A-Level Maths @ WBS Year 13 Roadmap

Subject Aim: To continue developing familiarity with challenging A-Level exam questions by understanding the links between big topics. To consolidate knowledge of Mechanics and learn the analytical skills required for success with the Statistics element of the course.

TT PROMO

Autumn Term

INTRO TO STATISTICS
- Sampling Techniques
- Standard Deviation

KINEMATICS 2
- Constant Acceleration Equations in 2D
- Projectile Motion

CALCULUS 2
- Product, Chain & Quotient Rules
- Integration by Parts

TRIGONOMETRY 2
- Double Angle Formulae
- Small Angle Approximations

BINOMIAL SERIES
- The Binomial Expansion
- Binomial Theorem

ADVANCED MECHANICS
- Working with Friction
- Forces on Slopes
- Moments
- Variable Acceleration

PROBABILITY DISTRIBUTIONS
- Binomial & Normal Distributions

Spring Term

APPLICATIONS OF CALCULUS
- Partial Fractions
- Parametric Functions
- Convert between Cartesian & Parametric Forms

NUMERICAL METHODS
- Proof by Contradiction
- Staircase & Cobweb Diagrams
- Newton – Raphson Method

HYPOTHESIS TESTING
- Testing Hypotheses
- Correlation Coefficients

DIFFERENTIAL EQUATIONS
- Separating the Variables
- Exponential Growth & Decay

Assessment – 4 Key Measures

1. 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.
2. On the completion of each Unit, you will sit a **Key Assessment**. These assessments cover the content of the Unit most recently but will also reference previously gained knowledge. These tests are generally 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 learnt 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 exercises which are attached to the end of our teaching PowerPoints. This should be done before the next lesson whenever possible.
- Within each Unit, 1 or 2 pieces of homework are also set on Dr Frost Maths to help students prepare for all 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.

The Senior Maths Challenge is also a great opportunity for students to stretch themselves and compete with other mathematicians on a national scale.

Where Next?

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.