

Why study Mathematics?

Leads to versatile qualifications

well-respected by employers and higher education

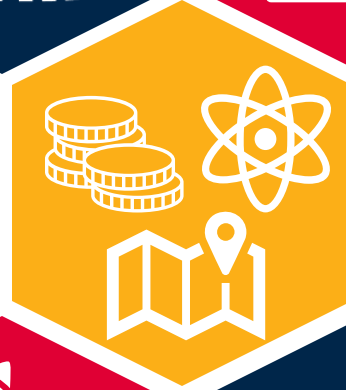


Develop key employability skills

e.g. problem-solving, communication, logical reasoning and resilience

To support the study of other A levels

E.g. Psychology, Biology, Geography (and more)



Excellent preparation

for a wide range of university courses

Increase knowledge and awareness

of mathematical techniques and their applications



Stimulating and challenging course

evidenced positive effect on cognitive development



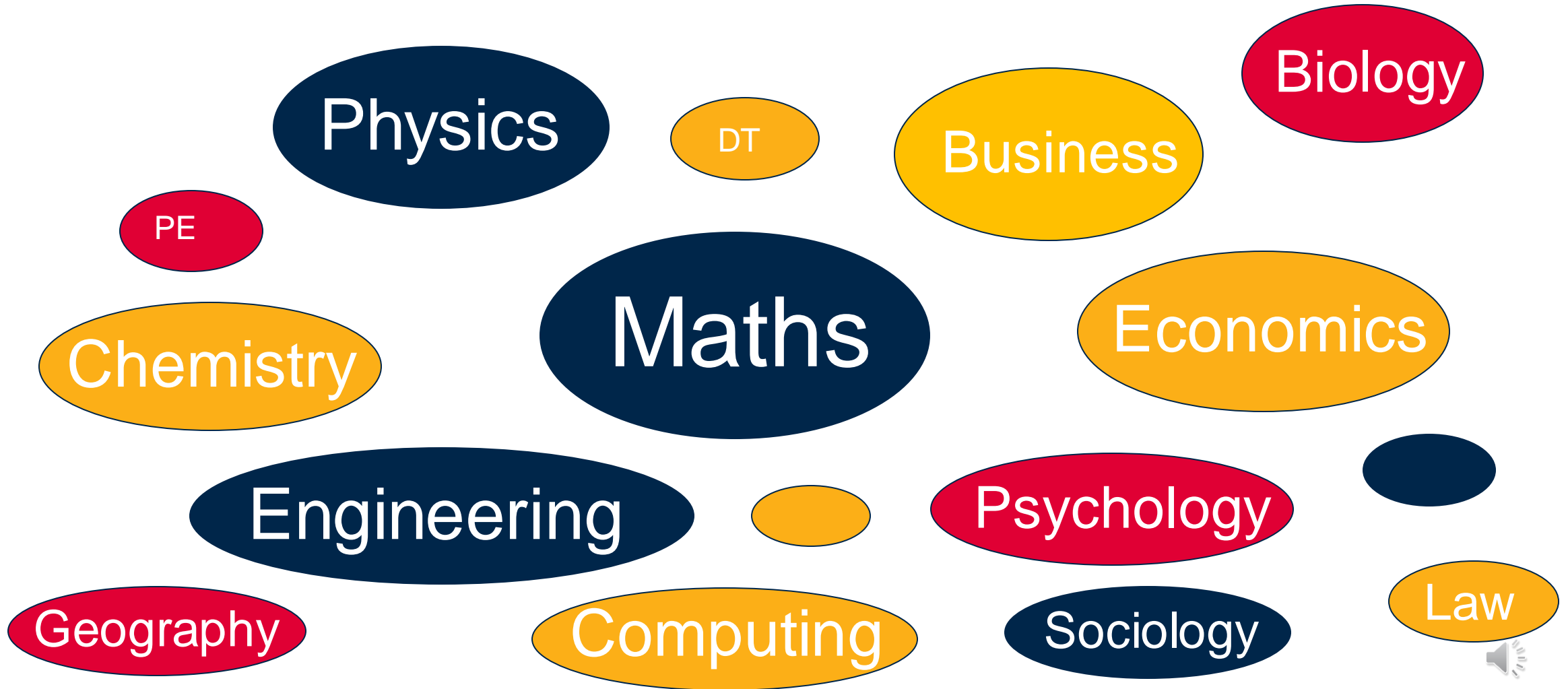
Entry Requirements for A Level Maths

In order to take A Level mathematics you are required to achieve a minimum of a grade 7 GCSE

It would also be advantageous if you have studied the GCSE Further Maths curriculum



Many subjects use maths...



