AQA GCSE (Foundation) 8300 (9-1) Specification map

Number		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
N1	order positive and negative integers, decimals and fractions; use the symbols =, ≠, <, >, ≤, ≥	●			●		●																			
N2	apply the four operations, including formal written methods, to integers, decimals and simple fractions (proper and improper), and mixed numbers – all both positive and negative; understand and use place value (e.g. when working with very large or very small numbers, and when calculating with decimals)	●			●		●																			
N3	recognise and use relationships between operations, including inverse operations (e.g. cancellation to simplify calculations and expressions); use conventional notation for priority of operations, including brackets, powers, roots and reciprocals	●																								
N4	use the concepts and vocabulary of prime numbers, factors, multiples, common factors, common multiples, highest common factor, lowest common multiple, prime factorisation, including using product notation and the unique factorisation theorem		●																							
N5	apply systematic listing strategies									●																
N6	use positive integer powers and associated real roots (square, cube and higher), recognise powers of 2, 3, 4, 5		●																							
N7	calculate with roots, and with integer indices		●															○								
N8	calculate exactly with fractions and multiples of π		■				●																			
N9	calculate with and interpret standard form $A \times 10^n$, where $1 \leq A < 10$ and n is an integer																●									
N10	work interchangeably with terminating decimals and their corresponding fractions (such as 3.5 and 7/2 or 0.375 or 3/8)								●																●	
N11	identify and work with fractions in ratio problems										●															
N12	interpret fractions and percentages as operators								●								○									
N13	use standard units of mass, length, time, money and other measures (including standard compound measures) using decimal quantities where appropriate					●								●			○					●			○	
N14	estimate answers; check calculations using approximation and estimation, including answers obtained using technology				●	●																				
N15	round numbers and measures to an appropriate degree of accuracy (e.g. to a specified number of decimal places or significant figures); use inequality notation to specify simple error intervals due to truncation or rounding				●	●																				●
N16	apply and interpret limits of accuracy																									●

AQA GCSE (Foundation) 8300 (9-1) Specification map

Algebra

		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
A1	use and interpret algebraic manipulation, including: • ab in place of a × b • 3y in place of y + y + y and 3 × y • a^2 in place of a × a, a^3 in place of a × a × a, a^2b in place of a × a × b • a/b in place of a ÷ b • coefficients written as fractions rather than as decimals • brackets			●																						
A2	substitute numerical values into formulae and expressions, including scientific formulae			●																						
A3	understand and use the concepts and vocabulary of expressions, equations, formulae, identities, inequalities, terms and factors			●																						
A4	simplify and manipulate algebraic expressions (including those involving surds) by: • collecting like terms • multiplying a single term over a bracket • taking out common factors • expanding products of two binomials • factorising quadratic expressions of the form x2 + bx + c, including the difference of two squares; • simplifying expressions involving sums, products and powers, and the laws of indices			●																●						
A5	understand and use standard mathematical formulae; rearrange formulae to change the subject			●		○										○			○					○		●
A6	know the difference between an equation and an identity; argue mathematically to show algebraic expressions are equivalent, and use algebra to support and construct arguments																			●						
A7	where appropriate, interpret simple expressions as functions with inputs and outputs.			●									●													
A8	work with coordinates in all four quadrants							●								●										
A9	plot graphs of equations that correspond to straight-line graphs in the coordinate plane; use the form y = mx + c to identify parallel lines; find the equation of the line through two given points or through one point with a given gradient							●																		
A10	identify and interpret gradients and intercepts of linear functions graphically and algebraically							●										●								
A11	identify and interpret roots, intercepts, turning points of quadratic functions graphically; deduce roots algebraically																	●								●

