Maths Year 9 Curriculum Map

	Autumn Term			
Y9	**Topic Title:** Autumn Unit 1 Integers, Indices, rounding and estimation **Big Question:** How do I use the four operations with Integers? How do I use powers and roots? What is standard form? Why and how do we use standard form? How do I use place value to help round numbers? How do I approximate and estimate accurately?	**Topic Title:** Autumn Unit 2 Factors and Multiples **Big Question:** How do I use different types of numbers in problems? How do I follow order of operations for combined arithmetic operations?	**Topic Title:** Autumn Unit 3 Expressions and Formulae **Big Question:** What are algebraic expressions?	**Topic Title:** Autumn Unit 4 Equations and inequalities **Big Question:** How do I use inverse operations to solve algebraic equations? How do I use inverse operations to solve algebraic inequalities?
Links to NC	Use the four operations, including formal written methods, applied to integers, decimals, for all both positive and negative integers Calculate with roots, and with integer {and fractional} indices Interpret and compare numbers in standard form A x 10^n 1≤A Round numbers and measures to an appropriate degree of accuracy Use approximation through rounding to estimate answers	Use the concepts and vocabulary of prime numbers, factors (or divisors), multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation property. Order of operations	Understand and use the concepts and vocabulary of expressions, equations, inequalities, terms and factors, simplify and manipulate algebraic expressions to maintain equivalence by: ☐ collecting like terms ☐ multiplying a single term over a bracket ☐ taking out common factors ☐ expanding products of two or more binomials ☐ Substitute numerical values into formulae and expressions, including scientific formulae.	Use algebraic methods to solve linear equations and inequalities in one variable (including all forms that require rearrangement)
Assessments	CFU Four operations and standard form	CFU HCF/LCM/PPF and order of operations.	CFU Algebraic expressions and formulae	CFU linear equations and inequalities.

Maths Year 9 Curriculum Map

	Autumn Term			
	Topic Title: Autumn Unit 5 Angles **Big Question:** What are the correct conventions, notation and terms? How do I apply angle facts to a variety of problems? What are the properties of polygons?	**Topic Title:** Autumn Unit 6a/b Fractions and Decimals **Big Question:** How do I use the four operations with fractions? How do I change between fractions, decimals and percentages? How do I use symbols when ordering fractions, decimals and percentages? How do I use four operations with decimal?	**Topic Title:** Autumn Unit 7a Theoretical and Experimental Probability **Big Question:** What are basic probability and probability experiments? What are combined events and probability diagrams?	**Topic Title:** Autumn Unit 8 2D and 3D Shapes **Big Question:** What are the correct conventions, notation and terms? What are three-dimensional shapes?
Links to NC	Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles understand and use the relationship between parallel lines and alternate and corresponding angles derive and use the sum of angles in a triangle.	Use the four operations, including formal written methods, applied to decimals, proper and improper fractions, and mixed numbers, all both positive and negative.	Record, describe and analyse the frequency of outcomes of simple probability experiments involving randomness, fairness, equally and unequally likely outcomes, using appropriate language and the 0-1 probability scale, understand that the probabilities of all possible outcomes sum to 1, enumerate sets and unions/intersections of sets systematically, using tables, grids and Venn diagrams, generate theoretical sample spaces for single and combined events with equally likely, mutually exclusive outcomes and use these to calculate theoretical probabilities.	Know and use the terms for 2D and 3D shapes: Know and use the terms face, surface, edge, vertex and planes. Recognise and know the properties of the cube, cuboid, prism, cylinder, pyramid, cone and sphere.
Assessments	CFU Geometric conventions and angle problems in a variety of context.	CFU Four operations with fractions and decimals	CFU Probability.	CFU 2D and 3D shapes. End of term assessment covering previous topics.

Maths Year 9 Curriculum Map

	Spring Term		
Y9	Topic Title: Spring Unit 1 Functions and Sequences Big Question: What is the language of functions? How do I recognise, use and manipulate algebraic formulae? What are the different types of sequences?	Topic Title: Spring Unit 2 Graphs and Gradients Big Question: What are do graphs of equations and functions look like? How do I recognise straight line graphs?	Topic Title: Spring Unit 3 Ratio and Proportion Big Question: How do I link fractions with ratio? How do I apply calculations with ratio to recipes?
Links to NC	Where appropriate, interpret simple expressions as functions with inputs and outputs; {interpret the reverse process as the 'inverse function'; interpret the succession of two functions as a 'composite function'} recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions (r n where n is an integer, and r is a positive rational number {or a surd}) {and other sequences} deduce expressions to calculate the nth term	Recognise, sketch and interpret graphs of linear functions, quadratic functions.	Use ratio notation, including reduction to simplest form divide a given quantity into two parts in a given part:part or part:whole ratio; express the division of a quantity into two parts as a ratio understand that a multiplicative relationship between two quantities can be expressed as a ratio or a fraction.
Assessments	CFU Functions, formulae and sequences.	CFU Linear graphs	CFU Ratio, total amount, given one part, difference and recipes.