Post-16 Mathematics options

A level
Mathematics

A level Further
Mathematics

Which should you choose?



What is in A level Mathematics?

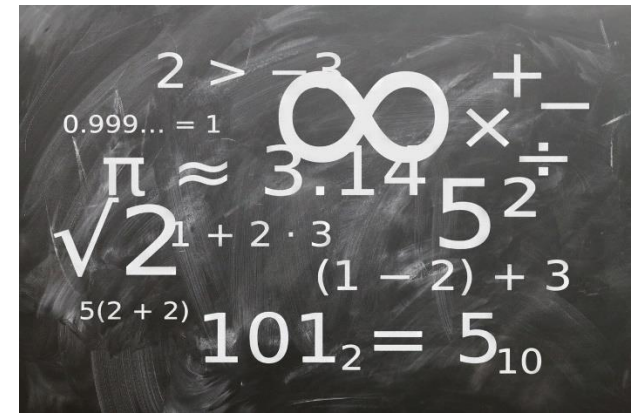
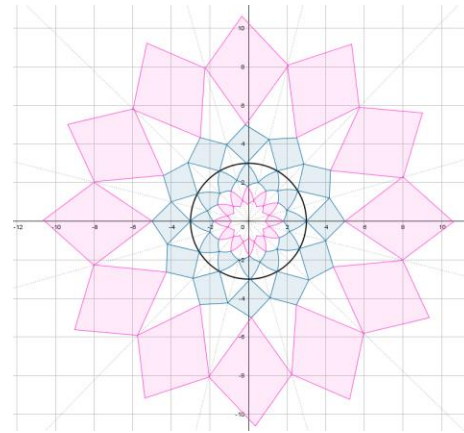
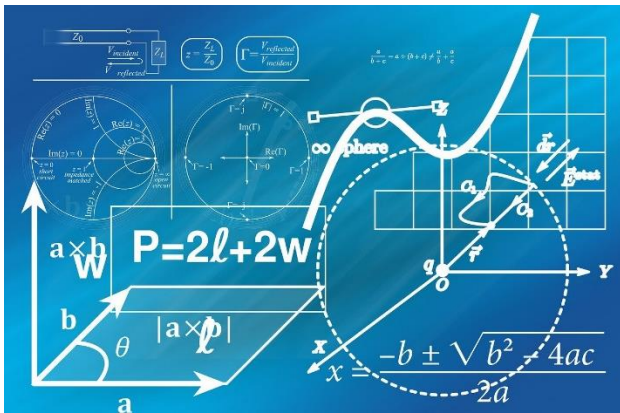
All of the content in the A level Mathematics qualification is compulsory and is the same for all examination boards.



We take the Edexcel Board for both A Level and Further Mathematics

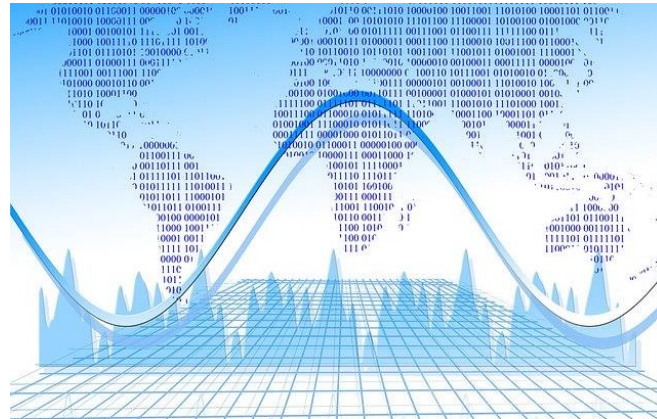
What is Pure Mathematics?

Methods and techniques which underpin the study of all other areas of mathematics, such as, proof, algebra, trigonometry, calculus, and vectors ... **enabling us to solve real world problems.**



What is Statistics?