AQA GCSE (Foundation) 8300 (9-1) Specification map

Algebra

		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
A12	recognise, sketch and interpret graphs of linear functions, quadratic functions, simple cubic functions, the reciprocal function y = 1/ x with x ≠ 0							●										●								
A13	Higher only																									
A14	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													●				●							●	
A15	Higher only																									
A16	Higher only																									
A17	solve linear equations in one unknown algebraically (including those with the unknown on both sides of the equation); find approximate solutions using a graph			●				●												●						●
A18	solve quadratic equations algebraically by factorising; find approximate solutions using a graph																	●								●
A19	solve two simultaneous equations in two variables (linear/linear algebraically; find approximate solutions using a graph																	●								●
A20	Higher only																									
A21	translate simple situations or procedures into algebraic expressions or formulae; derive an equation (or two simultaneous equations), solve the equation(s) and interpret the solution			●		○														●						●
A22	solve linear inequalities in one variable; represent the solution set on a number line												●													
A23	generate terms of a sequence from either a term-to-term or a position-to-term rule												●													
A24	recognise and use sequences of triangular, square and cube numbers, simple arithmetic progressions, Fibonacci type sequences, quadratic sequences, and simple geometric progressions (rn where n is an integer, and r is a rational number > 0)												●													
A25	deduce expressions to calculate the nth term of linear sequences												●													

AQA GCSE (Foundation) 8300 (9-1) Specification map

Ratio

		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
R1	change freely between related standard units (e.g. time, length, area, volume/capacity, mass) and compound units (e.g. speed, rates of pay, prices, density, pressure) in numerical and algebraic contexts	●			●									●			●								●	
R2	use scale factors, scale diagrams and maps					●					●															
R3	express one quantity as a fraction of another, where the fraction is < 1 or > 1		●				●																			
R4	use ratio notation, including reduction to simplest form										●														●	
R5	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; apply ratio to real contexts and problems (such as those involving conversion, comparison, scaling, mixing, concentrations) R6										●															
R6	express a multiplicative relationship between two quantities as a ratio or a fraction										●			●												
R7	understand and use proportion as equality of ratios										●			●												
R8	relate ratios to fractions and to linear functions										●															
R9	define percentage as 'number of parts per hundred'; interpret percentages and percentage changes as a fraction or a decimal, and interpret these multiplicatively; express one quantity as a percentage of another; compare two quantities using percentages; work with percentages greater than 100%; solve problems involving percentage change, including percentage increase/decrease and original value problems, and simple interest including in financial mathematics								●								●								●	
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	understand that X is inversely proportional to Y is equivalent to X is proportional to 1/Y ; interpret equations that describe direct and inverse proportion																	●							●	
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	Higher only																									
R16	set up, solve and interpret the answers in growth and decay problems, including compound interest																								●	

AQA GCSE (Foundation) 8300 (9-1) Specification map

Geometry

		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
G1	use conventional terms and notation: points, lines, vertices, edges, planes, parallel lines, perpendicular lines, right angles, polygons, regular polygons and polygons with reflection and/or rotation symmetries; use the standard conventions for labelling and referring to the sides and angles of triangles; draw diagrams from written description											●				●			○							
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																		●							
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 corresponding angles on parallel lines; 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)											●														
G4	derive and apply the properties and definitions of special types of quadrilaterals, including square, rectangle, parallelogram, trapezium, kite and rhombus; and triangles and other plane figures using appropriate language															●										
G5	use the basic congruence criteria for triangles (SSS, SAS, ASA, RHS)																		●							
G6	apply angle facts, triangle congruence, similarity and properties of quadrilaterals to conjecture and derive results about angles and sides, including Pythagoras' theorem and the fact that the base angles of an isosceles triangle are equal, and use known results to obtain simple proofs															●			●							
G7	identify, describe and construct congruent and similar shapes, including on coordinate axes, by considering rotation, reflection, translation and enlargement (including fractional scale factors)											●														
G8	**Higher only**																									
G9	identify and apply circle definitions and properties, including: centre, radius, chord, diameter, circumference, tangent, arc, sector and segment															●								●		
G10	**Higher only**																									
G11	solve geometrical problems on coordinate axes															●										
G12	identify properties of the faces, surfaces, edges and vertices of: cubes, cuboids, prisms, cylinders, pyramids, cones and spheres															●										
G13	construct and interpret plans and elevations of 3D shapes					●																				
G14	use standard units of measure and related concepts (length, area, volume/capacity, mass, time, money, etc.)					●								●											○	

