Mathematics A-level

Welcome to the Maths A-level Course. We follow the AQA specification (7357).

Entry requirements

Six GCSEs at Grade 4 or above including at least Grade 4 for English Language and Grade 6 in Mathematics.

What is covered in A-level mathematics?

Pure mathematics (66%)

Pure mathematics are the methods and techniques which underpin the study of all other areas of mathematics. You will study proof, algebra, trigonometry, calculus, and vectors.

Statistics (17%)

Statistics is about studying data and reaching conclusions. You need to have an enquiring mind to question the validity of the data. You will study how to do statistical sampling, data presentation and probability leading to the study of statistical distributions.

Mechanics (17%)

Mechanics is the modelling of the world around us, the motion of objects and the forces acting on them. You will study the motion of objects and the forces acting on them.

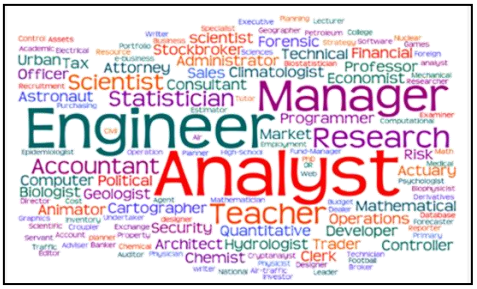
At the end of the course you will sit three papers, each paper is two hours. You will need to purchase a textbook for Year 12 and another for Year 13. You will be able to buy these from the school for about £20 per book. You will also need to buy a specific type of calculator that is able to deal with a lot of the maths you are going to learn. This is a Casio fx-991CW. Again, we will arrange for this to be purchased via the school. This will be around £25. Please be aware that if you are eligible for a post 16 bursary then the cost of resources may be covered depending on family circumstances – please ask in the sixth form office for further details.

Why study A-level mathematics?

Studying mathematics will:

- provide a stimulating and challenging course
- develop key employability skills such as problem-solving, logical reasoning, communication and resilience
- increase knowledge and understanding of mathematical techniques and their applications
- support the study of other A-level subjects
- provide excellent preparation for a wide range of university courses
- lead to a versatile qualification that is well-respected by employers and higher education

There are many career opportunities:



How can I be successful in A-level mathematics?

- **be actively involved** in managing the learning process, the mathematics and your study time
- **take responsibility for studying**, recognising what you do and don't know and ask for help with what you don't know
- **attend every lesson and make complete notes**. Test questions are based on material and examples covered in class as well as those in your textbooks. If you miss a lesson you will be expected to catch up with the work missed before the next lesson, if possible. Make sure **your folder is organized**.
- **be an active participant in the classroom**. Get ahead in the book; try to work some of the problems before they are covered in class. Anticipate what the teacher's next step will be.
- **ask questions in class!** There are usually other students wanting to know the answers to the same questions you have.
- **ask questions outside the class**. Your teacher will be pleased to see that you are interested and you will be actively helping yourself.
- **take responsibility for keeping up with the homework**. Make sure you find out how to do it.
- **you will need to spend more time studying per week** – you do more of the learning outside of class than in.
- **good study habits** throughout each term make it easier to revise for tests.

A-level mathematics is much harder than GCSE. We recommend that you consider taking a fourth option in case you find the course too difficult for you.

Studying mathematics is different from studying other subjects

Mathematics is learned by *doing* problems. Attempt each homework set. The problems help you learn the formulas and techniques you do need to know, as well as improve your problem-solving prowess.

A word of warning

Each lesson builds upon the previous ones throughout the course. You must keep up with the work set. Attend lessons, read the examples given in your textbooks and do all homework. Falling a day behind puts you at a disadvantage. Falling a week behind puts you in deep trouble!

A word of encouragement

Each lesson builds upon the previous ones throughout the course. You are always reviewing previous work as you cover new material. Many of the ideas link together. Identifying and learning the key concepts means you do not have to memorise as much.

Mathematics at Key Stage 5 is different from mathematics at Key Stage 4

Mathematics classes at Key Stage 5 meet more frequently than those at Key Stage 4. Material is covered at a faster rate and you are expected to absorb new material much more quickly. Tests will be more frequent and more specific. Take responsibility for keeping up with the homework. Make sure *you* find out how to do it. You will need to spend *more* time studying per week – you do more of the learning *outside* of class than in. Tests may seem harder because they cover material in more depth.

Preparation for September

You are expected to read and complete the booklet of maths problems. Please bring the booklet with you to your first class in September.