OLDHAM HULME GRAMMAR SCHOOL

Nurturing Potential since 1611

MATHEMATICS

Mathematics is now a universal subject and goes well with most other A level choices. It is a subject increasingly necessary in our technological world but it also straddles the divide between Arts and Sciences. It is useful for Physics and other science subjects as well as Business Studies, Economics, Geography and Psychology. It is essential if you are intending to study Mathematics, Engineering and Physics in higher education.

GCSE requirement

Generally it is a requirement that students will have studied Mathematics at GCSE Higher Level. Students are advised that they should only embark on this course if they have a minimum of a grade 6 at Higher Level. Students will find it easier to cope with the content if they have good algebra skills.

Course Content

The study of Mathematics at A level is divided into two main sections: -

- **Pure Mathematics**
- **Applied Mathematics (Mechanics and Statistics)**

All students follow programmes of study which cover pure mathematics, statistics and mechanics.

Pure Mathematics revisits, in greater depth, some of the topics, studied at GCSE such as algebra, trigonometry, functions and graphs, but also introduces new topics such as calculus and co-ordinate geometry.

Statistics builds upon the work at GCSE and includes topics such as correlation, regression, and probability distributions. Some of these topics tend to be useful for the Sciences, Geography, Psychology and Business.

Mechanics involves the study of forces and their actions on particles, the motion of particles, and Newton's laws of motion. This topic is particularly useful for Physics and Engineering**.**

The A level programmes of study will be examined at the end of Year 13 and make up the A level award in Mathematics. Some students may choose to study mathematics in Year 12 only and sit AS papers at the end of the year.

Please turn over

Further Mathematics

For those who enjoy Mathematics and who wish to study Mathematics at university you will find it an advantage to study Further Mathematics at AS level or A level. We run a 'fast track' model that has an additional allocation of teaching time. This means that students complete the A level Mathematics course in Year 12 and then proceed to study Further Mathematics in Year 13.

Indeed those students who are thinking of doing Engineering or a Physics degree will find it an advantage. Most of the top universities consider Further Mathematics most useful for engineering courses. Only the best mathematicians will generally be allowed to do Further Mathematics.

The content of the programmes of study will cover **Mechanics, Statistics and Discrete Mathematics.** Topics studied earlier in the Mathematics A level will be extended and further researched.

Decision Mathematics - is the study of algorithms to solve real-life problems involving graphs and networks. Other topics covered are particularly applicable to Computer Science, Business or Management Studies.