

# *Anderson Adventist High School*

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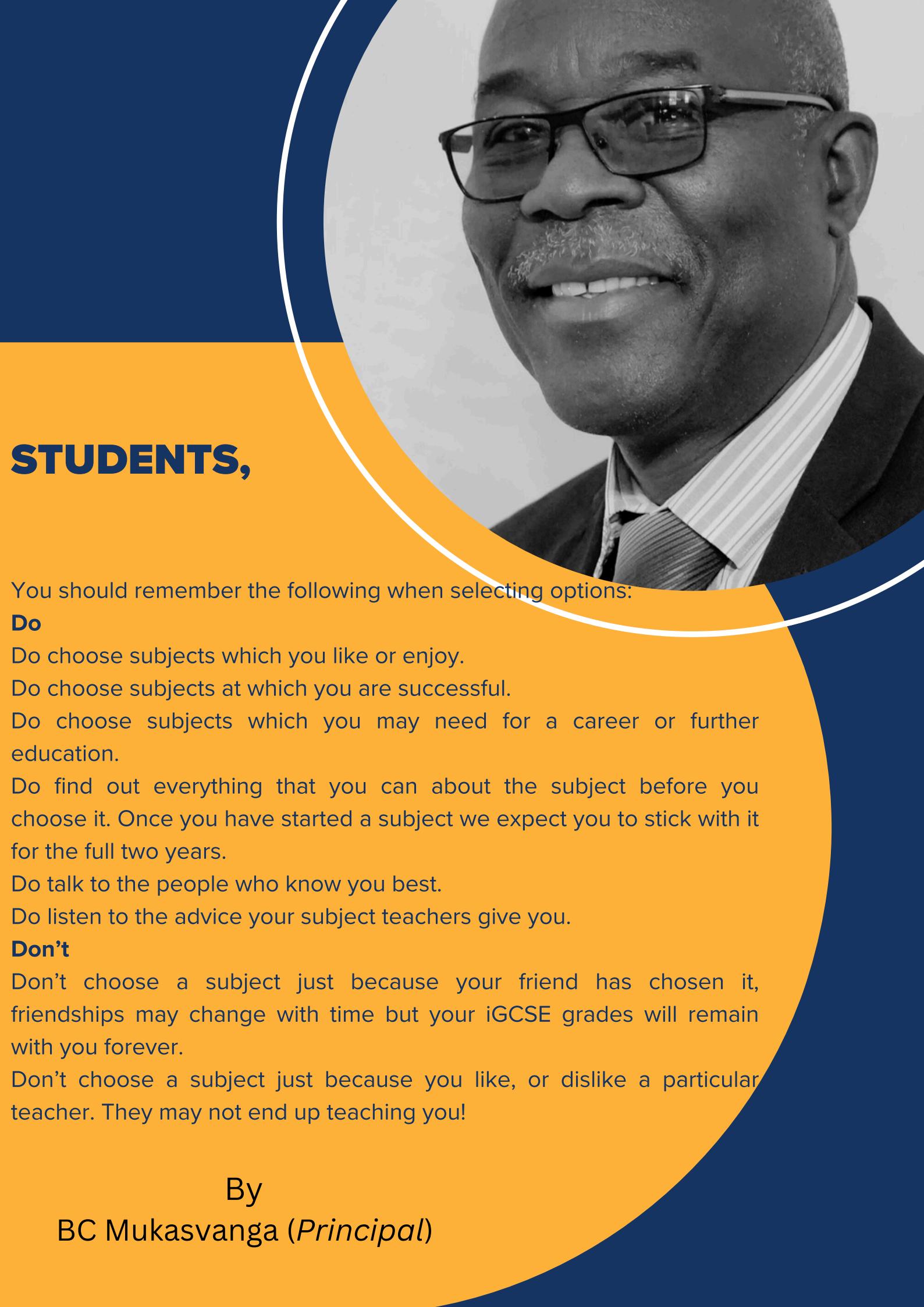
A LEVEL

**SUBJECT  
OPTIONS**



Cambridge Assessment  
International Education

Cambridge International School



# **STUDENTS,**

You should remember the following when selecting options:

## **Do**

Do choose subjects which you like or enjoy.  
Do choose subjects at which you are successful.  
Do choose subjects which you may need for a career or further education.  
Do find out everything that you can about the subject before you choose it. Once you have started a subject we expect you to stick with it for the full two years.  
Do talk to the people who know you best.  
Do listen to the advice your subject teachers give you.