Reaching conclusions from data in order to make informed decisions to help plan for the future.



What is Mechanics?

The modelling of the world around us, the motion of objects and the forces acting on them.

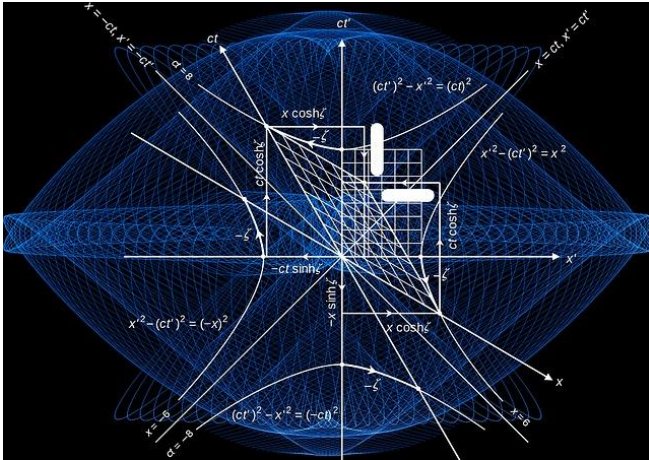


Particularly useful for careers in physics or engineering



What is Further Mathematics?

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



Great preparation for university courses in mathematics and related quantitative and scientific subjects.



What is Further Mathematics?

A level

Pure Mathematics

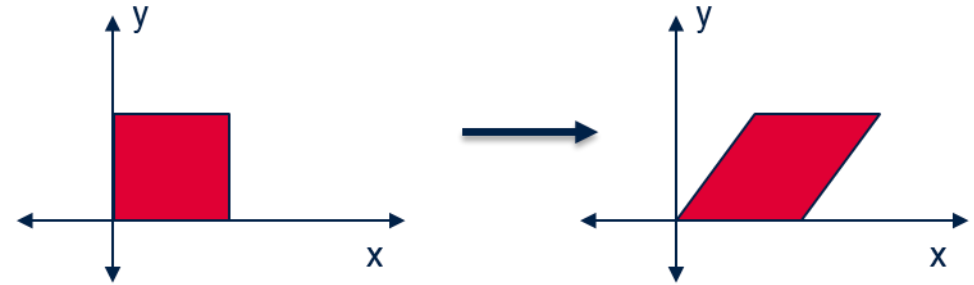
Statistics & Mechanics



Pure maths in Further Mathematics

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

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



$$\sqrt{-1} = i$$

$$a + bi$$

Real part

Imaginary part



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 on the left.

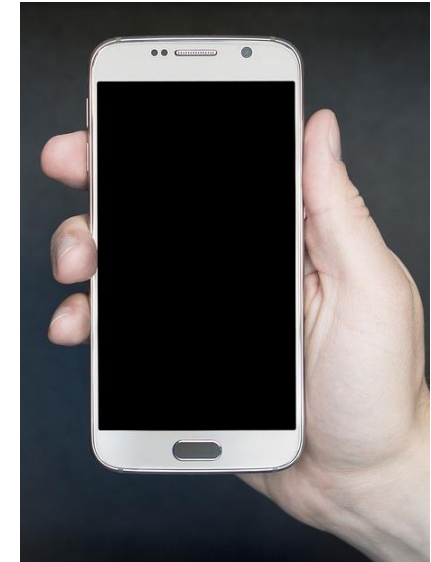
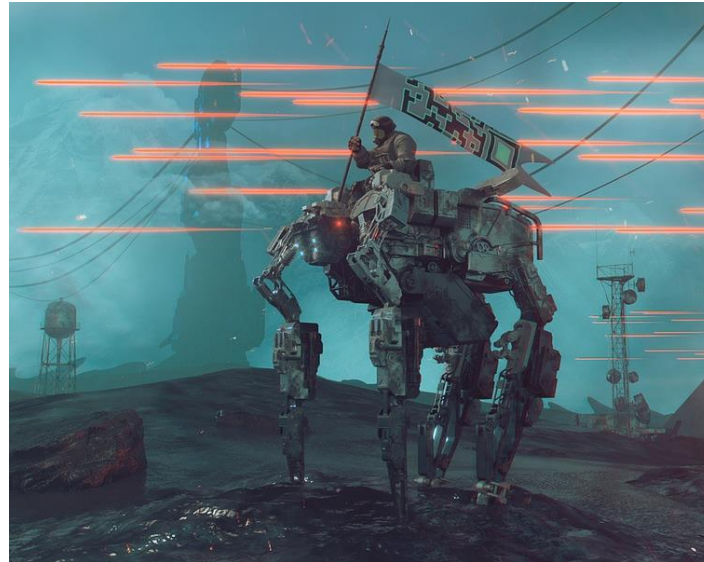
What are the career opportunities?



