



Sixth Form Options

AS and A Level Further Mathematics

Information in addition to the A Level Maths presentation

Why choose

Further Mathematics is an additional A level qualification taken **in addition to** an A level Mathematics course.

It is designed to supplement, stretch and expand upon the A-level mathematics.

It is the only subject that can be taken as a 4th A-level; however, it is a **very demanding course and should only be taken by students with a genuine interest and passion for its content.**

Teaching:

Further Mathematics students are usually taught as a single class for both Mathematics and Further Mathematics

They are taught 9 hours a week and will do *at least* as many hours of independent study

They are taught by an expert, well-qualified and experienced team of teachers

AS level Further Maths:

We will also be offering **AS Further Maths**

This consists of **7 taught hours** a week

It is still an elite group of students, but allows you to have more free periods

AS Further Maths is advantageous for STEM courses

Course Overview

Course content for the Further Mathematics A level:

- Further Pure Mathematics
- Further Statistics
- Further Mechanics

Entry requirements : we recommend GCSE Higher grade 8 or above to ensure the algebraic understanding is sound.
Passion and self-directed interest in the course are an **essential requirement** for successful progression.

Course Overview

Pure Mathematics

(50%)

Proof; Complex numbers; Matrices; Further algebra and functions; Further calculus; Further vectors; Polar coordinates; Hyperbolic functions and Differential equations

Statistics

(25%)

Discrete probability distributions; Poisson & binomial distributions; Geometric and negative binomial distributions; Hypothesis Testing; Central Limit Theorem; **Chi Squared Tests;** Quality of tests and Probability generating functions

Mechanics

(25%)

Momentum and impulse; Work, energy and power; Elastic strings and springs and elastic energy; **Elastic collisions in one dimension** and Elastic collisions in two dimensions

Assessment

A Level Further Mathematics is assessed purely by examinations (no coursework), all of which are taken at the end of Year 13.

There are 4 exams for the Edexcel board (which we currently follow):

Pure mathematics 1 – 1.5 hrs

Pure mathematics 2 – 1.5 hrs

Statistics – 1.5 hrs

Mechanics – 1.5 hrs

Remember,
these will be in
addition to the
3 exams for
Single Maths A
Level

Assessment

AS Level Further Mathematics is assessed purely by examinations (no coursework), all of which are taken at the end of Year 13.

There are 2 exams for the Edexcel board (which we currently follow):

Paper 1

Pure mathematics - 1 hr 40 mins

Paper 2

Further Statistics and Further Mechanics - 1 hr 40 mins

Remember,
these will be in
addition to the
3 exams for
Single Maths A
Level

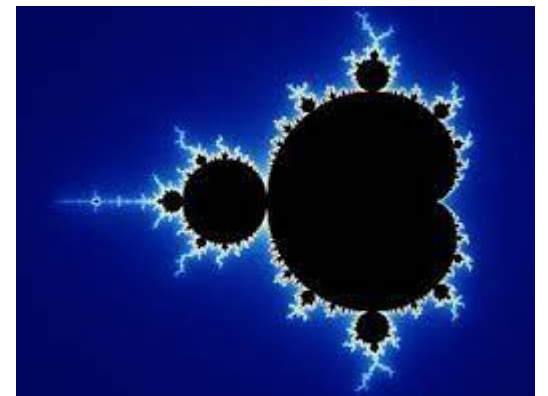
Further Maths will help you answer questions
such as:

How long should a bungee cord be to prevent the bungee jumper from hitting the ground?

How are vectors used to program video games?

How are imaginary numbers related to fractals?

How can I interpret survey results?



Why take it?

- Phenomenally interesting
- You get to be part of an elite group of students who love maths

Further Mathematics isn't for everyone but...

- It is a **massive** game changer for certain courses like engineering and computing
- Certain engineering courses don't require it but after a week's instruction will assume you are fully comfortable with the **entire** course

What if I want to study a social science like Economics?

Further Mathematics is crucial for some of the more career-enhancing applied Economics and Finance modules such as:

- Econometrics
- Operations Research
- Derivative Evaluation and Option Pricing

Why Roundwood?

- Dedicated team of teachers with a wealth of experience
- We offer regular sessions on entrance exams and interview practice for competitive university STEM applicants
- Track record of success with new joiners
- Incredibly supportive Heads of Year
- Track record of successful Oxbridge applicants
- Choice of AS or A level Further Maths

Student quotes – pros:

‘It’s fun and interesting, not boring, fun to revise’

‘It’s the best choice of my life and I’m very satisfied in studying and being present in the classroom because it’s challenging and separates you from the other maths students’

‘Makes everything else seem easy’

‘Separates you from the majority’

‘Improves your problem solving skills’

Why *not* to do it?

- If you only *like* maths – you have to LOVE it
- If it doesn't naturally interest you
- You already have a busy schedule that you find hard to manage
- Just to look good on a CV/UCAS form
- You find it hard to be independently motivated

Student quotes – cons:

‘You will have to spend lots of time outside of school studying’

‘More work and fewer free periods’

‘Less time to spend on other A level subjects’

‘Fewer frees, no games’

‘Some concepts are quite abstract and demotivating when you don't know what's going on, you will have to spend A LOT of time doing maths’



Further Mathematics

**For more information please contact Head of Maths Mrs C
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