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 **Higher Number 3** Equivalent Fractions 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 **Higher Number 4** Order of operations	Non-algebraic direct and inverse proportion Algebraic direct and inverse proportion Expanding brackets with surds Rationalising the denominator Graphs of direct and inverse proportion **Higher Algebra 1** Expand and simplify algebraic expressions including double and triple brackets Factorising including quadratic Factorise Quadratics including ax2 + bx +c Solving linear equations Forming equations Solving linear inequalities Changing the subject of a formula Rearranging formulae with factorising Laws of indices with algebra 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 **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 Algebraic proof involving odd, even, consecutive numbers, and divisibility **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	The difference of two squares Roots and Turning Points Sketching quadratic graphs Solving quadratic equations - Formula Simultaneous linear equations Complete the Square and solving Proof of a quadratic expression always being positive Solving algebraic fraction equations resulting in a quadratic Quadratic inequalities Matching coefficients in identities Simultaneous equations with a quadratic **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 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 **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 **Higher Geometry 2** Translations Rotations Reflections	Trigonometry - SOH CAH TOA Exact values of Sin/Cos/Tan 0/30/45/60/90 Sine and cosine rules Areas of triangles using 1/2absinC Calculations with column vectors Calculations with vectors using algebra Trigonometry in 3D Vectors and ratio problems Proving vectors are parallel or form a straight line **Higher Statistics 1** Types of data and sampling Sample space diagrams Frequency and Two way tables Frequency Trees (link with ratio) **Higher Statistics 2** Averages and the range for listed data Reverse mean Averages from a table including estimating Problem solving with averages **Higher Statistics 3** Drawing and Intepreting Pie Charts Drawing and intepreting scatter graphs-include causation/correlation Time Series Cumulative frequency Box plots Drawing Histograms Interpreting frequencies from a histogram Finding averages and quartiles from a histogram **Higher Statistics 4** Simple probability Mutually exclusive events Relative and Theoretical Frequency Probability trees for independent events Probability trees for conditional probabilities	materials and exam paper practice.	

		Rounding including significant figures Estimation Finding upper and lower bounds Error Intervals Calculations with upper and lower bounds Writing numbers in standard form Calculating with numbers in standard form Truncation Rounding to an appropriate degree of accuracy	Parallel and perpendicular gradients Graphing straight line inequalities and finding regions Solving simultaneous equations graphically Distance-time graphs Function Notation Velocity-time graphs Inverse Functions Composite Functions	Enlargements Enlargement of negative scale factors Invariant points Transformations - Combined Similar shapes inc fractional/negative scale factors Using congruent triangles Similar shapes- area and volume scale factor problems Proving triangles are congruent **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 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 Compound units (link with ratio) Using density formula Problem solving with density Rate of change/flow with volume	Set notation Putting sets into Venn diagrams Probability in Venn diagrams including conditional probabilities Probability trees with algebra Probability "and" and "or" questions		
Wider Curriculum						