## **Don't**

Don't choose a subject just because your friend has chosen it, friendships may change with time but your iGCSE grades will remain with you forever.  
Don't choose a subject just because you like, or dislike a particular teacher. They may not end up teaching you!

By

BC Mukasvanga (*Principal*)



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# Introduction to A Levels

We hope this A level booklet will help you to make good choices to support you when you leave school.

At Anderson we have a balanced curriculum that will help you develop the skills that you need whatever you want to do after school.

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## What are A Levels? An overview

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A levels are England's national high school qualification, although they are also used in 125 other countries because they have a proven reputation for being excellent preparation for universities around the world, employment and life. They are studied by students aged 17 - 18 during their final two years at school.

Students usually take three subjects.

### What are the benefits of A Levels?

1. Universities around the world, including all UK universities and the vast majority US universities, accept A Levels for entry. Many universities, including Oxford, Cambridge, Harvard, Yale, MIT and Stanford often see the best A Levels applicants as prime targets. To find out more about university recognition of A levels visit: [www.cie.org.uk/recognition](http://www.cie.org.uk/recognition)
2. A levels provide a deep understanding of chosen subjects, enabling students to prepare for specific university courses and career pathways.
3. Academic expectations are high and close to those experienced in top universities.
4. A levels emphasize and develop critical thinking, advanced comprehension and research skills.
5. A levels promote advanced reading and writing skills, particularly the ability to structure and defend an academic argument.
6. A levels develop the ability to present and participate in a debate and to positively engage with critical feedback.
7. A levels develop students as independent learners.

## Cambridge Assessment International Examinations

Anderson is a registered examination centre for the Cambridge Assessment A Levels. Cambridge Assessment is the world's largest provider of education programmes and qualifications with over 9,000 schools in 160 countries.

### Choosing your options

Most students will take 3 AS level subjects.

The subjects you choose should be based on the grades you get at IGCSE as well as your intended career pathway, and your form tutor, subject teachers will help you with these.

**You should not choose subjects based on a teacher you like or the subjects that your friends have chosen.**

Your final decision should be made after you have discussed it with your form tutor and parents.

## Why study Biology?

*“An understanding of the natural world and what’s in it is a source of not only a great curiosity but great fulfilment.” - David Attenborough.*

Biology involves the study of a wide range of exciting topics, ranging from molecular biology to the study of ecosystems and from microorganisms to mammoths. Biology is never far from the headlines either... The human genome has been sequenced and we know the complete arrangement of the three thousand million bases that make up human DNA. In Kenya, 350 people die every day from AIDS and in South East Asia the skies are dark with smoke as the last Bornean rainforests are burned to grow oil palms. Biologists are concerned with all these issues. They work in the fields of cell biology, medicine, food production and ecology... and the work they do is vital to us all.

Cambridge International AS and A Levels Biology builds on the skills acquired at Cambridge IGCSE (or equivalent) level. The syllabus includes the main theoretical concepts which are fundamental to the subject, a section on some current applications of biology, and a strong emphasis on advanced practical skills. Practical skills are assessed in a timetabled practical examination in Year 12.

The emphasis throughout is on the understanding of concepts and the application of biology ideas in novel contexts as well as on the acquisition of knowledge. The course encourages creative thinking and problem-solving skills which are transferable to any future career path. Cambridge International AS and A Levels Biology is ideal for learners who want to study biology or a wide variety of related subjects at university or to follow a career in science.

