

Beths Grammar School KS4 AQA Level 2 Further Mathematics Curriculum Map

GCSE Level 2 Further Mathematics

Exam Board: AQA

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Term	INTENT	IMPLEMENTATION	IMPACT
	<p>Substantive Knowledge This is the specific, factual content for the topic, which should be connected into a careful sequence of learning.</p>	<p>Disciplinary Knowledge (Skills) This is the action taken within a particular topic in order to gain substantive knowledge.</p>	<p>Assessment opportunities What assessments will be used to measure student progress? Evidence of how well students have learned the intended content.</p>
<p>Year 10 Set 1 Spring Term 2B</p>	<p>Algebra Simplifying and solving equations Expanding brackets Binomial expansion Factorising and rearranging formulae Simplifying and solving algebraic fractions Completing the square</p> <p>Number Surds Product Rule</p>	<ul style="list-style-type: none"> • Expand and simplify brackets • Use Pascal's triangle to work out the coefficient of x^n term • Factorise expressions fully • Manipulate rational expressions • Manipulate formulae • Knowledge and use of numbers and the number system including fractions, decimals, percentages, ratio, proportion and order of operations are expected • Work out how many 5-digit odd numbers can be formed using the digits 1 3 4 6 8 with no repetition of any digit • Operations of surds • Rationalise and simplify 	<p>End of chapter topic test (with peer marking)</p> <p>Chapter revision exercise via textbook</p> <p>End of term formal assessments</p>
<p>Year 10 Summer Term 3A</p>	<p>Algebra Functions Graphs of functions and linear equations Equations of lines Graphs of quadratics, exponentials and inverse functions Graphs of functions with partial domains Equation of a circle with centre (a,b) Tangents of circles</p>	<ul style="list-style-type: none"> • Notation $f(x)$ will be used, e.g. $f(x) = x^2 - 9$ • Domain may be expressed as, for example, $x > 2$, or 'for all x, except $x = 0$' and range may be expressed as $f(x) > -1$ • The result of two or more functions, say f and g, acting in succession. $fg(x)$ is g followed by f • The inverse function of f is written f^{-1} • Domains will be chosen for f to make f one-one • Graphs could be linear, quadratic, exponential and restricted to no more than 3 domains • Exponential graphs will be of the form $y = ab^x$ and $y = ab^{-x}$, where a and b are rational numbers 	<p>End of chapter topic test (with peer marking)</p> <p>Chapter revision exercise via textbook</p> <p>End of term formal assessments</p>

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		<ul style="list-style-type: none"> • Sketch the graph of a quadratic • Solutions of quadratics to include solution by factorisation, by graph, by completing the square or by formula • Problems will be set in a variety of contexts, which result in the solution of linear or quadratic equations • Algebraic and graphical solution of simultaneous equations in two unknowns, where the equations could both be linear or one linear and one second order 	
<p>Year 10 Summer Term 3B</p>	<p><u>Geometry</u> Circle Theorems Trigonometry Trigonometric Identities Sine Rule Cosine Rule Lines and planes in three dimensions</p> <p><u>Algebra</u> Factor Theorem Algebraic proof Sequences Simultaneous equations with three unknowns</p>	<ul style="list-style-type: none"> • Understand and construct geometrical proofs using formal arguments • Sine and cosine rules in scalene triangles; area of a triangle = $0.5ab\sin C$ • Use of Pythagoras' theorem in 2D and 3D • Be able to apply trigonometry and Pythagoras' theorem to 2 and 3 dimensional problems • Sketch and use graphs of $y = \sin x$, $y = \cos x$ and $y = \tan x$ for angles of any size • Be able to use the definitions $\sin \theta$, $\cos \theta$ and $\tan \theta$, for any positive angle up to 360° (measured in degrees only) • Knowledge and use of 30°, 60°, 90° triangles and 45°, 45°, 90° triangles • Know and use $\tan \theta = \sin \theta / \cos \theta =$ and $\sin 2\theta = 2\sin \theta \cos \theta$ • Solution of simple trigonometric equations in given interval • Use of the factor theorem for rational values of the variable for polynomials • Completing the square • Drawing and sketching of functions Interpretation of graphs • Algebraic solution of linear equations in three unknowns 	<p>End of chapter topic test (with peer marking)</p> <p>Chapter revision exercise via textbook</p> <p>End of term formal assessments</p> <p>Y10 End of Year Trial Exams</p>

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<p>Year 11 Autumn Term 1A</p>	<p>Calculus Differentiation Tangents and Normals Increasing and decreasing functions Stationary Points</p> <p>Matrices Multiplying matrices Transformations Identity Matrix and the unit square Combining transformations</p>	<ul style="list-style-type: none"> • Know that the gradient function dy/dx gives the gradient of the curve and measures the rate of change of y with respect to x • Know that the gradient of a function is the gradient of the tangent at that point • Differentiation of kx^n where n is an integer, and the sum of such function • The equation of a tangent and normal at any point on a curve • Increasing and decreasing functions • Understand and use the notation d^2y/dx^2 • Use of differentiation to find maxima and minima points on a curve • Using calculus to find maxima and minima in simple problems • Sketch/ interpret a curve with known maximum and minimum points • Multiplication of matrices • The identity matrix I • Transformations of the unit square in the $x - y$ plane • Combination of transformations 	<p>End of chapter topic test (with peer marking)</p> <p>Chapter revision exercise via textbook</p> <p>End of term formal assessments</p> <p>Y11 Trial Exams</p>
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