AQA GCSE (Foundation) 8300 (9-1) Specification map

Geometry

		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
G15	measure line segments and angles in geometric figures, including interpreting maps and scale drawings and use of bearings					●					●															
G16	know and apply formulae to calculate: area of triangles, parallelograms, trapezia; volume of cuboids and other right prisms (including cylinders)					●																				
G17	know the formulae: circumference of a circle = $2\pi r = \pi d$, area of a circle = $\pi r2$; calculate: perimeters of 2D shapes, including circles; areas of circles and composite shapes; surface area and volume of spheres, pyramids, cones and composite solids					●										●								●		
G18	calculate arc lengths, angles and areas of sectors of circles																							●		
G19	apply the concepts of congruence and similarity, including the relationships between lengths, in similar figures																		●							
G20	know the formulae for: Pythagoras' theorem $a^2 + b^2 = c^2$, and the trigonometric ratios, sin θ = opposite/hypotenuse, cos θ = adjacent/hypotenuse and tan θ = opposite/adjacent; apply them to find angles and lengths in right-angled triangles in two-dimensional figures																		●		●					
G21	know the exact values of sin θ and cos θ for θ = 0°, 30°, 45°, 60° and 90°; know the exact value of tan θ for θ = 0°, 30°, 45° and 60°																				●					
G22	**Higher only**																									
G23	**Higher only**																									
G24	describe translations as 2D vectors											●														
G25	apply addition and subtraction of vectors, multiplication of vectors by a scalar, and diagrammatic and column representations of vectors																							●		

AQA GCSE (Foundation) 8300 (9-1) Specification map

Probability

		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
P1	record, describe and analyse the frequency of outcomes of probability experiments using tables and frequency trees									●																
P2	apply ideas of randomness, fairness and equally likely events to calculate expected outcomes of multiple future experiments									●													●			
P3	relate relative expected frequencies to theoretical probability, using appropriate language and the 0-1 probability scale									●																
P4	apply the property that the probabilities of an exhaustive set of outcomes sum to one; apply the property that the probabilities of an exhaustive set of mutually exclusive events sum to one									●																
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									●													●			
P7	construct theoretical possibility spaces for single and combined experiments with equally likely outcomes and use these to calculate theoretical probabilities									●																
P8	calculate the probability of independent and dependent combined events, including using tree diagrams and other representations, and know the underlying assumptions																						●			
P9	Higher only																									

AQA GCSE (Foundation) 8300 (9-1) Specification map

Statistics		Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7	Unit 8	Unit 9	Unit 10	Unit 11	Unit 12	Unit 13	Unit 14	Unit 15	Unit 16	Unit 17	Unit 18	Unit 19	Unit 20	Unit 21	Unit 22	Unit 23	Unit 24	Unit 25
S1	infer properties of populations or distributions from a sample, while knowing the limitations of sampling																					●				
S2	interpret and construct tables, charts and diagrams, including frequency tables, bar charts, pie charts and pictograms for categorical data, vertical line charts for ungrouped discrete numerical data, tables and line graphs for time series data and know their appropriate use														●							●				
S3	Higher only																									
S4	interpret, analyse and compare the distributions of data sets from univariate empirical distributions through: • appropriate graphical representation involving discrete, continuous and grouped data • appropriate measures of central tendency (median, mean, mode and modal class) and spread (range, including consideration of outliers)														●											
S5	apply statistics to describe a population														●											
S6	use and interpret scatter graphs of bivariate data; recognise correlation and know that it does not indicate causation; draw estimated lines of best fit; make predictions; interpolate and extrapolate apparent trends while knowing the dangers of so doing																					●				

Key: ● Covered ○ Indirectly covered