Subject Guide:

A Level and AS Maths

Change to all A Levels

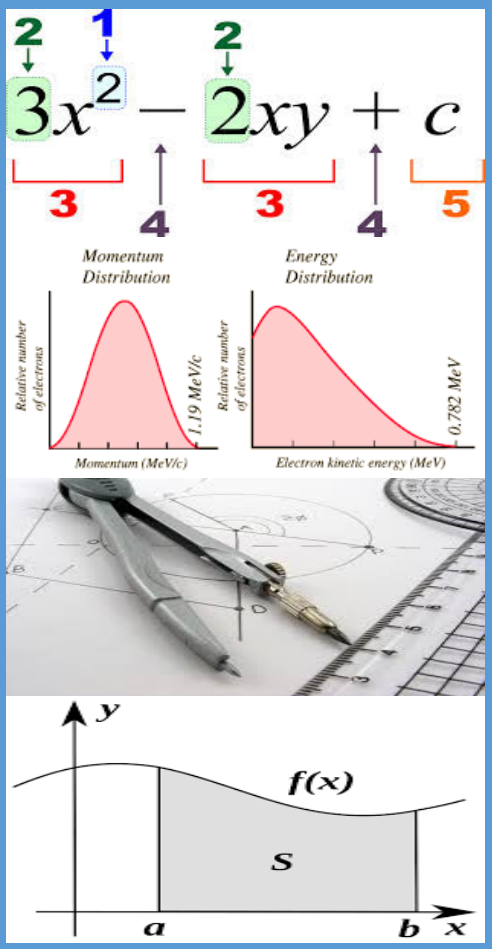
Changes are under way for all A levels in all schools and colleges and some awarding bodies are still revising their syllabuses for 2015. As a result, this guide is an illustration of the content but the exact details may change.

The most significant changes in A Levels and AS exams (but see below for the different timescale in this subject) are:

- All assessment for A Levels will be through end of course exams with no practical element in most subjects.
- There will still be AS as one year "half A Levels" but you won't be able to add an A2 to make them into a full A Level.
- This means if you want a full A Level you will need to decide that at the start of your course.
- You will still be able to combine A Levels with other types of qualifications such as BTECs.
- These changes are happening at different times for different subjects.
- You'll have lots of support from us before you have to make your final choice of subjects.

Specifics for this subject:

The first teaching for the new A Level Maths qualification has been delayed by the Government until September 2016 leading to an end of course exam in 2018. This means September 2015 UTC students will take the AS examination in September 2016 followed by the full A Level in 2017.



What is Maths at this level?

Maths at this level requires you to apply a wide range of mathematical facts, concepts and techniques to variety of contexts.

You will learn how to construct rigorous arguments and proofs through the use of precise statements, logical deduction and inference. This in turn allows you to apply mathematical models to represent and solve real world problems.

Clearly you need to be confident in the application of mathematical techniques and be able to abstract from real world contexts into mathematical representations and select appropriate techniques to apply.

A Level Maths enables you to become confident with predictions, projections and models and in harnessing calculating technology including computer programs. You will also learn the limitations of such approaches.

As the new Maths A Level programme of study has not yet been developed under the Government's reforms, students in September 2015 will continue to enter for AS exams in Year 12 and progress, if they wish, to the full A Level in Year 13.

What GCSEs do I need to study Maths?

We will expect you to have gained an A* or A in GCSE Maths in order to show that you will be able to cope with the very demanding concepts used in Maths A Level. Only in exceptional circumstances will we consider students with a B grade who can demonstrate that this grade under-estimated their mathematical potential. Students interested in a Maths qualification to support other subjects who do not have an A* or A at GCSE should consider whether the Level 3 Certificate in Quantitative Problem Solving would suit their needs better.

A Level and AS Maths

What could I do with it afterwards?

Maths is valued as an entry qualification for almost all university subjects and mathematical abilities help secure good careers across a wide range of occupations including becoming engineers, scientists, bankers, accountants, computer scientists, environmental scientists, geologists, transport engineers and many more.

What form does the assessment take?

All assessment is through end of course exams (i.e. the AS in Year 12 and the A Level in Year 13) and there is no coursework mark.

The AS covers 3 units and in at least one the use of calculators is not allowed. A further three units are taken in Year 13 to complete the A Level.

Course details

AS Maths (Year 12)

At this stage we are intending to offer the Pure Maths with Mechanics option as this fits well with the study of both Physics and Engineering.

This comprises:

Pure Maths

(the basic toolkit for mathematical modelling and problem-solving)

Core Maths 1

- Algebra
- Differentiation
- Co-ordinate Geometry

Core Maths 2

- Algebra and polynomials
- Trigonometry
- Integration

Applied Maths—Mechanics

(applying mathematical tools to solve real problems in Physics and Engineering)

Mechanics 1

- Forces & equilibrium
- Kinematics
- Linear momentum of particles

A2 Maths (Year 13)

The A2 develops the concepts covered in the AS and comprises:

Pure Maths

((the basic toolkit for mathematical modelling and problem-solving)

Core Maths 3

- Further Trigonometry
- Differentiation and Integration
- Co-ordinate Geometry

Core Maths 4

- Additional Differentiation and Integration
- Vectors

Applied Maths—Mechanics

(applying mathematical tools to solve real problems in Physics and Engineering)

Mechanics 2

- Projectile motion
- Work, energy & power
- Particle collisions