



MATHS Y10 - CURRICULUM PLANNING SEQUENCE

Subject	Year	Term	Big	Topics	Subject Learning Checklist			
Maths	Year 10	Term 1 - 63hrs	Algebra	Basic (Intro) Algebra (revision)	A1	Use and interpret algebraic notation, including: coefficients written as fractions rather than as decimal, brackets, it is expected that answers will be		
					N3	Use conventional notation for priority of operations, including brackets, powers, roots and reciprocals		
					A3	Understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors this will be implicitly		
					A4/A4H	Simplify and manipulate algebraic expressions (including those involving surds) by: collecting like terms, multiplying a single term over a bracket,		
					A5	Understand and use standard mathematical formulae, rearrange formulae to change the subject including use of formulae from other subjects in		
				Solving Equations R	A2	Substitute numerical values into formulae and expressions, including scientific formulae		
					A17	Solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation); find approximate solutions		
					Simultaneous Equations R	A19/A19H	Solve two simultaneous equations in two variables (linear / linear or linear/quadratic) algebraically. Find approximate solutions using a graph.	
						A21	Translate simple situations or procedures into algebraic expressions or formulae. Derive two simultaneous equations. Solve the equations and	
					Rearranging formulae R	A6/A6H	Know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to	
			A5	Understand and use mathematical formulae; rearrange formulae to change the subject				
			A7	Where appropriate, interpret simple expressions as functions with inputs and outputs.				
			Algebraic fractions					
				Inequalities	A22	Solve linear inequalities in one variable; represent the solution set on a number line.		
			Data	Statistical Measure R	A22H	Solve linear inequalities in one or two variables and quadratic inequalities in one variable; represent the solution set on a number line, using set		
					S4	Interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: appropriate measures of central		
					S5	Apply statistics to describe a population.		
					S1	Infer properties of populations or distributions from a sample, whilst knowing the limitations of sampling.		
					S3	Construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class		
					S4	Interpret, analyse and compare distributions of data sets from univariate empirical distributions through appropriate graphical representation		
					S6	Draw estimated lines of best fit. Make predictions. Interpolate and extrapolate apparent trends whilst knowing the dangers of doing so.		
					G5	Use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)		
					Shape and Space	Congruence and similarity	G6	Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including
							G19	Apply the concepts of congruence and similarity, including the relationship between lengths in similar figures.
			Angles R	G1		Use conventional terms and notations: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular		
				G3		Apply the properties of angles at a point, angles at a point on a straight line, vertically opposite angles. Understand and use alternate and		
			Angles in polygons R	G3		Derive and use the sum of angles in a triangle (e.g. to deduce and use the angle sum in any polygon, and to derive properties of regular polygons).		
			Circle Theorems	G4	Derive and apply the properties and definitions of: special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and			
			Number	Types of Number	N4	Use the concepts and vocabulary of prime numbers, factors (divisors), multiples, common factors, common multiples, highest common factor,		
				FDP	N5	Apply systematic listing strategies and the use of the product rule for counting including using lists, tables and diagrams.		
		(percentages)		R9	Define percentage as 'number of parts per hundred'. Interpret percentages and percentage changes as a fraction or decimal and interpret these			
		Surds		N12	Interpret fractions and percentages as operators			
		Standard Form		N7	Calculate with roots and with integer and fractional indices			
				N8	Calculate exactly with fractions, and multiples of \square			
		Shape and Space	Trigonometry R	N8H	Calculate exactly with fractions, and multiples of \square, surds. Simplify surd expressions involving squares			
				N2	Understand and use place value (e.g. when working with very large or very small numbers) including questions in context.			
				N9	Calculate with and interpret standard form; where $a \times 10^n$ and nn is an integer $1 \leq a < 10$ with and without a calculator, and			
				S2	Interpret and construct tables, charts and diagrams including, for categorical data: frequency tables, bar charts, pie charts, pictograms, vertical line			
				S4	Interpret, analyse and compare distributions of data sets from univariate empirical distributions through appropriate graphical representation			
				S3/S3H	Construct and interpret diagrams for grouped discrete data and continuous data, i.e. histograms with equal and unequal class			
				G20	Know the formula for Pythagoras' Theorem $a^2+b^2=c^2$ and $a^2+b^2+c^2=d^2$			
					Apply it to find angles and lengths in right angled triangles and, where possible, general triangles in two and three dimensional figures			
					Know and use the trigonometric ratios (SOHCAHTOA).			
				G21	Know the exact values of 0° , 30° , 45° , 60° and 90°			
		G22H	Know and apply the sine rule, cosine rule, to find unknown lengths and angles.					
