

# FURTHER MATHS

## A Level

### This subject will suit you if:

- You are currently working at a high A/A\* level at GCSE and you would enjoy to study the most challenging A Level available.
- You want to be challenged and stretched by studying more difficult topics than those found at A Level Mathematics.
- You are planning to study either Mathematics or a related degree at University.

### Why Study A Level Further Maths:

- Students taking Further Mathematics overwhelmingly find it to be an enjoyable, rewarding, stimulating and empowering experience.
- For someone who enjoys mathematics, it provides a challenge and a chance to explore new and/or more sophisticated mathematical concepts.
- Further Mathematics is one of the most highly respected subjects studied at A Level.
- It is recognised by the top universities for its challenging content making it an exceptional qualification to obtain.
- It contains the most interesting and challenging mathematics, according to current students.
- It enables students to distinguish themselves as able mathematicians in the university and

To study A Level Further Mathematics you must study the A Level Mathematics with Statistics course also

## Provisional Entry Requirements

At least a Band 7 at GCSE is essential and a band 8 is advisable.



### What You'll Study

- Pure maths** – You'll develop and extend the ideas developed at GCSE and A Level focusing on Complex Numbers, Matrices, Calculus, Algebraic Functions, Vectors, Polar Coordinates, Hyperbolic Functions and Differential equations.
- The course contains 50% compulsory Pure content listed above and the option to choose from Further Pure content or a number of applied options. The applied options include, Statistics and Mechanics.
- Mechanics** – If this option is chosen pupils will study topics including Dimensional Analysis, Momentum, Work, Energy and Power and Circular Motion.
- Statistics** – If this option is chosen pupils will study topics including Discrete Random Variables, Poisson Distribution, Type 1 and Type 2 errors, Continuous Random Variables and Chi Tests.

In the first year you will study content across Pure, Mechanics or Statistics that will be at a standard equivalent to an AS Level.

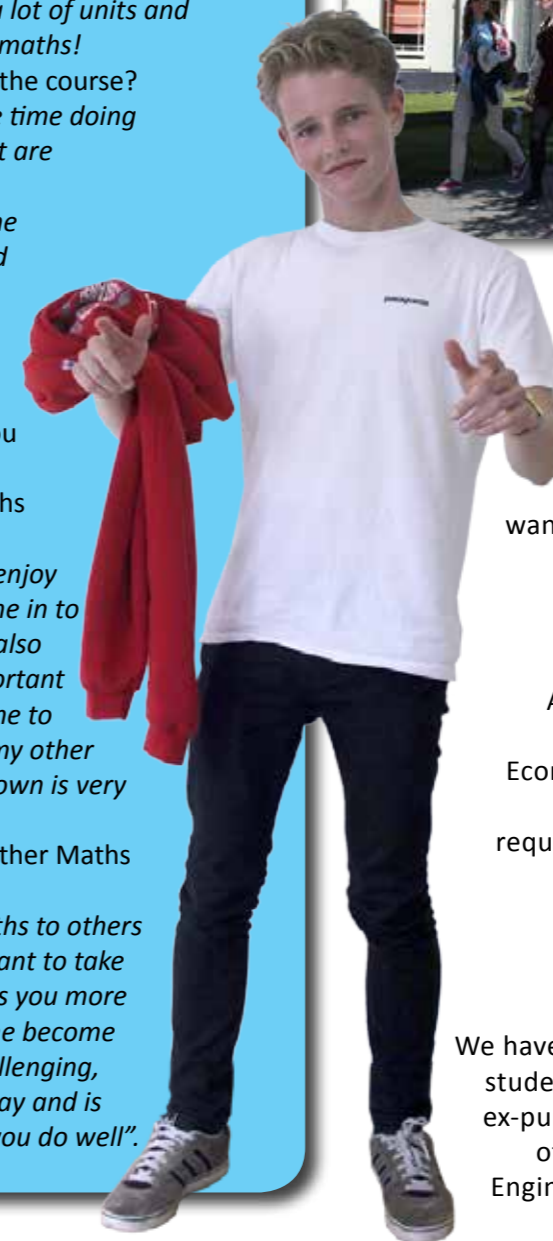
In the second year you will study additional content at A2 level across Pure, Mechanics and Statistics as well as the original content for AS.



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### Why I chose Further Maths ~ Will

"Why did you choose A Level Further Maths?  
I chose A level Further Maths because I simply enjoy doing maths. By choosing to do Further Maths, it meant that I would spend half of my lessons every week doing maths! Whoa! It gives me a broader look at maths, as I get to study a lot of units and I didn't want to miss out on any maths!  
What did you enjoy most about the course?  
I enjoy being able to spend more time doing maths and solving problems that are different to the Core modules.  
I enjoy the Further Pure topics the most, as they take maths beyond where you normally think, and explore areas of maths that are thought to be impossible.  
What is the most useful thing you learnt? All of it!  
What does studying A Level maths mean for your future?  
A level Maths is a subject that I enjoy doing, so hopefully it will lead me in to doing something else that I will also enjoy. Maths weighs a very important role in science, and has helped me to understand calculations within my other subjects. However Maths on its own is very rewarding and satisfying.  
Why would you recommend Further Maths to others?  
I would recommend Further Maths to others if they enjoy doing maths and want to take maths further [waheyyy]. It gives you more to think about and has helped me become better at normal maths. It is challenging, but in a good problem solving way and is an impressive A level to have if you do well".



### Ideas for Progression

An A Level in further mathematics can be advantageous to many students. It is suitable for those who want to study diverse subjects at university including Engineering (Civil, Chemical, Aeronautical, Aerospace, Electrical and Mechanical), Physics, Architecture, Computing, Medicine, Optometry, Accounting, Actuarial Science, Business, Social Sciences, Science, Electronics, Economics, Journalism, Chemistry and Law. It is advisable to check university entry requirement to find out if A Level maths is a requirement for a specific course. It is highly regarded by employers.

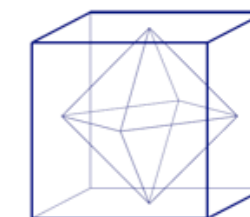
### Current Success

We have had many successes with our previous students going on to achieve top grades. Our ex-pupils have gone on to study a wide range of subjects including; Maths, Physics and Engineering at Manchester, Natural Sciences and Engineering at Cambridge and Biochemistry at Sheffield.

Sample UKMT Senior Team Challenge question:



The centres of the faces of a cube of side  $2a$  are joined to create a regular octahedron. What fraction of the volume of the cube does the octahedron occupy?



### Enrichment

Our students regularly compete in the UKMT Senior Individual and Senior Team challenges. Students can attend a UKMT club where they are trained to apply their AS/A2 knowledge to questions asked in different contexts. We have had pupils achieve very high results and being invited to sit the Senior Kangaroo, invite only, Maths Challenge. We also offer a trip to the annual North West Maths Inspiration Lectures held at the RNCM. For those students who are aiming at achieving the highest grades we offer extra support to prepare them for the STEP examinations (required by some universities) and for Maths interviews at universities.

To find out more you can visit our website: [www.parrswood.manchester.sch.uk/sixthform](http://www.parrswood.manchester.sch.uk/sixthform)  
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