

AS-Level Further Maths @WBS Year 12 Roadmap

Subject Aim: To explore a new world of Mathematics, beyond the scope of GCSE and A-Level. To gain understanding with richer and more complex theorems and ideas, culminating in gaining an AS-Level qualification at the end of the year.

Autumn Term	 COMPLEX NUMBERS 1	 MATRICES 1
	➤ Argand Diagrams	➤ Transformations
	 ALGEBRA & SERIES	 VECTORS 1
	➤ Method of Differences ➤ Proof by Induction	➤ Equation of a Straight Line ➤ The Scalar Product
Spring Term	 RATIONAL FUNCTIONS & INTEGRATION	 CURVE SKETCHING 1
	➤ Mean Value of a Function ➤ Solids of Revolution	➤ Polar Coordinates ➤ Hyperbolic Functions
	 GRAPHS & NETWORKS	 FURTHER MECHANICS 1
	➤ Route Inspection ➤ Activity Networks	➤ Work, Energy & Power ➤ Hooke's Law ➤ Conservation of Momentum ➤ Collisions ➤ Impulses ➤ Horizontal Circular Motion
	 ABSTRACT ALGEBRA	
	➤ Binary Operations ➤ Modular Arithmetic	
Summer Term	 LINEAR PROGRAMMING & GAME THEORY	 CURVE SKETCHING 2
	➤ Constraints ➤ Zero Sum Games ➤ Mixed Strategies	➤ Oblique Asymptotes ➤ Transforming Conics

Assessment – 5 Key Measures

1. In the first week of the course, you will sit our **Initial Assessment**. This enables us to assess your suitability for the course and identify any gaps in your current knowledge. There is a pass mark for this test, with a resit after 4 weeks if it is not met.
2. Each week, you will sit a **Weekly Assessment** with one of your teachers. This is a past exam question and is designed to prepare you for the challenges of the terminal exams.
3. You will sit **Key Assessments** throughout the year. These assessments cover the content of the Units most recently covered but will also reference previously gained knowledge.
4. In the Easter term, you sit Year 12 Exams. This is your first **Mock Exam** and will cover all content learnt up to this point.
5. Finally, you will sit the **AS-Level Examination** in May/June, before moving onto the Year 2 content.

All assessment is graded and fed back in class. We then provide detailed walkthrough solutions, either in person or via video on Brightspace.

Homework and Revision

- Students are expected to complete the exercises that are attached to the end of our teaching PowerPoints. This should be done before the next lesson whenever possible.
- Where appropriate, homework is set on Dr Frost Maths to help students prepare for assessments.

Revision resources and practice questions for assessments are published on Brightspace.

Enrichment Themes

A Level Maths Workshop runs after school in M8 on a Wednesday and is a vital source of additional support for all students.

Year 12 Further Maths students are urged to run our Mathletes club for lower years. This encourages creative mathematical thinking and develops leadership skills.

Where Next?

In Year 13, you will progress to applying these ideas on a bigger scale, extending to the most demanding Calculus & Mechanics, with dedicated preparation for University Entrance Exams.