LEARNING JOURNEY – A level Mathematics
Statistics and Mechanics

St Michael's Catholic School

Further Education, Training or Employment

Time to Revise

Revision Programme

Further Kinematics

Pentecost Term 2

$s = ut + \frac{at^2}{2}$

Projectiles

Applications of Forces

Conditional Probability

The Normal Distribution

Lent Term 2

$s = vt - \frac{at^2}{2}$

Forces and Friction

Moments

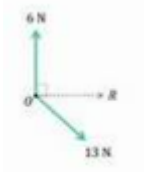
Regression, correlation and hypothesis testing

$v^2 = u^2 + 2as$

Year 13

Advent Term 2

Forces and Motion 1



Variable Acceleration

Correlation

Probability

Hypothesis testing

Pentecost Term 1

Statistical distributions

Lent Term 1

$v = at + u$

Representation of Data

Constant Acceleration

Modelling in Mechanics

Advent Term 1

Year 12

Measures of Location and Spread

Data collection

= Assessment

Department Intent : To develop students' curiosity and creativity, rich in skills and knowledge, preparing students well for everyday life and future pathways.

LEARNING JOURNEY – A level Mathematics Yr 12 St Michael's Catholic School

Year 13 Ready

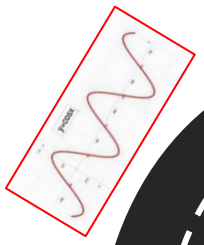
Solving and working with Equations with Logarithms/Log and non-linear data	Modelling and y=e^x
Exponentialse^x	Laws of Logarithms
Exponentials and Logarithms	

Area between curves and lines	
Definite and indefinite Integrals/finding functions	Area under curves/x axis
Integration	

simpler/Harder Trig Equations/equations Identities	
Exact Values/Angles in all four quadrants	Trigonometric Equations
Trigonometric Identities and Equations	

Representing/Magnitude/direction/ Position Vectors	
Modelling	Geometric Problems
Vectors	

Sketching Gradient Function/Differentiating quadratics &x6n/ Stationary points	
Gradients of Curves, tangents and normal	Modelling, first and second derivative
Differentiation	



Pentecostal Term

Area of Triangles	
Sine and Cosine Rule/Graphs of Sine, Cosine and Tangent	Transforming/Trigonometry Graphs
Trigonometric Ratios	

Binomial Expansion/Solving problems	Binomial Estimation
Pascal's Triangle	Factorial Notation
The Binomial Expansion	

Dividing Polynomials	Mathematical and Methods Proof
Algebraic Fractions	Factor Theorem
Algebraic Methods	

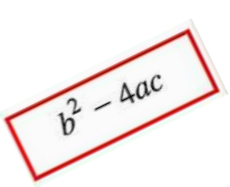
Lent Term

Transforming functions and graphs	
Sketching graphs	Types of graphs - Cubic/Quartic graphs/Reciprocal/Point of intersection
Graphs and Transformations	

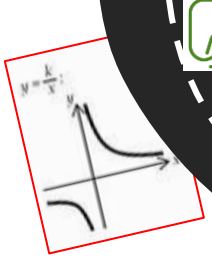
Modelling	
Length and Area	Straight line graph/Parallel and perpendicular lines
Straight Line Graphs	

Circles and Tangents	Tangent/Midpoint / and Chord properties
Equations of Circles	Intersection of straight lines and circles
Circles	

Regions	Modelling
Simultaneous Equations Linear/quadratic with graphs	Linear/Quadratic Inequalities with graphs
Equations and Inequalities	



Rationalizing Denominators	Expanding/Factorizing
Surds	Index laws/negative and fractional indices
Algebraic Expressions	

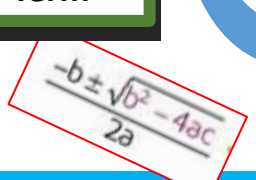


Advent Term

Year 12

= Assessment

Graphs/Functions	Solving/Completing the Square
Quadratics	



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LEARNING JOURNEY – A level Mathematics Yr 13 St Michael's Catholic School

$$\int u\,dv = uv - \int v\,du$$

Revision Programme

Exam Practice Papers

Time to Revise

Further Education, Training or Employment

Year 13

Pentecost Term

Vectors
- Vectors in 3D/3D coordinates
- Application to Mechanics
- Solving geometric problems

Integration
- Integration using different Methods
- Finding area/the Trapezium rule
- Integrating Functions/f(ax+b)/by substitution/parts/partial fractions
- Reverse chain rule/solving and Modelling with Differential Equations

Numerical Methods
- Applications to Modelling
- Locating Roots
- Iteration/Newton Raphson Method

Differentiation
- Trigonometric Differentiation/using second derivative
- Parametric/implicit Differentiation
- Differentiating sinx and cosx/Chain/Product/Quotient Rule/exponential and logarithms
- Rates of Change

Lent Term

Trigonometry and Modelling
- Solving and Proving Trig identities/equations
- Modelling with Trig functions/Simplifying acosx+_bsinx
- Additional formulae/using angle addition formulae
- Double angle formulae

Parametric Equations
- Points of Intersection
- Modelling
- Parametric equations/Using Trigonometric Identities
- Curve Sketching

Trigonometric Functions
- Using sec, Cosec and Cot
- Inverse Trig Functions
- Sec, Cosec and Tan/Graphs of Sec, Cosec and Cot
- Trig identities

Radians
- Solving Trigonometric equations/small angle approximation
- Radian Measure/Arc length
- Area of sector and segments

Binomial Expansion
- Using Partial Fractions
- Expanding Binomials

Sequences and Series
- Modelling
- Geometric Sequences
- Recurrence relations
- Arithmetic Sequences

Algebraic methods
- Repeated factors/ algebraic division
- Algebraic fractions/ Partial fractions
- Proof by contradiction

Advent Term

Functions and Graphs
- Combining Transformations
- Modulus Problems
- Modulus Function
- Composite and Inverse Functions

= Assessment

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