If you take the course, which is most suitable for those who have gained grade B or above at IGCSE level Science (or equivalent), you begin by studying the Advanced Subsidiary Level in Year 12. Once the Advanced Subsidiary A Levels in Biology is achieved, you can continue to take the Advanced Level qualification in Year 13.

## What will you learn as part of your course?

This syllabus is designed to provide you with:

- Confidence in a technological world, with an informed interest in scientific matters
- An understanding of the usefulness (and limitations) of scientific method, and its application in other subjects and in everyday life
- An understanding of how scientific theories and methods have developed, and continue to develop,
- as a result of groups and individuals working together
- The ability to communicate effectively using universal scientific conventions
- An awareness of the importance of IT and a concern for accuracy and precision
- Improved awareness of the importance of objectivity, integrity, enquiry, initiative and inventiveness
- An interest in, and care for, the local and global environment and an understanding of the need for conservation.

### In year 12 you will study the following topics:

**Biological Molecules**  
**Cells as the basic units of life.**  
**DNA and the mitotic cell cycle**

**Transport and gas exchange**  
**Disease and protection**

### In year 13 you will study the additional topics of:

**The diversity of life**  
**Genetics**  
**Molecular biology and gene technology**  
**Transport and gas exchange**

**Respiration**  
**Mammalian physiology**  
**Plant Physiology**  
**Disease and protection against disease**

### Assessment:

**For the Advanced Subsidiary A Levels in Biology there are 3 examination papers sat in the May/June examination session in year 12.**

**Paper 1 - Multiple choice**  
**Paper 2 - AS structured questions**  
**Paper 3 - Advanced practical skills**

**To continue on to the Advanced Level there are 2 more examination papers sat in the May/June examination session in year 13**

**Paper 4 - A2 structured questions**  
**Paper 5 - Planning, analysis and evaluation**

**The study of Cambridge International AS and A Levels Business allows learners to take the first step towards a career in private or public organisations or progress with confidence to a degree in business and management related subjects.**

## What are the syllabus aims?

**The syllabus aims to enable candidates to:**

- understand and appreciate the nature and scope of business, and the role of business in society, internationally and within each candidate's own country
- develop critical understanding of organisations, the markets they serve and the process of adding value
- evaluate business behaviour from the perspective of a range of stakeholders including owner/shareholder, manager, employee, customer, supplier, lender and government
- develop an awareness of the political, economic, social, technological, legal, environmental and ethical issues associated with business activity
- develop quantitative, problem-solving, decision-making and communication skills.

## What will you study in business?

<b>Business and its environment</b>	<b>Operations management</b>
<b>People in organisations</b>	<b>Finance and accounting</b>
<b>Marketing</b>	<b>Strategic Management</b>

## Assessment

**The A Levels Business course consists of 3 exams.**

**There are 4 papers instead of 3 now;**

**Paper 1: Business concepts 1,  
20% of the A level qualification**

**Paper 2: Business concepts 2,  
30% of the A level qualification**

**Paper 3: Business decision- making,  
30% of the A level qualification**

**Paper 4: Business Strategy,  
20% of the A level qualification**

## What kind of student is this course suitable for?

This course will appeal to those students who:

- Have an interest in how a business operates
- Enjoy studying a subject that is relevant to their own lives and experiences
- Would like to do a subject that offers opportunities for a career in business
- Would like to learn how to make business decisions and solve business problems
- Want to keep their options open – business can be a useful choice for a wide range of careers and can be

# Why study Chemistry?

*“Wherever we look, the work of the chemist has raised the level of our civilisation and has increased the productive capacity of the nation.” - John Calvin Coolidge.*

The behaviour of atoms, molecules, and ions determines the sort of world we live in, our shapes and sizes, and even how we feel on a given day. Chemists that understand these phenomena are very well equipped to tackle problems faced by our modern society. On any given day, they may be measuring the amount of insecticide in drinking water, comparing the protein content of meats, developing a new antibiotic, or analysing a moon rock. To design a synthetic fibre or even the skin of a space capsule requires a knowledge of chemistry. To understand why an autumn leaf turns red, or why a diamond is hard, or why soap gets us clean, requires, first, a basic understanding of chemistry.