		G6	Apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides including					
		R12	Compare lengths using ratio notation; make links to trigonometric ratios					
		Transformations	G7/G7H	Identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and				
			G8H	Describe the changes and invariance achieved by combinations of rotations, reflections and translations				
		Vectors	G24	Describe translations as 2D vectors				
		Algebra	Coordinates & linear graphs	A8	Work with co-ordinates in all four quadrants			
				G11	Solve geometrical problems on co-ordinate axes			
				A9	Plot graphs of equations that correspond to straight line graphs in the co-ordinate plane. Use the $y = mx + c$ to identify parallel			
				A10	Identify and interpret gradients and intercepts of linear functions graphically and algebraically			
				A12	Recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions and the reciprocal function.			
		Sketching graphs (quadratic)	A11	Identify and interpret roots, intercepts, and turning points of quadratic functions graphically; deduce roots algebraically				
			A18	Solve quadratic equations algebraically by factorising; find appropriate solutions using a graph.				
		Solving quadratic equations						
			Real life graphs	A14/A14H	Plot and interpret graphs (including reciprocal graphs) and graphs of non-standard functions in real contexts, to find approximate solutions to problems such as simple kinematic problems involving distance, speed and acceleration.			
		Shape and Space	Measure	A15H	Calculate or estimate gradients of graphs and areas under graphs (including quadratic and other non-linear graphs), and interpret results in cases			
				N16	Apply and interpret limits of accuracy including upper and lower bounds			
				G14	Use standard units of measure and related concepts (length, area, volume / capacity, mass, time, money etc)			
			Perimeter and area R	N13	Use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where			
				R1	Change freely between related standard units (eg time, length, area, volume/capacity, mass) and compound units (eg speed, rates of pay, prices,			
				R11	Use compound units such as speed, rates of pay, unit pricing, density and pressure			
		Number	Numerical Methods.	G12	Identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres. Understand that			
				G16	Know and apply formulae to calculate area of: triangles, parallelograms; trapeziums, compound shapes, area of shapes on a grid. Work out surface			
					Extension; Find the surface area of pyramids composite shapes			
				G17	Calculate the perimeter of a 2D shapes and composite shapes			
				A20	Find approximate solutions to equations numerically using iteration including the use of suffix notation in recursive formulae.			
			Rounding	N1	Apply the four operations, including formal written methods, to decimals – both positive and negative.			
				N2	Apply the four operations, including formal written methods, to simple fractions (proper and improper) and mixed numbers - both positive and			
				N8	Calculate exactly with fractions			
				N15	Round numbers and measures to an appropriate degree of accuracy (eg to a specified number of decimal places or significant figures); use			
				N16	Apply and interpret limits of accuracy including upper and lower bounds			
		Ratio	Proportion	R9	Define percentage as 'number of parts per hundred'. Interpret percentages and percentage changes as a fraction or decimal and interpret these			
				R10	Solve problems involving direct and inverse proportion, including graphical and algebraic representations			
				R11	Use compound units such as speed, rates of pay, unit pricing, density and pressure			
				R12	Compare lengths, areas and volumes using ratio notation; make links to similarity (including trigonometric ratios) and scale factors			
				R13/R13H	Understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y; interpret equations that describe direct and inverse			
				R14	Interpret the gradient of a straight line graph as a rate of change; recognise and interpret graphs that illustrate direct and inverse proportion			
				R15/R15H	Interpret the gradient at a point on a curve as the instantaneous rate of change; apply the concepts of average and instantaneous rate of change (gradients of chords and tangents) in numerical, algebraic and graphical contexts			
				R16/R16H	Set up, solve and interpret the answers in growth and decay problems, including compound interest and work with general iterative processes			
				Shape and Space	Construction and loci	G2	Use the standard ruler and compass constructions (perpendicular bisector of a line segment, constructing a perpendicular to a given line from / at a given point, bisecting a given angle); use these to construct given figures and solve loci problems; know that the perpendicular distance from a point to a line is the shortest distance to the line.	
						R9	Define percentage as 'number of parts per hundred'. Interpret percentages and percentage changes as a fraction or decimal and interpret these	
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		R16/R16H	Set up, solve and interpret the answers in growth and decay problems, including compound interest and work with general iterative processes					
		Ratio	Gradients and Rates of change			P1	Record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees. Probabilities should be written as fractions, decimals or percentages.	
				P4	Apply the property that the probabilities of an exhaustive set of outcomes sum to 1. Apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to 1.			
				P7	Construct theoretical possibility spaces for single and combined experiments with equally likely outcomes and use these to calculate theoretical probabilities			
				P2	Apply ideas of randomness, fairness and equally likely events to calculate expected outcomes or multiple future experiments			
				P3	Relate relative expected frequencies to theoretical probability, using appropriate language and the 0 – 1 probability scale			
				P5	Understand that empirical unbiased samples tend towards theoretical probability distributions with increasing sample size			
				P6	Enumerate sets and combinations of sets systematically, using tables, grids, Venn diagrams and tree diagrams			
				P8	Calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions. Know when to add and when to multiply two or more probabilities.			
P9	Calculate and interpret conditional probabilities through representation using expected frequencies with two-way tables, tree diagrams and Venn diagrams							