

MATHEMATICS & FURTHER MATHEMATICS



Results

For the last three years Colfe's School Mathematics department has ensured 80% of the cohort attain a grade A* or grade A. In 2025 we celebrated results with **56% of A Level Mathematics students achieving an A* and 95% awarded A*/A**. Furthermore, **36% of A Level Further Mathematics students achieved a grade A* and 86% gained A*/A**. Indeed, these results place the department in the top 15% of all independent schools for value added.

Assessment structure

Mathematics is a composite subject made up of a combination of Pure Maths, Mechanics and Statistics. There are two possible qualifications, both examined linearly:

- A level Mathematics – two papers (each 2 hours duration) of Pure Maths plus one paper (2 hours duration) consisting of two sections; 50% Mechanics & 50% Statistics.
- A level Further Mathematics – two papers (each 1.5 hours duration) of Further Pure Maths, one Further Mechanics paper (1.5 hours) plus one Further Statistics paper (1.5 hours).

What is the difference between the units?

Pure Maths is composed of algebra, trigonometry, calculus, vectors, coordinate geometry and numerical methods. These topics are core to the entire course and many of the techniques will also prevail in the Applied Maths sections (Statistics & Mechanics).

Mechanics introduces the ideas of basic motion, force and energy and applies these ideas to dynamic or static situations. Describing the motion of a car travelling on an inclined plane is a problem in dynamics and calculating the forces exerted on a ladder against a wall is a problem in statics. Mechanics is helpful for students taking Physics or for anyone interested in Engineering or any subject related to the physical sciences.

Statistics develops elementary ideas of probability and data analysis methods. If you are taking Biology, Geography, Business Studies or Economics, you will find Statistics useful.

A level Mathematics and beyond

A level Mathematics can be studied with a range of A level subjects but you should bear in mind that it is a prerequisite subject for university courses in Mathematics, Physics and in almost all Engineering, Architecture, Computer Science and Operational Research Degrees. A number of university courses in Management Science and Economics require or prefer candidates to have an A level in Maths.

Further Maths is taken by very able and dedicated Mathematicians. It is clearly advantageous for those wanting to read Mathematics, Physics or Engineering at Oxford, Cambridge, Imperial College London and other very competitive entry universities such as Warwick and Bath.

Students studying Further Mathematics will complete A Level Mathematics in Year 12.

Entrance requirements

To study A level Maths you need to be studying GCSE Higher level (or the equivalent) and you will need to obtain a **grade 8 (please see overleaf for more details)**.

