

AS Level and A-Level Mathematics and Further Mathematics

Entry Requirements: Grade 7 GCSE for AS and A-Level Maths courses. Grade 8 GCSE for Further Mathematics courses.

Exam Board: OCR Syllabus A

Subject Leader: Mr P Webb pwebb@taptonschoool.co.uk

Main Syllabus Area

AS Mathematics: Students will study 3 components: Pure Mathematics, Statistics and Mechanics.

A-Level Mathematics: Students will complete further study of the 3 components: Pure Mathematics, Statistics and Mechanics.

AS Further Mathematics: Students will study a core component of Further Pure Maths alongside Further Statistics and Further Mechanics.

A-Level Further Mathematics: Students will complete further study of the 3 components of AS Further Mathematics.

Method of Assessment

AS Mathematics will comprise of 2 assessed papers – Pure & Statistics, Pure & Mechanics. The papers are taken in May /June of Y12.

A-Level Mathematics will assess the whole 2-year course and will comprise of 3 papers – Pure Maths, Pure & Statistics, Pure & Mechanics. This will be assessed in June of Y13.

For AS and A2 Further Mathematics, modules will be assessed in May/June of Y12 and Y13.

Further Mathematics is equivalent to taking 2 A-Levels. Students completing this course will be awarded A-Levels in Mathematics and Further Mathematics.

Qualities Required

Students should have a keen interest in Mathematics and a possible desire to study Mathematics at University though this is not essential. All courses require a commitment to hard work outside the classroom, at least as many hours private study as you have lessons, and willingness to talk to your teachers and seek help when you know you need it.

"Maths is a highly enjoyable and rewarding subject. It is very demanding but there is a high sense of achievement when it comes to problem solving. All the teachers are very approachable about anything and are always willing to help."

Links with other subjects

Pure and Statistics – Geography, Economics, Biology, PE, Psychology, Sociology, Computer Science

Pure and Mechanics – Physics, Chemistry, Design Technology.

Further Mathematics – This course links with all of the above.

Career Prospects

Career prospects are infinite. Mathematics opens up the possibility of careers in medicine, banking and insurance, commerce, marketing, accountancy, engineering, research and design, education, government and public services, research statisticians, managers, administrators, manufacturing, industry and the armed forces to name but a few. Naturally, A-Level Mathematics is a very highly valued subject in the eyes of universities and other institutes of Higher Education.

Extension and Enrichment Opportunities

University Master classes
National Maths Challenges
Sheffield University Y12 and Y13 Advanced Problem Solving and pre-STEP tuition.

Reading list

Y11s preparing for KS5 Mathematics

Look out for Mathswatch task called "2key skills for AS maths" as well as the maths summer homework.

Free on Kindle is the CGP Nead start to AS maths [Head Start to A Level Maths](#)

Y13s preparing for a degree in mathematics

How to Study for a Mathematics Degree (2012) by Lara Alcock

Numbers and Proofs (1997) by Reg Allenby

Towards Higher Mathematics: A Companion (2017) by Richard Earl

A Concise Introduction to Pure Mathematics (2000)

<https://nrich.maths.org/university>

- [Prepare for university - pure mathematics | NRICH](#)
- [Prepare for university - applied mathematics | NRICH](#)
- [Interactive workout - Mathmo | NRICH](#)
- [Maths in the Undergraduate Physical Sciences | NRICH](#)
- [Mathematical preparation for the Cambridge Natural Sciences Tripos | NRICH](#)
- [Advanced STEM | NRICH](#)
- [Prepare for university - mathematical physics | NRICH](#)
- [Prepare for university - engineering | NRICH](#)
- [Prepare for university - mathematical chemistry | NRICH](#)
- [Prepare for university - mathematical biology | NRICH](#)

Independent Study

A-Level Maths is a continuation of GCSE in that you learn new mathematical concepts in class and have the opportunity to practise new skills, develop fluency in those skills and ultimately learn to solve problems.

We do not have time to do all of this in class, and much of this practice must be done by you independently, using the course textbook and other resources.

We expect you to complete any unfinished questions from the textbook exercises following each lesson. You may fall behind if you fail to do this.

You will be given an Exercise Completion Tracker to keep track of which exercises you have done, and any problems you need to sort out.

Your teachers will check that you are completing the exercises by collecting in your folder on a regular basis.

We expect you to spend up to 5 hours per week outside lesson time to consolidate and master the new skills learned. It is vitally important that you get into good habits and invest this time from day one.

Having problems with understanding?

- If you leave a lesson a little unclear, **go back and speak to your teacher or ask your colleagues from your class**. Clearing up misconceptions and seeking advice is the simplest form of taking responsibility for your own learning and progress. You could also visit the lunchtime support sessions in 002.
- **Get hold of a textbook**, read the content again and work through the worked examples, and add any details to your notes.
- **Visit recommended websites** such as **Integral** or **TLMaths**, containing videos and worked examples of every concept. Look on the **Learning Platform** for extra practice questions, such as the **ZigZag Topic Tests**.
This is a habit developed by students who get the A/B grades.