

IP YEAR 3 MATHEMATICS CURRICULUM (2025)

Dear students/parents,

This document provides a comprehensive roadmap for students embarking on their mathematical journey with us. Tailored to meet the rigorous demands of the Integrated Programme (IP), this curriculum builds a strong foundation in core mathematical concepts while integrating advanced topics to enhance critical thinking and problem-solving skills.

Each topic is carefully structured with specified teaching hours to ensure a balanced learning pace and ample practice opportunities. With a focus on conceptual clarity and real-world applications, this curriculum prepares students for academic excellence and nurtures critical thinking skills. Key milestones, including assessments and revision plans, are included to support effective learning.

Terms 1 and 2				
Topic	Section	Teaching Hours* (2 hours / week)		
1. Quadratic Equations, Inequalities and Functions	1.1 Sum and Product of Roots of Quadratic Equations (Vieta's Formulae)1.2 Quadratic Inequality Solving	3		
	1.3 Nature of Roots of a QuadraticEquation1.4 Maximum and Minimum Values ofGeneral Quadratic Functions1.5 Intersection of a Line and a Curve	3		
	1.6 Modulus Functions	2		
	Practice			
2. Polynomials, Cubic Equations and Partial Fractions	2.1 Linear and Non-Linear SimultaneousEquations2.2 Polynomials and Long Division	2		
	2.3 Remainder and Factor Theorem2.4 Cubid Expressions and Equations	2		
	2.5 Partial Fractions	2		
	Practice			
3. Surds	3.1 Simplifying Surds3.2 Equation Involving Surds3.3 Applications of Surds	2		
	Practice			

	4.1 Indices4.2 Simple Exponential Equations4.3 Simultaneous Exponential Equations	2		
4. Exponential and Logarithmic Functions	4.4 Conversion between Exponential and Logarithmic Form4.5 Laws of Logarithm4.6 Solving Logarithmic Equations	3		
	 4.7 Exponential and Logarithmic Functions and Graphs 4.8 Applications of Exponential and Logarithmic Functions 	3		
	5.1 Length of a Line Segment			
	5.2 Gradient of a Straight Line5.3 Equation of a Straight Line	2		
	5.4 Midpoint of a Line Segment			
5. Coordinate Geometry	5.5 Parallel and Perpendicular Lines	4		
	5.6 Area of Rectilinear Figures (Shoelace Formula)			
	Practice			
	6.1 Graphs of Power Functions,Exponential and Logarithmic Functions6.2 Graphical Solution and Gradient ofthe Curve at a Point	5		
o. Functions, Graphs and Transformations	6.3 Transformations of Graphs			
	6.4 Applications of Function Graphs	3		
7. Further Coordinate Geometry	Practice			
	7.1 Finding Coordinates of the Centres and the Radius of a Circle			
	7.2 Finding the Equation of a Circle	4		
	7.3 Problems Relating to Circle			
	7.4 Problems Involving Two Circles			
	Practice			
Terms 1 & 2 Total Teaching Hours:		42		
Mid-Year Test (2 weeks) - June Holiday (Lesson continues as per normal)				

Terms 3 and 4				
Topic	Section	Teaching Hours* (2 hours / week)		
8. Matrices	8.1 Matrices			
	8.2 Addition and Subtraction of Matrices			
	8.3 Multiplication of a Matrix by a Scalar	2		
	8.4 Multiplication of Two Matrices			
	8.5 Applications of Matrices			
	Practice			

9. Linear Law 10. Proofs in Plane Geometry	 9.1 Linearization of Equations 9.2 Acquiring Equations from Linearized Form 9.3 Acquiring Logarithmic Equations from Linearized Form Practice 10.0 Conceptual Recaps 10.1 Proving using Angle Properties of Circles 10.2 Problems Involving Properties of Similar Triangles 10.3 Alternate Segment Theorem 	6
	Practice	
11. Trigonometric Functions and Graphs	 11.1.1 Ingonometric Ratios of Special Angles 11.1.2 Expressing Trigonometric Ratios in Basic Angles 11.1.3 Finding Trigonometric Ratios 11.1.4 Cosecant, Secant and Cotangent Ratios 11.1.5 Principal Values 11.1.6 Solving Basic Trigonometric Equations 11.2.1 Graphs of Trigonometric Functions 	6
12. Trigonometric Equations and Identities	11.2.2 Sketch of Trigonometric Functions with a<0 11.2.3 Finding Unknowns in Trigonometric Functions Graphically	4
	 9.1.1 Proving of Basic Trigonometric Identities 9.1.2 Manipulating the Expression Using Algebraic Identities 9.1.3 Further Proving of Identities Using Addition and Subtraction Formulae 9.1.4 Further Proving of Identities Using Double Angle Formulae 9.1.5 Finding Trigonometric Ratios Involving Special Angles 	4
	9.1.6 Solving Trigonometric Equations	2
	Double Angle Formulae	_
	9.2 R-Formulae	2
E1 V	Practice	A
End-Year Revision		32
1 erms 3 & 4 10tal 1eaching Hours:		
Nov Holiday Bridging Lessons	Exponential and Logarithmic Functions (Revision) Coordinate Geometry (Revision) Trigonometic Functions and Graphs (Revision) Trigonometric Equations and Identities (Revision)	(4-5 weeks, 8-10 hours)