

Mathematics GCSE 9-1 Curriculum Planner (3 Year Course)

Year 9

AUTUMN TERM																	
Week	1	2	3	4	5	6	7	8	HT	9	10	11	12	13	14	15	
	Chapter 1 Calculations		Chapter 2 Expressions			Ch 1, 2 Test	Chapter 3 Angles, polygons				Chapter 3	Chapter 4 Handling data	Chapter 5 Fractions, dec, %		Ch 3-5 Test	Algebra	
SPRING TERM																	
Week	1	2	3	4	5	6	HT	7	8	9	10	11	12				
	Algebra – Changing subject, functions, two brackets			Pythagoras/Trig				Chapter 7 Working in 2D			Chapter 8 Probability		Pythag/trig Ch7,8 test				
SUMMER TERM																	
Week	1	2	3	4	5	HT	6	7	8	9	10	11	12	13			
	Chapter 9 (sect 9.3) bounds		Revision	Exam	Review		Ch 9 (sect 9.1, 9.2)	Chapter 6 Formulae and functions									

Year 10

AUTUMN TERM																	
Week	1	2	3	4	5	6	7	8	HT	9	10	11	12	13	14	15	
	Ch 10 - Equations and inequalities							Ch 6, 10 test		Chapter 11 Circles and loci				Chapter 12 Ratio and proportion		Ch 11 and 12 test	
SPRING TERM																	
Week	1	2	3	4	5	6	HT	7	8	9	10	11	12	13	14	15	
	Chapter 13 Factors powers and roots			Chapter 14 Graphs				Chapter 14 continued		Year 10 exam revision			Year 10 exam		Exam Review		
SUMMER TERM																	
Week	1	2	3	4	5	HT	6	7	8	9	10	11	12	13			
	Chapter 15 Working in 3D			Chapter 16 Handling data			Chapter 16 continued		Chapter 15, 16 test		Activities and projects						

Year 11

AUTUMN TERM																	
Week	1	2	3	4	5	6	7	8	HT	9	10	11	12	13	14	15	
	Chapter 17 Calculations		Chapter 18 Graphs			Chapter 19 Pythag and trig				Chapter 19 (cont)	PRELIM REVISION	PRELIM EXAMS	Exam Review	Chapter 20 Probability			
SPRING TERM																	
Week	1	2	3	4	5	6	HT	7	8	9	10	11	12				
	Chapter 20		Chapter 21 Sequences		Chapter 22 Proportion			Revision/practice papers									

	Topics covered
<p>Chapter 1 Calculations 1</p> <p>Chapter 2 Expressions</p> <p>Chapter 3 Angles and polygons</p>	<ul style="list-style-type: none"> • Order positive and negative integers and decimals. • Apply the four operations (+, -, ×, ÷), including formal written methods, to integers and decimals. • Round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures). • Use BIDMAS to complete calculations in the correct order. • Use algebraic notation and simplify expressions by collecting like terms. • Substitute numbers into formulae and expressions. • Use the laws of indices. • Factorise an expression. • Multiply out single brackets. • Simplify algebraic fractions and carry out arithmetic operations with algebraic fractions. • Use angle facts including at a point, on a line, at an intersection and for parallel lines. • Use bearings to specify directions. • Identify types of triangle and quadrilateral and use their properties. • Identify congruent shapes and use congruence to prove geometric results. • Identify similar shapes and use similarity to find lengths and areas and volumes. • Calculate the properties of polygons including interior and exterior angles for regular polygons.
<p>Chapter 4 Handling Data 1</p> <p>Chapter 5 Fractions, decimals and Percentages</p> <p>Chapter 6 Formulae and Functions</p>	<ul style="list-style-type: none"> • Construct and interpret two-way tables, bar charts and pie charts. • Calculate the mean, median, mode, range and IQR of a data set. • Use averages and measures of spread to compare data sets. • Use frequency tables to represent grouped data. • Construct and interpret histograms. • Find fractions and percentages of amounts. • Add, subtract, multiply and divide with fractions and mixed numbers. • Convert between fractions, decimals (including recurring decimals) and percentages. • Order fractions, decimals and percentages • Substitute values into formulae and rearrange formulae to change their subject. • Write an equation to represent a function and find input and outputs. Find the inverse of a function and construct and use composite functions. • Use the terms expression, equation, formula, identity, inequality, term and factor. • Construct proof of simple statements using algebra. • Expand double brackets and factorise quadratics into brackets.
<p>Chapter 7 Working in 2D</p>	<ul style="list-style-type: none"> • Measure line segments and angles accurately. • Use scale drawings and bearings. • Calculate the areas of triangles, parallelograms, trapezia and composite shapes. • Describe and transform shapes using reflections, rotations, translations (described using 2d vectors) and enlargements (including

