**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** | Further Pure 1Chapter 1: Vectors* + 1.1 Vector Product
	+ 1.2 Finding Areas
	+ 1.3 Scalar Triple Product
	+ 1.4 Straight Lines
	+ 1.5 Solving Geometrical Problems

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 1: Vectors• Find the vector product $a×b$of two vectors **a** and **b**• Interpret $\left|a×b \right|$ as an area• Find the scalar triple $a.b×c$of the three vectors **a**, **b** and **c**, and be able to interpret it as a volume• Write the vector equation of a line in the form $$\left(r-a\right)×b=0$$• 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 planesChapter 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 hyperbolaChapter 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 signsChapter 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
 | * 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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| **Spring Term****2B****Year 13** | Chapter 6: Taylor Series* 6.1 Taylor Series
* 6.2 Finding Limits
* 6.3 Series Solutions of Differential Equations

Chapter 7: Methods in Calculus* 7.1 Leibnitz’s Theorem and nth derivatives
* 7.2 L’Hospital’s Rule
* 7.3 The Weierstrass Substitution

Chapter 8: Numerical Methods * 8.1 Solving First-Order Differential Equations
* 8.2 Solving Second-Order Differential Equations
* 8.3 Simpsons Rule

Chapter 9 – Reducible Differential Equations* 9.1 First-Order Differential Equations
* 9.2 Second-Order Differential Equations
* 9.3 Modelling with Differential Equations
 | Chapter 6: Taylor Series• 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 equationChapter 7: Methods in Calculus* 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

Chapter 8: Numerical Methods• 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 integralChapter 9: Reducible Differential Equations• 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
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| **Summer Term****3A****Year 13** | Revision and Exams | Exam Technique and Exam Questions |  |
| **Summer Term****3B****Year 13** | Exams |  |  |