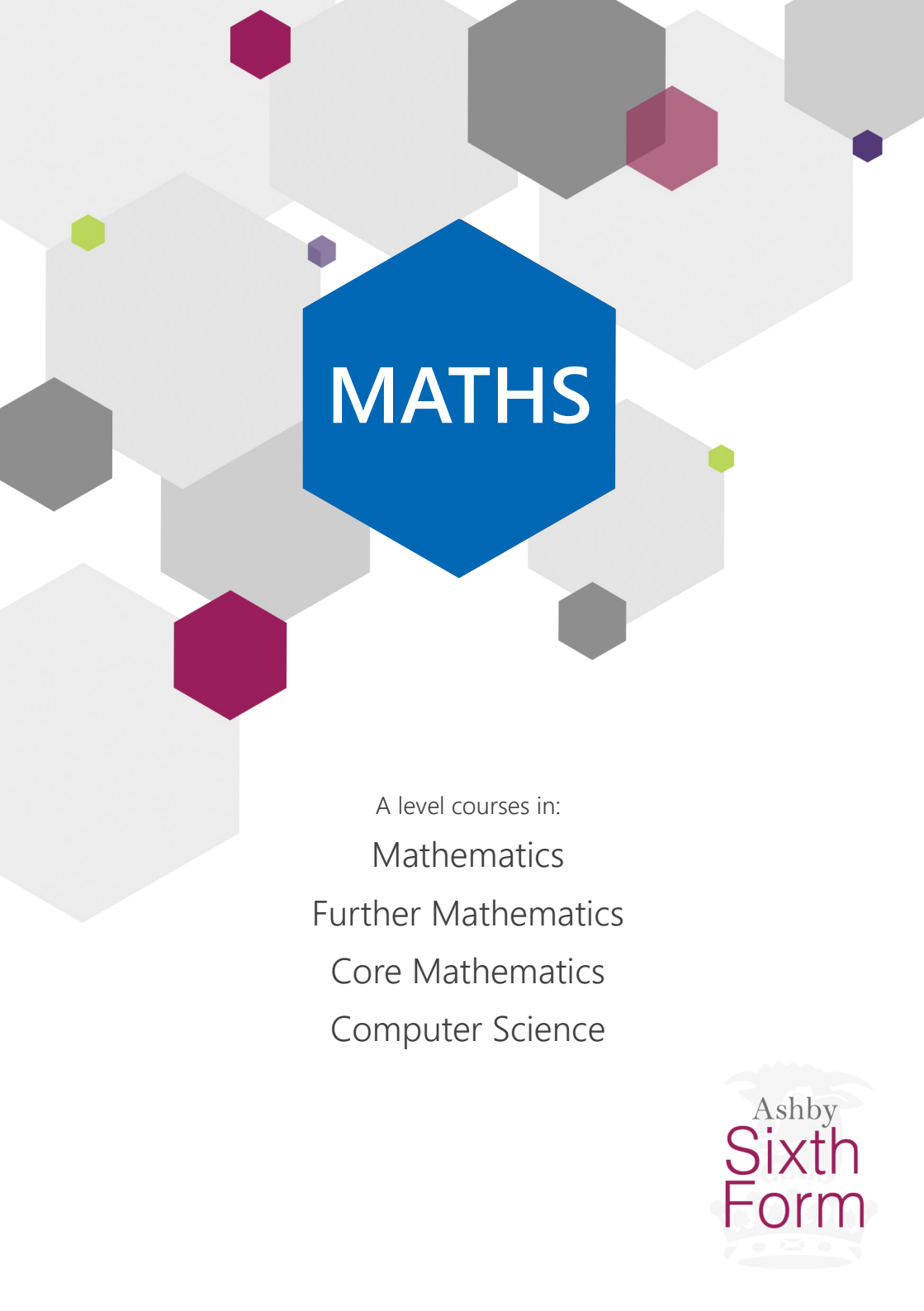




MATHS

A level courses in:

Mathematics

Further Mathematics

Core Mathematics

Computer Science





A level

Mathematics & Further Mathematics

WHY STUDY A-LEVEL MATHEMATICS?

An A-level qualification in mathematics is highly regarded by prospective employers and universities as being a good indicator of a logical and analytical mind. The content of the course is good preparation for further study in many subjects at degree level.

Further mathematics enables students to take the subject a lot further and is an excellent preparation for degree level studies in engineering, mathematics itself and a wide variety of science courses. Indeed, it is becoming a pre-requisite qualification for many degree courses at top universities.

ENTRY REQUIREMENTS

All students must sign up to the two year A level course. Entry requirements for A level mathematics are a GCSE grade 6 in mathematics and for A level further mathematics a GCSE grade 8.