Careers using maths

Applications of mathematics in technology:

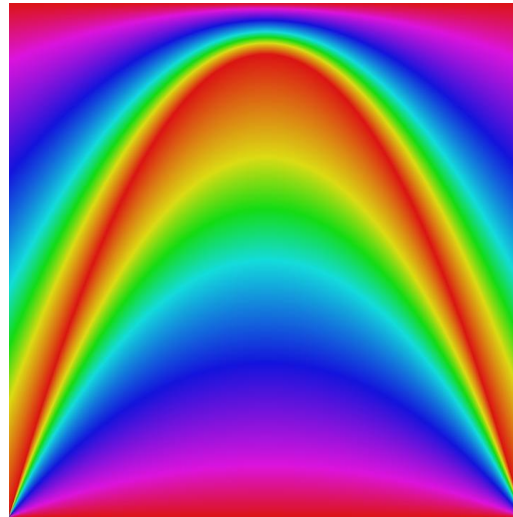
- Medical
- Games Design
- Internet Security
- Financial Cryptography
- Computing
- Communications
- Artificial Intelligence



Careers using maths

On-going applications in engineering, such as:

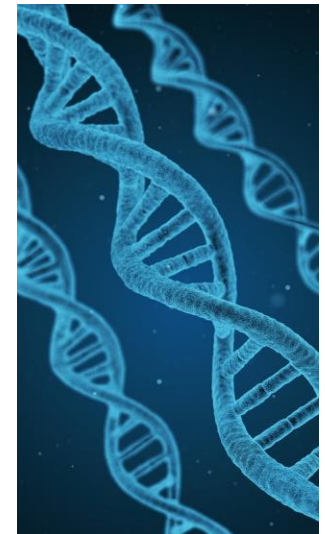
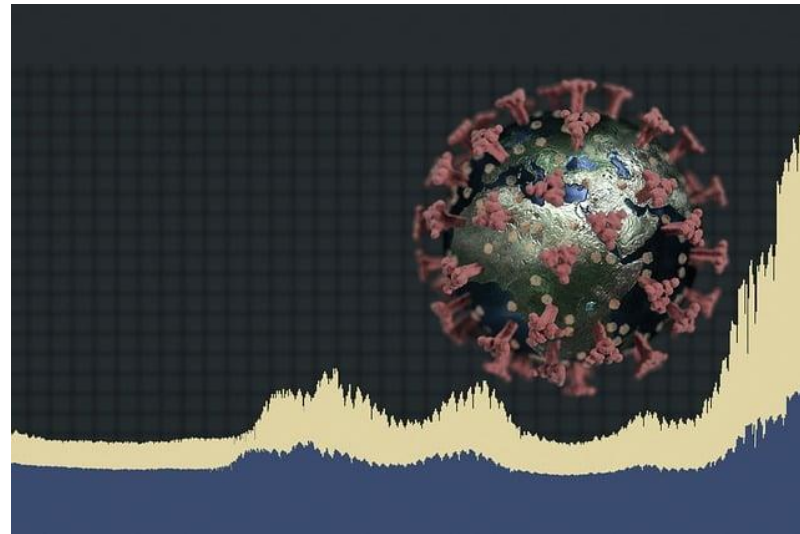
- Aircraft Modelling
- Fluid Flows
- Acoustic
- Software Development
- Electronics
- Civil Engineering.



Careers using maths

New scientific processes such as:

- Modelling populations
- Modelling diseases
- Quantum Physics
- Astronomy
- Forensics
- DNA sequencing



Careers using maths

Applications relating to human behaviours and interactions:

- Data Science
- Psychology
- Law
- Economics
- Climate Change
- Environmental Modelling
- Political Science
- International Development