Cambridge International AS and A Levels Chemistry builds on the skills acquired at Cambridge IGCSE (or equivalent) level. The syllabus includes the main theoretical concepts which are fundamental to the subject, a section on some current applications of chemistry, and a strong emphasis on advanced practical skills. Practical skills are assessed in a timetabled practical examination.

The emphasis throughout is on the understanding of concepts and the application of chemistry ideas in novel contexts as well as on the acquisition of knowledge. The course encourages creative thinking and problem-solving skills which are transferable to any future career path. Cambridge International AS and A Levels Chemistry is ideal for learners who want to study chemistry or a wide variety of related subjects at university or to follow a career in science.

If you take the course, which is most suitable for those who have gained grade B or above at IGCSE level Science (or equivalent), you begin by studying the Advanced Subsidiary Level in Year 12. Once the Advanced Subsidiary A Levels in Chemistry is achieved, you can continue to take the Advanced Level qualification in Year 13.

## What will you learn as part of your course?

*This syllabus is designed:*

- to stimulate students, create and sustain their interest in chemistry, and understand its relevance to society
- to give a thorough introduction to the study of chemistry and scientific methods
- to develop skills and abilities that are relevant to the safe practice of science and to everyday life:
- concern for accuracy and precision, objectivity, integrity, the skills of enquiry, initiative and insight
- to enable candidates to become confident citizens in a technological world and to take an informed interest in matters of scientific importance
- to stimulate interest in, and care for, the environment.

**In year 12 you will study the following topics:**

- **Moles and equations Equilibrium**
- **Atomic structure Rates of reaction**
- **Electrons in atoms Nitrogen & Sulphur**
- **Chemical bonding Chemistry**
- **States of matter Periodicity**
- **Enthalpy changes Organic chemistry**

**In year 13 you will study the additional topics of:**

<b>Lattice energy</b>	<b>Polymerisation</b>
<b>Electrode potentials</b>	<b>The chemistry of life</b>
<b>Reaction kinetics</b>	<b>Analytical chemistry</b>
<b>Transition elements</b>	<b>Design and Materials</b>

**For the Advanced Subsidiary A Levels in Chemistry there are 3 examination papers sat in the May/June examination session in year 12.**

- Paper 1 – Multiple choice**
- Paper 2 – AS structured questions**
- Paper 3 – Advanced practical skills**

**To continue on to the Advanced Level there are 2 more examination papers sat in the May/June examination session in year 13**

- Paper 4 – A2 structured questions**
- Paper 5 – Planning, analysis and evaluation**

# English

## Why study English ?

*Since the emergence of human consciousness, we have given ourselves imaginative accounts of what it is to be human. To study literature is to engage in a dialogue with your own humanity. Literature is an essential study for all whose future careers involve dealing with people.*

The study of English is your passport to the professional, creative and business worlds. English is a world language which is essential for anyone who wants to become a teacher, doctor, architect, lawyer or a business executive, or indeed, gain entry to universities worldwide.

The English AS and A Levels course will enrich your knowledge of the English language and help you to confidently develop analytical, critical and innovative thinking skills. The course requires its participants to be reflective learners, developing an independent ability to engage socially and intellectually to a wide range of theories, ideas and texts from the English literary heritage.

The course is particularly suitable for strong students in English who enjoy reading and discussing their thoughts and ideas; young philosophers who have inquisitive, creative minds and attitudes to the world around them.

If you take the course, which is most suitable for those who have studied English at IGCSE, you will begin by studying the Advanced Subsidiary (AS) Level in Year 12. Once the AS Levels in English is achieved, you can continue to take the Advanced Level qualification A2, in Year 13.

## What will you learn as part of your course?

Successful students in English develop an understanding and enjoyment of a wide range of texts and in addition, gain skills for life, including:

- the ability to write clearly and effectively;
- skills in developing arguments;
- skills in researching and managing information;
- the ability to respond to a passage-based question and an essay-based question;
- the ability to analyse complex texts in different forms and styles.

