

# A Level Further Mathematics

*Information in addition to the A Level Maths presentation*





# What is Further Mathematics?

- 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 4<sup>th</sup> 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 as many hours of independent study.
- ▶ They are taught by an expert, well-qualified and experienced team of teachers.

# Our A Level Further Mathematics teaching team:



Most of our A Level Mathematics Teaching Team also teach Further Mathematics.

Some of our experts:

We have a teacher who also works for the Advanced Maths Support Programme based at the University of Hertfordshire. She helps us to run our Russell Group problem solving workshops, helping students apply to top universities for STEM subjects

Several of our team have had previous careers in banking and accountancy

Two of our team both have maths degrees from the University of Warwick – one of the most prestigious institutions for mathematics studies

One of our expert mechanics teachers has a degree in Civil Engineering

One member of staff has taught in International Schools and works as an International Baccalaureate examiner

# *Structure of the new A-Level Further Maths*



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.

# What is covered in A level Further Mathematics?



Part of the content in the A level Further Mathematics qualification is compulsory and is the same for all examination boards.

## **Pure Mathematics**

**(50%)**

Proof; complex numbers; matrices; vectors, lines and planes; hyperbolic functions; further calculus.

## **Statistics**

**(25%)**

the study of discrete and continuous statistical distributions, hypothesis testing and confidence intervals

## **Mechanics**

**(25%)**

Modelling, dimensional analysis, circular motion, force resolution.

# A Linear Course

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

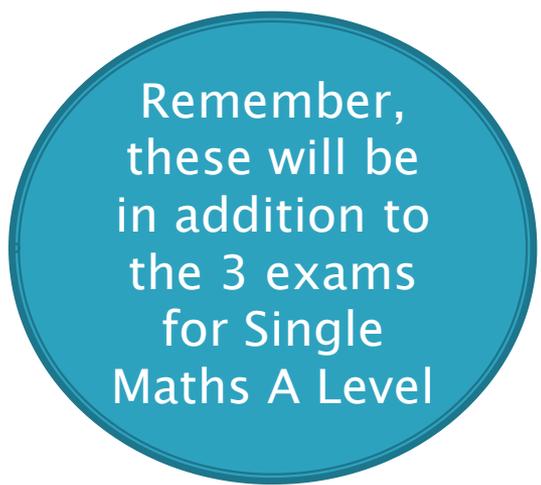
There are 4 exams for the OCR board (which we currently follow):

Pure mathematics 1 – 1.5 hrs

Pure mathematics 2 – 1.5 hrs

Statistics – 1.5 hrs

Mechanics – 1.5 hrs

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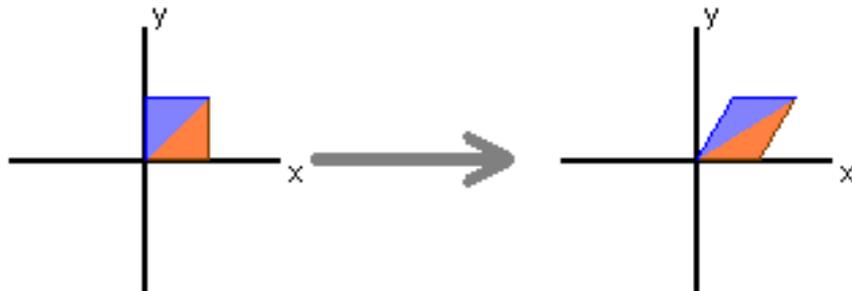
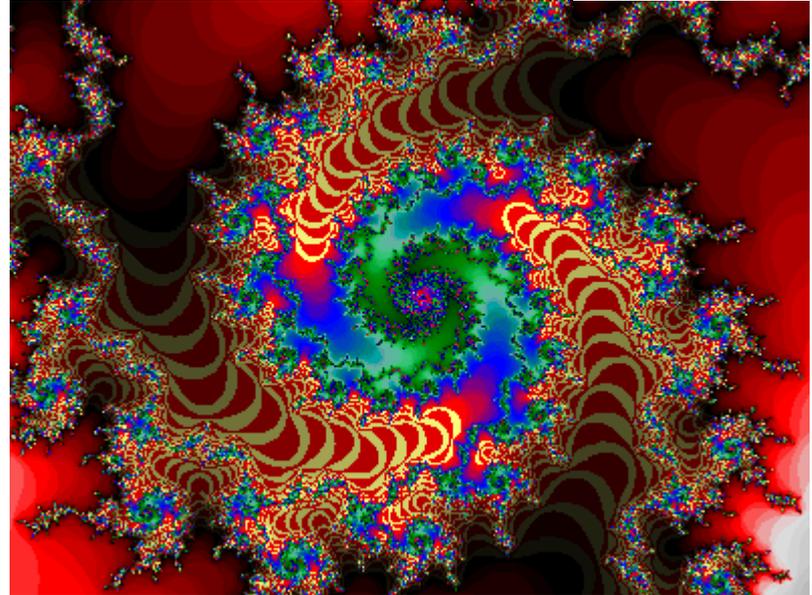
Remember,  
these will be  
in addition to  
the 3 exams  
for Single  
Maths A Level

# What pure maths is covered in Further Mathematics?



Two examples of important Further pure topics are complex numbers and matrices.

Matrices are arrays of numbers such as  $\begin{pmatrix} 1 & 0 \\ 0 & 2 \end{pmatrix}$ . They can be used to solve sets of simultaneous equations and to represent transformations such as the shear shown in the diagram below.



Complex numbers are based on the 'imaginary' number  $\sqrt{-1}$ . They lead to the study of lots of new areas of mathematics, including fractals like those shown in the image above.