KIRKHAM GRAMMAR SCHOOL

MATHEMATICS

Mathematics is one of the most popular A-level subjects at Kirkham Grammar School, with nearly half of each Lower Sixth choosing to study Mathematics at A-level.

It is a highly regarded qualification for university entrance in many courses. By studying Mathematics at A-level, students therefore give themselves the option of a wide variety of courses, at the best universities nationally.

Almost all successful A-level Mathematics students will have achieved grades of 9-7 at GCSE. Although it is possible for students with grade 6 at GCSE to take Mathematics at A-level, the intellectual demand and quantity of work load make the course very challenging.

THE COURSE

Since September 2017, the new reformed Mathematics A-level has been studied by Lower Sixth students. The content studied over the two year course is 100% prescribed, consisting of three externally assessed 2 hour papers, each being equally weighted, with no coursework. Edexcel is the examination board used for A-level Mathematics. The students are allowed to use a calculator on all 3 externally assessed papers.

- Paper 1: Pure Mathematics 1 (exam code 9MA0/01)
- Paper 2: Pure Mathematics 2 (exam code 9MA0/02)
- Paper 3: Statistics and Mechanics (exam code 9MA0/03)

Pure Mathematics 1

The following Mathematical topics are studied on this Pure Mathematics course:
Algebra and Functions, Coordinate Geometry, Sequence and Series, Trigonometry, Exponentials and Logarithms, Differentiation, Integration, Vectors, and finally Proof Techniques.

Pure Mathematics 2

The following Mathematical topics studied on this Pure Mathematics course build on the foundation of the Pure Mathematics 1 course:
Algebra and Functions, Coordinate Geometry, Sequence and Series, Trigonometry, Differentiation, Integration, Numerical Methods, and finally Proof Techniques.

Statistics and Mechanics

Statistics topics studied include:
Statistical Sampling, Data Presentation and Interpretation, Probability, Statistical Distributions, and Statistical Hypothesis Testing. The Statistics section will also use a large data set (provided by the exam board) for pupils to analyse as part of the course.

Mechanics topics studied include:
Quantities and Units in Mechanics, Kinematics, Forces and Newton's Laws, and Moments.

CAREERS

Having an A-level in Mathematics is viewed very favourably by universities since the high level of numeracy and logical thought it implies is seen as an extremely valuable qualification. It is also a subject which opens a vast array of doors for potential future careers, and achieving a high grade in the subject is highly valued. Any pupil wishing to take Mathematics at one of the top universities will be able to access some assistance (both within and outside school) with preparation for taking the MAT/STEP examinations.

Mathematics A-level will be essential for anyone wishing to study Physics or Engineering for example, but it is also readily accepted for many other courses. For example, those wishing to study Medicine at university may well take an A-level in Mathematics. Chemistry, Biology and Economics also contain plenty of Mathematical content.

FURTHER MATHEMATICS

Further Mathematics is taken nationally by only a small proportion of those taking Mathematics at A-level. However, it is seen by universities as a 'prestige' qualification. Students applying for top universities will be greatly advantaged if they have Further Mathematics in their selection of A-level subjects. Certainly any student thinking about studying Mathematics at university should consider choosing this subject. It is also an advantage for future study in subjects such as Natural Sciences.

THE COURSE

Students opting for Further Mathematics will leave Kirkham Grammar School with two A-levels in Mathematics.

Since September 2017, the new reformed Further Mathematics A-level has been studied by Lower Sixth students. The content studied over the two year course can contain a proportion of optional sections, taken from Further Pure Mathematics, Further Mechanics, Further Statistics and Decision Mathematics. There will be four externally assessed 1 hour 30 minute papers, each being equally weighted. Edexcel is the examination board used for A-level Further Mathematics, and there is no coursework.

- Paper 1: Further Pure Mathematics 1 (9FM/01)
- Paper 2: Further Pure Mathematics 2 (9FM/02)
- Paper 3: (9FM0/03) and Paper 4 (9FM0/04) may be taken from Further Pure Mathematics, Further Mechanics, Further Statistics or Decision Mathematics.

Students taking Further Mathematics will develop greater depth to their understanding of Pure Mathematics, as well as broadening their interest in Mathematics by studying more advanced Mechanics, Statistics or Decision Mathematics.