

INTRODUCTION TO FURTHER MATHEMATICS A LEVEL

A FULL A-level qualification taken as a fourth option with A-level Maths as one for your first three



Stretching into new and different areas of Mathematics that are not covered in the normal A-level

Preparation for university study of Mathematics and maths related subjects



Very highly regarded with Universities and employers

A course that develops valuable mathematics, thinking and problem solving skills



Interesting, engaging and challenging



COURSE CONTENT

Module 1: Core pure

Taught across the two years

Proof
Algebra
Series
Calculus

Differential equations
Complex numbers
Polar coordinates

Matrices & transformations
Vectors and 3-D space
Hyperbolic functions

Module 2: Statistics

Normally taught in year 13

You will extend the use of statistical techniques that have been covered in A-level Maths and will look at probability distributions, such as Poisson. You will also learn how to test for correlation and relationships within data sets.

Module 3: Modelling with Algorithms

Normally Taught in year 12

You will learn to write some basic algorithms and be taught some fundamental algorithms such as Prim's to find the Minimum spanning tree. You will use Critical Path Analysis and linear programming to solve problems with constraints.

Module 4: Numerical Methods

Normally Taught in Year 12

Some problems cannot be solved algebraically and so a numerical method can be used to give approximate solutions. This module will teach you numerical methods to approximate functions, solve equations, as well as find estimations for differentiation and integration.

HOW YOU WILL BE ASSESSED

You will complete practice questions and exercises through out the course. Completing online assessments via integral for frequent feedback.

After the completion of every section you will complete an end of chapter assessment which will be uploaded for marking by your teacher through the teams channel. These are normally completed as part of a homework.

You will sit termly assessments and mock assessment in line with the school assessment calendar which will contain questions on all areas taught and so clear notes/examples and regular revision is important.

You will sit three Year 12 **mock** papers in Summer of Year 12.

You will sit four **actual** papers at the end of Year 13. These will contribute to the Further Mathematics A Level Grade that you are awarded in August.

See the Assessment Overview on slide 2 for weighting and length of each examination.

WHY DO FURTHER MATHEMATICS?

Further Mathematics is taken as a fourth subject and you **MUST** be studying A-level Mathematics.

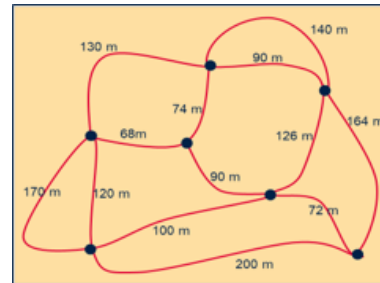
It is for students who enjoy a challenge.

It is for able mathematicians looking to continue to study a mathematics based course at higher level, or for those who are interested in expanding their knowledge of mathematics to areas not covered by the standard A-level Mathematics route.

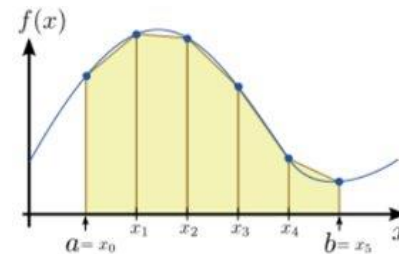
It is highly sought after by many universities and can be a requirement by some universities as part of your offer if you plan to study a Mathematics (or similar) degree.

It shows a real dedication and ability in the subject.

It helps to develop independent study and problem solving skills.



What's the shortest path?



What's the area?

	Dog	Cat	Total
Male	42	10	52
Female	9	39	48
Total	51	49	100

Is there a relationship?

Other sources of information

AMSP website www.amspace.org.uk

Maths Careers website www.mathscareers.org.uk

Stem www.stem.org.uk/core-maths/students-parents-carers

Apprenticeship websites e.g. www.amazingapprenticeships.com

Universities and Colleges Admissions Service (UCAS) www.ucas.com

Russell Group Universities www.informedchoices.ac.uk

Tomorrow's Engineers www.tomorrowsengineers.org.uk

The Institute of Physics (IOP) www.iop.org

Nrich www.nrich.org.uk