Beths Grammar School KS5 Further Mathematics Curriculum Map – Yr 13 FP1

A Level Further Maths, Further Pure 1

Exam Board: Edexcel

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Term	INTENT	IMPLEMENTATION	IMPACT
	Substantive Knowledge This is the specific, factual content for the topic, which should be connected into a careful sequence of learning.	**Disciplinary Knowledge (Skills)** This is the action taken within a particular topic in order to gain substantive knowledge.	**Assessment opportunities** What assessments will be used to measure student progress? Evidence of how well students have learned the intended content.
Autumn Term 1A Year 13	Core Pure 2 content	See Curriculum Map for Yr 13 Further Maths	
Autumn Term 1B Year 13	Core Pure 2 content	See Curriculum Map for Yr 13 Further Maths	
Spring Term 2A Year 13	<u>Further Pure 1</u> <u>Chapter 1: Vectors</u> • 1.1 Vector Product • 1.2 Finding Areas • 1.3 Scalar Triple Product • 1.4 Straight Lines • 1.5 Solving Geometrical Problems	<u>Chapter 1: Vectors</u> • Find the vector product $\mathbf{a} \times \mathbf{b}$ of two vectors $\mathbf{a}$ and $\mathbf{b}$ • Interpret $\lvert\mathbf{a} \times \mathbf{b}\rvert$ as an area • Find the scalar triple $\mathbf{a}.\mathbf{b} \times \mathbf{c}$ of the three vectors $\mathbf{a}$, $\mathbf{b}$ and $\mathbf{c}$, and be able to interpret it as a volume • Write the vector equation of a line in the form $(\mathbf{r} - \mathbf{a}) \times \mathbf{b} = 0$ • Find the direction ratios and direction cosines of a line • Use vectors in problems involving points, lines and planes and use the equivalent Cartesian forms for the equations of lines and planes	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Chapter revision exercise via textbook • End of term review exercises via textbook • End of term formal mixed chapter assessment

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	Chapter 2: Conic Sections 1 • 2.1 Parametric Equations • 2.2 Parabolas • 2.3 Rectangular Parabolas • 2.4 Tangents and Normals • 2.5 Loci Chapter 3: Conic Sections 2 • 3.1 Ellipses • 3.2 Hyperbolas • 3.3 Eccentricity • 3.4 Tangents and Normals to an Ellipse • 3.5 Tangents and Normals to a Hyperbola • 3.6 Loci Chapter 4: Inequalities • 4.1 Algebraic Methods • 4.2 Using Graphs to Solve Inequalities • 4.3 Modulus Inequalities Chapter 5: The t-Formulae • 5.1 The t-Formulae • 5.2 Applying the t-Formulae to Trigonometric Identities • 5.3 Solving Trigonometric Equations • 5.4 Modelling with Trigonometry	Chapter 2: Conic Sections 1 • Plot and sketch a curve expressed parametrically • Work out the Cartesian equation and parametric equations of a parabola and a rectangular hyperbola • Find the equations of tangents and normal to parabolas and rectangular hyperbolas • Understand the focus-directrix property of a parabola • Solve locus problems involving the parabola and rectangular hyperbola Chapter 3: Conic Sections 2 • Identify an ellipse or a hyperbola from it Cartesian or parametric equations • Find the foci, directrices and eccentricity for an ellipse or a hyperbola • Find tangents and normal to these curves • Solve simple loci questions Chapter 4: Inequalities • Manipulate inequalities involving algebraic fractions • Use graphs to find the solutions to inequalities Solve inequalities involving modulus signs Chapter 5: The t-Formulae • State the t-formulae • Apply the t-formulae to trigonometric identities • Use the t-formulae to solve trigonometric equations • Use the t-formulae for modelling with trigonometry	

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Spring Term 2B Year 13	<u>Chapter 6: Taylor Series</u> • 6.1 Taylor Series • 6.2 Finding Limits • 6.3 Series Solutions of Differential Equations <u>Chapter 7: Methods in Calculus</u> • 7.1 Leibnitz's Theorem and nth derivatives • 7.2 L'Hospital's Rule • 7.3 The Weierstrass Substitution <u>Chapter 8: Numerical Methods</u> • 8.1 Solving First-Order Differential Equations • 8.2 Solving Second-Order Differential Equations • 8.3 Simpsons Rule <u>Chapter 9 – Reducible Differential Equations</u> • 9.1 First-Order Differential Equations • 9.2 Second-Order Differential Equations • 9.3 Modelling with Differential Equations	<u>Chapter 6: Taylor Series</u> • Derive and use the Taylor series for simple functions • Use series expansions to evaluate limits • Use the Taylor series method to find a series solution to a differential equation <u>Chapter 7: Methods in Calculus</u> • Apply Leibnitz's theorem for differentiating products • Understand the use of derivatives to evaluate limits of indeterminate forms using L'Hospital's rule • Use tangent half-angle substitutions to find definite and indefinite integrals using Weierstrass substitution <u>Chapter 8: Numerical Methods</u> • Find numerical solutions to first-order differential equations using Euler's method and the midpoint method • Extend Euler's method to find numerical solutions to second-order differential equations • Use Simpson's rule to find an approximation for a given definite integral <u>Chapter 9: Reducible Differential Equations</u> • Use a given substitution to transform a first-order differential equation into one that can be solved • Use a given substitution to transform a second-order differential equation into one that can be solved • Solve modelling problems involving reducible differential equations	• In class teacher assessment through Q&A • End of chapter mini test (with peer marking) • Chapter revision exercise via textbook • End of term review exercises via textbook • End of term formal mixed chapter assessment
Summer Term 3A Year 13	Revision and Exams	Exam Technique and Exam Questions	
Summer Term 3B Year 13	Exams		

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