**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 1  Chapter 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 of two vectors **a** and **b**  • Interpret as an area  • Find the scalar triple 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  • 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  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 | * 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 |
| **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 equation  Chapter 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 integral  Chapter 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 |
| **Summer Term**  **3A**  **Year 13** | Revision and Exams | Exam Technique and Exam Questions |  |
| **Summer Term**  **3B**  **Year 13** | Exams |  |  |