### Assessment overview

Paper 1	Paper 2
<p>Reading 2 hours 15 minutes 50 marks Candidates answer two compulsory questions: Question 1 in Section A, and Question 2 in Section B. Externally assessed 50% of the AS Level 25% of the A Level</p>	<p>Language analysis 2 hours 15 minutes 50 marks Candidates answer two compulsory questions: Question 1 in Section A, and Question 2 in Section B. Externally assessed 25% of the A Level</p>
Paper 3	Paper 4
<p>Writing 2 hours 50 marks Candidates answer two questions: one compulsory question from Section A, and one question from a choice of three in Section B. Externally assessed 50% of the AS Level 25% of the A Level</p>	<p>Language Topics 2 hours 15 minutes 50 marks Candidates answer two compulsory questions each on a separate topic area: Question 1 in Section A, and Question 2 in Section B. Externally assessed 25% of the A Level</p>

Route	Paper 1	Paper 2	Paper 3	Paper 4
<b>1 AS Level only (Candidates take all AS components in the same exam series)</b>	√	√		
<b>2 A Level (staged over two years)</b> <b>Year 1 AS Level*</b>	√	√		
			√	√
<b>3 A Level (Candidates take all components in the same exam series)</b>	√	√	√	√

## Why study Mathematics?

*"No employment can be managed without arithmetic, no mechanical invention without geometry" - Benjamin Franklin.*

Mathematics at Advanced Level is both challenging and enjoyable. Mathematics develops key employability skills such as problem solving, logical reasoning, communication and resilience, whilst providing you with an increased knowledge and understanding of mathematical techniques and their applications. It also supports the study of other A Levels subjects and provides excellent preparation for a wide range of university courses such as social sciences, engineering, sciences and of course mathematics. Researchers at London School of Economics found that having an A-Level in Mathematics increases your earning potential by 7-10% compared to any other A-Level.

We offer the Cambridge AS and A Levels in Mathematics. If you take the course, which is suitable for those who have gained grade B or above at IGCSE level (or equivalent), you begin by studying the Advanced Subsidiary Level in Year 12. Once the Advanced Subsidiary A Levels in Mathematics is achieved, you can continue to take the Advanced Level qualification in Year 13.

### What will you learn as part of your course?

Cambridge A Level Mathematics is accepted by universities and employers as proof of mathematical knowledge and understanding. Successful candidates gain lifelong skills, including:

- A deeper understanding of mathematical principles;
- The further development of mathematical skills including the use of applications of mathematics in the context of everyday situations and in other subjects that they may be studying;
- The ability to analyse problems logically, recognising when and how a situation may be represented mathematically;
- The use of mathematics as a means of communication;
- A solid foundation for further study

This course will ensure you have the necessary subject knowledge to go to study a wide range of subjects at university. It is a must for those considering mathematics, engineering and physics. Mathematics is highly regarded by both universities and employers, not only because of the rigor of the subject but also due to the wide range of transferable skills it will help you to develop:

- Analytical skills – clear thinking, attention to detail, ability to follow complex reasoning, ability to understand and construct logical arguments.
- Communication skills – ability to answer questions clearly and to communicate an argument precisely and logically, both orally and in written form.
- Investigative skills – knowing where and how to find information.
- Learning skills – ability to understand difficult concepts and apply them to a problem.
- Problem solving skills – being able to present a solution clearly, take a flexible approach, tackle a problem with confidence and appreciate when to seek help.
- Self-management – thorough approaches to work, time management, ability to work independently,

### Structure

There are six components that can be combined in specific ways (please see below for details):

Paper 1: Pure Mathematics 1	Paper 4: Mechanics.
Paper 2: Pure Mathematics 2	Paper 5: Probability & Statistics
Paper 3: Pure Mathematics 3	Paper 6: Probability & Statistics 2

### AS Level Mathematics

The Cambridge International AS Level Mathematics qualification offers three different options:

- Pure Mathematics only (Paper 1 and Paper 2) or
- Pure Mathematics and Mechanics (Paper 1 and Paper 4) or
- Pure Mathematics and Probability & Statistics (Paper 1 and Paper 5).

