



# A-Level Mathematics

Exam Board: Edexcel

Entry Criteria: GCSE Mathematics Grade 6 or above (Grade 7 or above strongly recommended)

## Overview

The A-Level Mathematics course consists of **Pure Mathematics** and **Applied Mathematics**, with applied modules covering **Statistics** and **Mechanics**. Key topics are introduced in Year 12 and revisited in Year 13 to deepen understanding. Topics include:

1. **Proof**
2. **Algebraic Functions**
3. **Coordinate Geometry**
4. **Sequences and Series**
5. **Exponentials and Logarithms**
6. **Differentiation and Integration**
7. **Numerical Methods**
8. **Vectors**



## Assessment

Assessment occurs at the end of Year 13 across three two-hour exams, each worth 100 marks and equally weighted (33.33% each):

- **Paper 1: Pure Mathematics 1**
- **Paper 2: Pure Mathematics 2**
- **Paper 3: Statistics and Mechanics**



## Recommended Resources

### Bridging Material:

1. Collins Maths – Bridging GCSE and A Level by Mark Rowlands
2. Pearson - Transition to A-Level
3. TLMaths - Bridging the Gap from GCSE to A-Level

### Online Resources:

1. **Desmos and GeoGebra:** Interactive graphing tools
2. **Dr Frost Maths:** Offers practice questions and course materials
3. **PhysicsandMathsTutor:** Extensive collection of topic-based questions and past exams
4. **BicenMaths YouTube Channel:** Video tutorials and Google Drive resources



## Wider Reading List

### Popular Math Books

1. The Simpsons and Their Mathematical Secrets by Simon Singh
2. From 0 to Infinity in 26 Centuries by Chris Waring
3. The Music of Primes by Marcus Du Sautoy
4. Fermat's Last Theorem by Simon Singh
5. How to Bake Pi by Eugenia Cheng
6. Seventeen Equations that Changed the World by Ian Stewart
7. Humble Pi by Matt Parker
8. The Indisputable Existence of Santa Claus by Hannah Fry

### Classic Math Books

1. 1089 and All That by David Acheson
2. The Calculus Story by David Acheson
3. Alex's Adventures in Numberland by Alex Bellos
4. A Brief History of Infinity by Brian Clegg
5. What is Mathematics? by Courant, Robbins, and Stewart
6. Mathematics: The New Golden Age by Keith Devlin
7. The Millennium Problems by Keith Devlin
8. The Unfinished Game by Keith Devlin
9. Is Mathematics Inevitable? A Miscellany by Underwood Dudley
10. MATHS 1001 by Richard Elwes
11. Maths in 100 Key Breakthroughs by Richard Elwes
12. The Colossal Book of Mathematics by Martin Gardner
13. Mathematics: A Very Short Introduction by Tim Gowers
14. The Pleasures of Counting by T. W. Körner
15. Closing the Gap: the quest to understand prime numbers by Vicky Neale
16. The Mathematical Century: The 30 Greatest Problems of the Last 100 Years by Piergiorgio Odifreddi
17. Cryptography: A Very Short Introduction by Fred Piper and Sean Murphy
18. How to Solve It by George Polya
19. Mathematics Masterclasses: Stretching the Imagination by Michael Sewell (ed.)
20. The Code Book by Simon Singh
21. Letters to a Young Mathematician by Ian Stewart
22. 17 Equations That Changed The World by Ian Stewart



## Career Progression

A-Level Mathematics is highly regarded for STEM fields and valued across diverse university courses. For those planning to pursue **Mathematics**, **Engineering**, or **Physics** at university, **Further Mathematics** is highly recommended. This course develops analytical and problem-solving skills critical for many professional pathways.