St Mary's Catholic School

Mathematics
Department KS5 Curriculum Map

Year Group	Term 1	Term 2	Term 3
	A Level Mathematics		
Year 12	**Pure 1:** Algebraic Expressions, Quadratics, Equations and Inequalities, Graphs and Transformations Further Algebra Binominal Expansion Straight Line Graphs and Circles Vectors 2D Vectors 3D (Yr2)	**Pure 1:** Trigonometry Radians (Y2) Small Angle Approximation (Y2) Differentiation Integration Algebraic methods Exponential and Logarithms	**Pure 2:** Proof Partial Fractions Functions and graphs Binominal expansion for Negative and Fractional n Further Differentiation (sinx, cosx,e^x and lnx, chain, product and quotient rules) Trigonometry; Sec, Cosec and Cot (chap 6) Numerical Methods
Year 13	**Pure 2:** Numerical methods Sequences and series Trigonometric functions Trigonometry and modelling Parametric equations Differentiation Integration **Statistics 1:** Data Collection Data Processing and Interpretation Probability Correlation **Mechanics 1:** Kinematics Forces and motion Variable Acceleration	**Mechanics 1 and 2:** Moments Friction Projectiles Application of forces Further Kinematics **Statistics 1 and 2:** Probability Distribution Binomial Distribution Hypothesis testing Measuring Correlation Conditional probability Normal distribution	Examination Preparation

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Year Group	Term 1	Term 2	Term 3
	A Level Further Mathematics		
Year 12	**Decision 1:** Linear Programming Further Linear programming; The Simplex Method Algorithms Algorithms on graphs Graphs and networks **Core Pure 1:** Complex numbers and Argand diagrams Series and summations Roots of polynomials Proof by Induction Matrices	**Decision 1:** Critical Path Analysis Route inspection Travelling salesman algorithm **Core Pure 1:** Linear Transformations Volume of Revolution Vectors	Differentiation (10), (Excluding parametric and sections covered in Term 3 of Year 12 Pure. See above) Integration (11) (excluding parametric integration) Trigonometry (Chapter 6 and 7 A level course)
Year 13	**Core Pure 2:** Series and Method of Differences Method of Calculus Polar Coordinates Hyperbolic Functions Further Volume of Revolution	**Core Pure 2:** Complex Numbers II Methods of Differential Equations Methods and Modelling Differential Equations **Further Mechanics 1**: Momentum and impulse Elastic collisions in one dimension Elastic collisions in two dimensions Work, energy and power Work, energy and power Elastic springs and strings **Decision 1 and Further Mechanics 1 exam revision**	Examination Preparation

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Year Group	Term 1	Term 2	Term 3
	Level 3 Mathematics Studies – Core Maths		
Year 12	**Chapter 1 - Analysis of Data** Data Collecting and Sampling Representing data diagrammatically- histograms Representing data diagrammatically - Box plots and Stem and Leaf Representing data diagrammatically- Cumulative frequency Numerical calculations - Standard deviation Interpolation	**Chapter 2 - Maths for personal Finance** Spreadsheet lesson - budgeting mini project Percentages/percentage change Repeated percentage changes Simple interest/Compound interest Compound interest finding %, time Fermi Estimation Spreadsheet lesson AER AER Different types	APR APR- amount of loan Loans and mortgages Graphical representation Taxation VAT Inflation RPI & CPI Exchange rates student loans
Year 13	Critical analysis introduction Critical analysis intro (including spreadsheet and tabular data) Presenting logical and reasoned arguments in context Communicating mathematical approaches and solutions The Normal Distribution Calculating probabilities Probability and Estimation Population and Sample The mean of Sample Size n Confidence Intervals	Correlation The product Moment correlation coefficient (pmcc) Regression line	Examination Preparation