The Cambridge International A Level Mathematics qualification offers two different options:

- Pure Mathematics, Mechanics and Probability & Statistics (Papers 1, 3, 4 and 5) or
- Pure Mathematics and Probability & Statistics (Papers 1, 3, 5 and 6).

Please note, it is not possible to combine Paper 4 and Paper 6. This is because Paper 6 depends on prior knowledge of the subject content for Paper 5.

# Why study Physics?

We would be lost without physics! All the gadgets that we take for granted like laptops and mobile phones wouldn't be here. Nor would the electricity supply that charges them and powers so many other things we use every day. It's hard to imagine a world without the Internet, but when you were born almost no one had heard of it. A physicist invented it! Physicists are constantly finding new things.

Cambridge International AS and A Levels in Physics is suitable for students who are looking at careers in engineering, medicine, communications and even law. The course requires students to develop problem solving and analytical skills - not just their knowledge of the subject. These skills are highly transferable and desirable in any future career.

The course is most suitable for those who have gained grade B or above at IGCSE level Science. Once the Advanced Subsidiary A Levels in Physics is achieved, you can continue to take the Advanced Level qualification in Year 13.

## What will you learn as part of your course?

Cambridge International AS and A Level Physics qualifications are accepted by universities and employers as proof of essential knowledge and ability.

This syllabus is designed:

- to give a thorough introduction to the study of Physics and scientific methods
- to develop skills and abilities that are relevant to the safe practice of science and to everyday life: concern for accuracy and precision, objectivity, integrity, the skills of enquiry, initiative and inventiveness
- to emphasise the understanding and application of scientific concepts and principles, rather than the recall of factual material
- to enable candidates to become confident citizens in a technological world and to take an informed interest in matters of scientific importance
- to promote the use of IT as an aid to experiments and as a tool for the interpretation of experimental and theoretical results.

In year 12 and 13 you will study the following topics

- General physics and measurements
- Newtonian mechanics
- States of matter
- Oscillations and waves
- Electricity

In year 13 you will study the additional topics of

- Thermal physics
- Electromagnetism
- Particle physics
- Quantum physics
- Direct sensing
- Remote sensing
- Communication technology

## Assessment

For the Advanced Subsidiary A Levels in Physics there are 3 examination papers sat in the May/June examination session in year 12.

Paper 1 – Multiple choice

Paper 2 – AS structured questions Paper 3 – Advanced practical skills

To continue on to the Advanced Level there are 2 more examination papers sat in the May/June examination session in year 13

Paper 4 – A2 structured questions

Paper 5 – Planning, analysis and evaluation.

# Why study Computer Science?

Cambridge International AS & A Level Computer Science encourages learners to meet the needs of Higher Education courses in computer science as well as twenty-first century digital employers. It encourages learners to think creatively, through applying practical programming solutions, demonstrating that they are effective users of technology.

Our approach in Cambridge International AS & A Level encourages learners to be:

- **Confident**, using a range of technology and programming paradigms
- **Responsible**, using technology ethically
- **Reflective**, as programmers, improving their own programming solution
- **Innovative**, creating efficient solutions to problems
- **Engaged**, in technology, how it is built and how software solutions are developed.

## What will you learn as part of your course?

### AS Level content

1. **Information representation**
2. **Communication**
3. **Hardware**
4. **Processor Fundamentals**
5. **System Software**
6. **Security, privacy and data integrity**
7. **Ethics and Ownership**
8. **Databases**
9. **Algorithm Design and Problem-solving**
10. **Data Types and Structures**
11. **Programming**
12. **Software Development**

### A Level content

13. **Data Representation**
14. **Communication and internet technologies**
15. **Hardware and Virtual Machines**
16. **System Software**
17. **Security**
18. **Artificial Intelligence (AI)**
19. **Computational thinking and Problem-solving**
20. **Further Programming**

## Assessment overview

At AS Level candidates take papers 1 and 2. At A Level candidates take all four papers.