Maths Year 9 Curriculum Map

	Spring Term		
	Topic Title: Spring Unit 4 Transformations **Big Question:** What are plane isometric transformations? What is similarity?	**Topic Title:** Spring Unit 5 Percentages **Big Question:** How do I express one number as a percentage? How do I calculate a percentage of an amount? How do I increase and decrease and amount by a percentage? How do I recognise a percentage change and then find the original amount? How do I link discrete growth and decay in real life context?	**Topic Title:** Spring Unit 6 Angles in Polygons **Big Question:** What are the properties of polygons? How do I apply angle facts to a variety of problems?
Links to NC	Identify properties of, and describe the results of, translations, rotations enlargements and reflections applied to given figures.	Define percentage as 'number of parts per hundred', interpret percentages and percentage changes as a fraction or a decimal, interpret these multiplicatively, express one quantity as a percentage of another, compare two quantities using percentages, and work with percentages greater than 100%. Set up, solve and interpret the answers in growth and decay problems, including compound interest.	Derive and use the sum of angles in a triangle and use it to deduce the angle sum in any polygon, and to derive properties of regular polygons.
Assessments	CFU Translations, reflections, rotations and enlargements.	CFU Percentage of amounts with calculators and without. Compound interest and decay.	CFU Angles in polygons. End of term assessment on previously covered topics.

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	Summer Term			
Y9	Topic Title: Summer Unit 1 Perimeter, Area and Volume Big Question: How do I convert between different units and measurement? How do I use the formulae for perimeter, area, and volume? How do I link volume and surface area calculations to area of 2d shapes?	Topic Title: Summer Unit 2 Direct and Inverse Proportion Big Question: What is direct and inverse proportion? How do you interpret graphs?	Topic Title: Summer Unit 3 Congruent and Similar Shapes Big Question: What is congruence? What is similarity?	Topic Title: Summer Unit 4 Compound Units Big Question: How do I use units and measurement for compound measurements?
Links to NC	Derive and apply formulae to calculate and solve problems involving perimeter and area of triangles, parallelograms, trapezia. Including surface area.	Solve problems involving direct and inverse proportion, including graphical and algebraic representations	Apply the concepts of congruence and similarity, including the relationships between lengths, {areas and volumes} in similar figures	Use compound units such as speed, unit pricing and density to solve problems.
Assessments	CFU Area, volume and perimeter	CFU Direct and inverse proportion	CFU Congruence and similarity.	CFU Speed, distance and time. Density, mass and volume.

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	Summer Term			
	Topic Title: Summer Unit 5 Pythagoras and Trigonometry Big Question: What is triangle mensuration?	Topic Title: Summer Unit 6 Circles and Cylinders Big Question: How do I define a circle and its parts? How do I use the formulae for perimeter, area, and volume?	Topic Title: Summer Unit 7 Charts and Averages Big Question: How do I interpret and represent data? How do I calculate and measure of central tendency? How do I analyse data?	Topic Title: Summer Unit 8 Bearings and Scale Diagrams Big Question: How do I use bearings and Scale Diagrams? What are the correct conventions, notation and terms for geometry?
Links to NC	Use Pythagoras' Theorem and trigonometric ratios in similar triangles to solve problems involving right-angled triangles	Calculate and solve problems involving perimeters of 2-D shapes (including circles), areas of circles and composite shapes, Calculate volume of cuboids (including cubes) and other prisms (including cylinders) Calculate surface area of 3-D shapes.	Construct and interpret appropriate tables, charts, and diagrams, including frequency tables, bar charts, pie charts, and pictograms for categorical data, and vertical line (or bar) charts for ungrouped and grouped numerical data, describe, interpret and compare observed distributions of a single variable through: appropriate graphical representation involving discrete, continuous and grouped data; and appropriate measures of central tendency (mean, mode, median) and spread (range, consideration of outliers)	Interpret and use bearings and use scale factors, scale diagrams and maps. Construct triangles, bisectors and perpendicular bisectors.
Assessments	CFU Pythagoras' theorem.	CFU Applying formulae to 2D and 3D shapes.	CFU Representing data, calculating measures of central tendency.	CFU, Scale drawings and bearings. End of year assessments, two papers, one calculator and one non calculator.