MATHEMATICS AND FURTHER MATHEMATICS (PEARSON EDEXCEL)

Mathematics is not only a subject in its own right, it is also a service subject. If you want to study Physics or Psychology, Architecture or Accountancy, Geography or Geology, a solid knowledge of Mathematics will help. The Mathematics course reflects these needs as Mechanics and Statistics topics are studied.

In all areas of Mathematics, you will extend your range of mathematical skills and techniques through problem solving, tackling investigations, teacher exposition, discussion and consolidation of work. You will develop resourcefulness in solving problems, the ability to apply Mathematics in unfamiliar situations and to solve problems for which methods are not readily available. Work will be regularly set, though you will take more responsibility for your own learning and you will be expected to do weekly individual work on each topic.

Students wishing to extend their study in Mathematics are given the opportunity to study A-level Further Mathematics.

A LEVEL MATHEMATICS
The subject content for A-Level Mathematics is 100% prescribed by the DfE. All students will be assessed on their knowledge of Pure Mathematics, Mechanics and Statistics. The A level Mathematics is linear course, examined at the end of the course.

In Pure Mathematics, topics covered are: proof, algebra and functions, coordinate geometry in the (x,y) plane, sequences and series, trigonometry, exponentials and logarithms, differentiation, integration, numerical methods and vectors.

In statistics and probability, the following topics are covered: statistical sampling, data presentation and interpretation, probability, statistical distributions and statistical hypothesis testing.

In mechanics, four topics are examined: quantities and units in mechanics, kinematics, forces and Newton's laws and moments.

We follow the Pearson Edexcel Exam Board specification. The Mathematics A-Level qualification consists of three externally examined papers
- **Paper 1:** Pure Mathematics 1, 33% of the total marks, 2 hours, 100 marks in total
- **Paper 2:** Pure Mathematics 2, 33% of the total marks, 2 hours, 100 marks in total
- **Paper 3:** Statistics and Mechanics, 33% of the total marks, 2 hours, 100 marks in total across two sections: Section A: Statistics (50 marks) Section B: Mechanics (50 marks)

A LEVEL FURTHER MATHEMATICS

The A-level Further Mathematics qualification is challenging and highly prestigious and is essential for any student thinking of studying Mathematics at University. It has also proved very useful to students preparing for University courses with a sizeable mathematics input, including sciences at Oxford and Cambridge. It is a very challenging and rewarding A level.

A level Further Mathematics has 50% of the content prescribed by the DfE. On top of the compulsory pure further mathematics topics, our students cover further mechanics and decision mathematics. The A level Further Mathematics is linear course, examined at the end of the course.

In Pure Mathematics, topics covered are: matrices, further algebra and functions, further calculus, further vectors, polar coordinates, hyperbolic functions and differential equations

In Further Mechanics, the following topics are covered: momentum and impulse, work, energy and power, elastic strings and springs and elastic energy, elastic collisions in one dimension and elastic collision in 2 dimensions.

In Decision Mathematics, four topics are examined: algorithms and graph theory, algorithms on graphs, critical path analysis and linear programming

We follow the Pearson Edexcel Exam Board specification. The Further Mathematics A Level qualification consists of four externally examined papers:

- **Paper 1:** Core Pure Mathematics 1, 25% of the total marks, 1 hour 30mins, 75 marks in total
- **Paper 2:** Core Pure Mathematics 2, 25% of the total marks, 1 hour 30mins, 75 marks in total
- **Paper 3:** Further Mathematics Option 1: Further Mechanics 1, 25% of the total marks, 1 hour 30mins, 75 marks in total
- **Paper 4:** Further Mathematics Option 2: Decision Mathematics 1, 25% of the total marks, 1 hour 30mins, 75 marks in total

CAREER POSSIBILITIES

Whether you continue further study at University or enter employment at the end of the sixth form, you will find that having studied Mathematics at A-level your choices and opportunities will be immense.

Mathematics is a subject widely studied at universities. It may be studied as a single subject or as part of a joint honours degree course, in conjunction with Biology, Chemistry, Geography, Physics, Philosophy, Computer Studies and many other subjects. Mathematics also has a major input into a number of other courses including Medicine, Psychology and Economics.

The skills used by a mathematician are highly valued in Industry and Business, and consequently employers look for potential employees with a Mathematics qualification. Mathematics is a useful and highly regarded subject and is well worth the effort involved. The syllabus is varied and interesting and will enable you to acquire knowledge and skills with confidence, satisfaction and enjoyment.