### **Paper 1 Theory Fundamentals**

75 marks

Paper 1 will assess sections 1 to 8 of the syllabus content.

Written paper.

50% of the AS Level 25% of the A Level

1 hour 30 minutes

### **Paper 2 Fundamental Problem-solving and Programming Skills**

75 marks, 2 hours written Paper.

Paper 2 will assess sections 9 to 12 of the syllabus content.

Externally assessed. Candidates answer all questions.

50% of the AS Level 25% of the A Level

### **Paper 3 Advanced Theory**

Paper 3 will assess sections 13 to 20 of the syllabus content.

25% of the A Level

1 hour 30 minutes

### **Paper 4 Practical**

Paper 4 will assess sections 19 to 20 of the syllabus content, except for low-level and declarative programming.

Candidates will submit complete program code and evidence of testing.

Candidates will be required to use either Java (console mode), Visual Basic\* (console mode) or Python (console mode) programming languages.

Externally assessed. Candidates answer all questions on a computer without internet or email facility.

25% of the A Level

2 hours 30 minutes

# Why Study Economics?

A helpful starting point for those who wish to pursue a career in economics or finance. Gives you a good base understanding of the various economic concepts you may encounter when working towards a career in economics or undertaking university study. Many students find a personal benefit in understanding the economic world. It can provide an understanding of concepts such as inflation and the economic impact of unemployment and such real-world issues.

In terms of job prospects, A-Level economics can provide a strong foundation and skill set for a number of career paths.

**Typical careers for A-Level economics students include:**

- Economist
- Chartered accountant
- Investment analyst
- Management consultant
- Civil servant

You may also find yourself working in the banking sector, with charities, NGOs or voluntary organizations, consultancies, or insurance firms.

# Economics

**The aims are to enable students to:**

- *know and understand the terminology, concepts, theories and principles of economics*
- *express ideas in writing and using statistics and diagrams, or other methods, where appropriate*
- *develop the habit of using works of reference as sources of information specific to economics*
- *read critically to gain information about the changes in the wider economic and social environment*
- *appreciate the methods of study that economists use, and the most effective ways economic information may be analyzed, correlated, discussed, evaluated and presented*
- *develop an interest in and enthusiasm for economics that could lead to further study*

**Content overview:**

- *Basic economic ideas and resource allocation*
- *The price system and the microeconomy*
- *Government microeconomic intervention*
- *The macroeconomy*
- *Government macroeconomic intervention*
- *International economic issues*
- *Assessment overview:*

## Assessment overview

***AS LEVEL:***

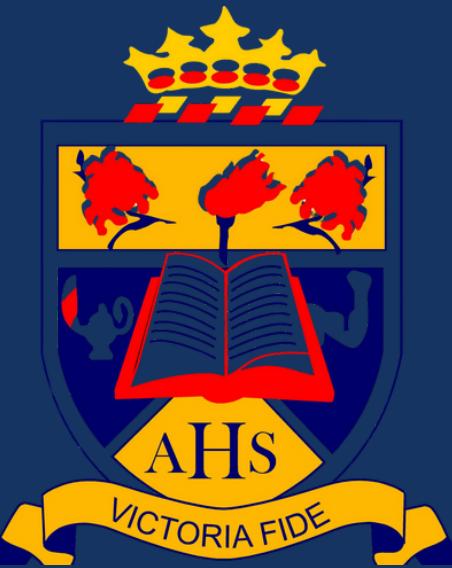
**Paper 1 AS Level Multiple choice; 17% of the A Level**

**Paper 2 AS Level Data Response and Essays; 33% of the A Level**

***A2 LEVEL :***

**Paper 3 A Level Multiple Choice; 17% of the A Level**

**Paper 4 A Level Data Response and Essays; 33% of the A Level**



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