COURSE CONTENT

A level mathematics is a linear course, made up of two thirds pure mathematics, one sixth mechanics and one sixth statistics. A level content includes proof, algebra and functions, co-ordinate geometry, sequences and series, trigonometry, exponentials and logarithms, differentiation, integration, numerical methods, vectors, statistical sampling, probability, statistical distributions, statistical hypothesis testing, kinematics in mechanics, forces and Newton's laws, moments. A level further mathematics has two thirds of the content on further pure mathematics which builds upon the pure mathematics studied in A Level mathematics. One sixth of the course is further mechanics and one sixth of the course is further statistics, both of which extend upon the mechanics and statistics seen in A Level Mathematics.

ASSESSMENT INFORMATION

There are regular internal assessments throughout the two year course before the main examinations at the end of Year 13. A level mathematics is assessed by three 2 hour examinations—paper 1 on pure mathematics, paper 2 on pure mathematics and mechanics and paper 3 on pure mathematics and statistics (based on AQA model).

Pupils who study A level further mathematics must also study A level mathematics. A level further mathematics is assessed at the end of Year 13 by three 2 hour examinations—two on pure mathematics and one on the applied options, statistics and mechanics.

AS Further Mathematics is assessed by two 1.5 hour papers—one on pure mathematics and one on statistics and mechanics.

FURTHER INFORMATION

Students can take part in maths prefecting, which involves supporting KS3 & KS4 classes and in the past has involved helping in the running of events, from open days to primary school maths activity days. If you are determined to make something happen, you can!

Students are encouraged to take part in the Senior Maths Challenge and are offered support if they get through to subsequent rounds. Support is also offered to students sitting maths papers for higher level university applicants, such as STEP papers.

We subscribe to the Further Maths network and our students have taken part in some of their events across the region.





A level

Core Mathematics

WHY STUDY CORE MATHEMATICS?

Core Maths lessons can be quite different to other maths lessons.

You'll meet some new topics, but you'll mostly be using maths from GCSE. Where it differs is its focus on becoming skilful at applying maths to real-life situations such as personal finance, estimating, and making the best use of resources.

You may spend more time discussing problems and explaining your thinking. Sometimes there's no single 'right' answer.

You'll also learn about working with data - when it's reasonable to make assumptions and simplifications, how to analyse data and interpret the results, and how to communicate your findings and use them to justify your argument. These skills will be useful in your other subjects and will also help you to question and criticise statements based on data, such as surprising claims made by the media.

It is recommended that you take Core maths if you are studying any of the following subjects but are not taking A-Level maths:

Biology
Geography
Psychology

It may also support other subjects where maths content exists such as engineering.

ENTRY REQUIREMENTS

Pupils are able to study Core Maths with a GCSE grade 4. This is a one year Level 3 qualification that is equivalent to an AS Level and is studied in year 12. The content of the course is good preparation for further study in many subjects at degree level, complimenting subjects which have mathematical content.

COURSE CONTENT

- Analysis of Data
- Maths for personal finance
- Estimation
- Critical analysis of given data and models
- The normal distribution
- Probabilities and estimation
- Correlation and regression





A level Computer Science

WHY STUDY COMPUTER SCIENCE?

This is an intensely creative subject that combines invention and excitement, and looks at the world through a digital prism. It values computational thinking, helping learners to develop the skills to solve problems, design systems and understand the power and limits of human and machine intelligence.

Learners will develop an ability analyse, critically evaluate and make decisions.

COURSE CONTENT

The characteristics of contemporary processors, input, output and storage devices

Software and software development

Exchange data

Data type, data structures and algorithms

Legal, moral, cultural and ethical issues

Elements of computational thinking

Problem solving and programming

Algorithms to solve problems and standard algorithms

The learner will choose a computing problem to work through according to the guidance in the specification.

Analysis of the problem

Design of the solution

Developing the solution

Evaluation

COURSE PROGRESSION

A level computer science students may consider careers in the following areas:

Software engineering

Website development

Project management

Database administrator

Computer hardware engineer

Computer network architect

Information security analyst

FURTHER INFORMATION

As an A level student, you will be treated as a mature young adult and will have access to all the computer science facilities, enabling you to develop a broad range of skills and knowledge within the context of computer science.

ASSESSMENT

Unit number	Title
1	Computer Systems
	Externally set and marked examination 40% of qualification 2.5 hours duration
2	Algorithms and Programming
	Externally set and marked examination 40% of qualification 2.5 hours duration
3	Programming Project
	Internally set and assessed software project 20% of qualification

CONTACT INFORMATION

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