A-Level Further Maths @ WBS Year 13 Roadmap

Subject Aim: To succeed with the understanding of the most challenging Mathematical concepts and ideas. To push problem solving techniques beyond the standard methods required in A-Level Maths and be able to apply them to any of the Pure, Mechanics and Discrete strands of the course.

TT Promo

Y13 CALCULUS
- Product, Quotient & Chain Rules
- Integration Using Partial Fractions

VECTORS 2
- Vector Product
- Equation of a Plane
- Finding Distances

Autumn Term

SERIES & NUMERICAL METHODS
- Mid-Ordinate, Simpson's & L'Hôpital's Rule

COMPLEX NUMBERS 2
- De Moivre's Theorem
- Roots of Unity

ADVANCED INTEGRATION
- Improper Integrals
- Inverse Functions
- Reduction Formulae
- Polar Graphs & Areas
- Arc Lengths

MATRICES 2
- Determinants
- Eigenvalues

GROUP THEORY
- Subgroups
- Isomorphisms

Spring Term

DIFFERENTIAL EQUATIONS & EULER
- Complementary Functions & Particular Integrals
- Harmonic Motion
- Euler Formulae

ADVANCED MECHANICS 2
- Energy, Power & Momentum in 2D
- Conical Pendulums
- Vertical Circular Motion
- Centres of Mass
- Moments & Couples

SIMPLEX ALGORITHM

Assessment – 4 Key Measures

1. Each week, you will sit a **Weekly Assessment** with one of your teachers. This is a past exam question, designed to prepare you for the challenges of the terminal exams.

2. On the completion of each Unit, you will sit a **Key Assessment**. These assessments cover the content of the Unit most recently covered but will also reference previously gained knowledge. These tests are 1 hour long and out of 50 marks.

3. In the Autumn term, you sit **Year 13 Exams**. This is your second Mock Exam and will cover all content that has been covered up to this point.

4. In the Easter term, you sit 2 further **Mock Exams**. These will cover all content from the course and will inform your final predicted grade.

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.

In Year 13, many Further Maths students will apply for University courses in Maths that require the taking of additional Maths Entrance Exams, such as MAT, TMUA and STEP. We provide dedicated revision sessions for these students on Wednesday in the Autumn term to prepare for both these exams and any Oxbridge interviews that may follow.

Where Next?

As stated above, If you are wishing to study Mathematics beyond A-Level, we offer support programmes for TMUA, MAT and STEP exams. Success in these exams can lead to reduced University offers.