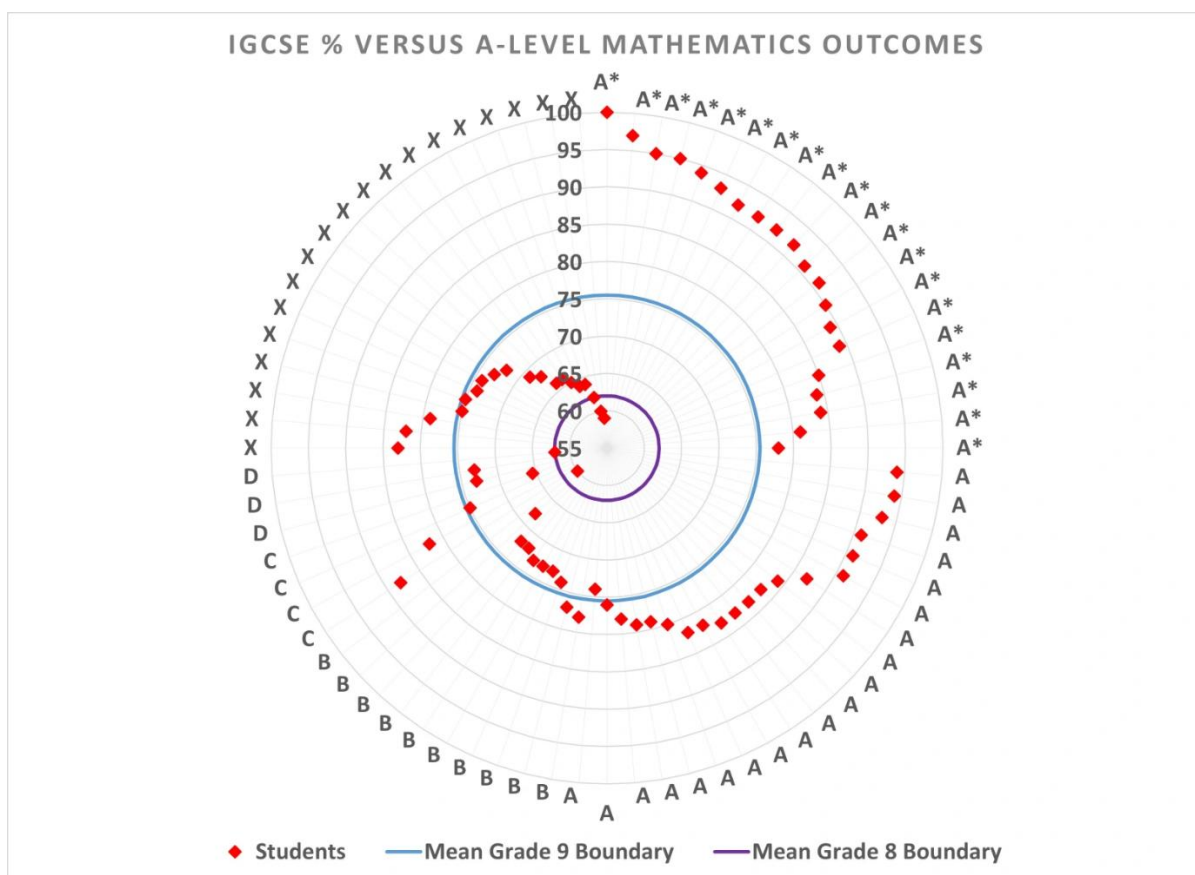
To study A level Further Maths you must obtain a **grade 9** in GCSE or IGCSE Mathematics, and it will be very beneficial if you have a high grade (9 or 8) in GCSE Further or Additional Maths.

If you have met the above requirements, you will still need to sit a short induction test in September, which will examine material (mainly GCSE algebra) given to prospective students towards the end of the academic year.

Mathematics and Further Mathematics **are extremely demanding subjects** and you must be **fully committed and ready to make sacrifices in order to succeed**.

Probable A-level Attainment Outcomes

I have created this document to help you determine your probable A-Level Mathematics outcome. Consequently, you will be better informed as to whether or not A-Level Mathematics is the most suitable course for you.



The chart above illustrates how difficult the new specification of A-Level Mathematics is in comparison to IGCSE Mathematics. Without a good IGCSE percentage score (to be expected in a hierarchical subject) and without a strong work ethic gaining good grades at A-Level is extremely difficult. Please bear in mind that this department is currently in the **top 15% of independent schools for value added in A-Level Mathematics**.

X indicates that a student dropped A-Level Mathematics by the end of Year 12. Eg the chart shows that the student at the top of the circle achieved an A* in A-Level Mathematics and had scored 100% in IGCSE Mathematics.

Most importantly, the plot shows that; a) It is incredibly difficult to achieve an A or A* grade with an IGCSE score of less than 80% and b) It is very unlikely to even gain a grade B with an IGCSE score of less than 70%. However, we do believe that success with slightly lower scores is possible (hence the entrance requirement of a grade 8), but **YOU MUST THOROUGHLY ENGAGE WITH ALL RESOURCES FROM THE ONSET TO HAVE ANY CHANCE OF SUCCESS!**

The table* below is an alternative way of looking at the same data. For example, the probability of obtaining a grade A* with an IGCSE score of 70-80% is about 4%.

A-Level Grade Outcome Probability (%)						
IGCSE % Score	A*	A	B	C	D	X
90-100%	68.4	31.6	0.0	0.0	0.0	0.0
80-90%	31.6	47.4	0.0	10.5	0.0	10.5
70-80%	4.2	20.8	33.3	4.2	8.3	29.2
60-70%	0.0	0.0	14.3	7.1	7.1	71.4

* We have never had any E or U grades and the bands are inclusive at the lower limit and exclusive (bar 90-100%) at the upper limit.