<p>Chapter 8 Probability</p> <p>Chapter 9 Measures and Accuracy</p>	<p>fractional and negative scale factors).</p> <ul style="list-style-type: none"> • Identify what changes and what is invariant under a combination of transformations. • Use experimental data to estimate probabilities of future events. • Calculate theoretical probabilities using the idea of equally likely events. • Compare theoretical probabilities with experimental probabilities. • Understand mutually exclusive and exhaustive events. • Use approximate values to estimate calculations. • Use an estimate to check an answer obtained using a calculator. • Solve problems involving compound units - speed and density. • Work out the upper and lower bounds for a value that has been rounded.
<p>Chapter 10 Equations and Inequalities</p> <p>Chapter 11 Circles and Constructions</p> <p>Chapter 12 Ratio and Proportion</p>	<ul style="list-style-type: none"> • Solve linear equations including unknowns on both sides, including using a graph. • Solve quadratic equations using factorising, completing the square and the quadratic formula. • Solve a pair of linear or linear plus quadratic simultaneous equations • Use iterative processes to find approximate solutions to equations. • Solve inequalities and display your solution on a number line or graph. • Find the area and circumference of a circle and compound shapes involving circles. • Calculate arc lengths, angles and areas of sectors. • Prove and apply Circle Theorems. • Use standard ruler and compass constructions and solve problems involving loci. • Express proportions of amounts as fractions or percentages. • Divide a quantity into a given ratio. • Use scale factors to convert between lengths on maps and scale diagrams and the distances they represent. • Calculate percentage increases and decreases using multiplication. • Find the original value of a quantity that has undergone a percentage increases or decrease.
<p>Chapter 13 Factors, powers and roots</p> <p>Chapter 14 Graphs 1</p> <p>Chapter 15 Working in 3D</p>	<ul style="list-style-type: none"> • Know and use the language of prime numbers, factors and multiples. • Write a number as the product of its prime factors. • Find the HCF and LCM of a pair of integers. • Estimate the square or cube root of an integer. • Find square and cube roots of numbers and apply the laws of indices. • Simplify expressions involving surds including rationalising fractions. • Find and interpret the gradient and y-intercept of a line and relate these to the equation $y = mx + c$. • Identify parallel and perpendicular lines using their equations.. • Draw line graphs and quadratic curves. • Identify roots, intercepts and turning points of quadratic curves using graphical and algebraic methods.. • Use kinematic graphs to solve problems involving distance, speed and acceleration. 3D Trigonometry • Draw and interpret plans and elevations of 3D shapes.

	<ul style="list-style-type: none"> • Calculate the volume of cuboids and right prisms. • Know the surface area and volume of spheres, pyramids, cones and composite shapes. • Know and apply the relationship between lengths, areas and volumes of similar shapes.
<p>Chapter 16 Handling Data 2</p> <p>Chapter 17 Calculations 2</p> <p>Chapter 18 Graphs 2</p>	<ul style="list-style-type: none"> • Calculate summary statistics from a grouped frequency table. • Construct and interpret cumulative frequency curve and box plots • Plot scatter graphs and recognise correlation. • Use tables and line graphs to represent time series data. • Perform calculations involving roots and indices, including negative and fractional indices. • Perform exact calculations involving fractions, surds and π. • Work with numbers in standard form. • Recognise and draw graphs of cubic, reciprocal and exponential functions. • Recognise and sketch the graphs of trigonometric functions. • Recognise and sketch translations and reflections of graphs • Draw and interpret graphs of non-standard functions and use them in real-life problems. • Approximate the gradient of a curve at a given point and the area under a graph. • Recognise and use simple equations of circles and find the tangent to a circle at a given point.
<p>Chapter 19 Pythagoras, Trigonometry and Vectors</p> <p>Chapter 20 The probability of combined events</p> <p>Chapter 21 Sequences</p>	<ul style="list-style-type: none"> • Use Pythagoras' theorem to find a missing side in a right-angled triangle or the length of a line segment on a coordinate grid. • Use Trigonometric ratios to find missing lengths and angles in triangles. • Find the exact values of $\sin\theta$ $\cos\theta$ and $\tan\theta$ for key angles. • Use the sine and cosine rules to find missing side lengths and angles. • Use the sine formula for the area of a triangle. • Calculate with vectors and use them for geometric proofs. • Use Venn diagrams to represent sets. • Use a possibility space to represent the outcomes of two experiments and to calculate probabilities. • Use tree diagrams and frequency trees to show the outcomes of two experiments. • Calculate conditional probabilities. • Find terms of a linear sequence using a term-to-term or position-to-term rule. • Find terms of a quadratic sequence using a term-to-term or position-to-term rule.

- Recognise special types of sequence and find terms using a term-to-term or position-to-term rule.

Chapter 22
Units and Proportionality

- Convert between standard units of measure and compound units.
- Use compound measures.
- Compare lengths, areas and volumes of similar shapes.
- Solve direct and inverse proportion problems.
- Describe direct and inverse proportion relationships using an equation.
- Recognise graphs showing direct and inverse proportion and interpret the gradient of a straight line graph.
- Find the instantaneous and average rate of change from a graph.
- Solve repeated proportion change problems.