



2022-23

# Hebron School & A Level Choices

An introduction for Students & Parents

## What an education at Hebron can offer

Hebron School offers the opportunity of an international, Christian boarding school education with a very strong academic and pastoral tradition. The school, which was founded over a hundred years ago, places a strong emphasis on its Christian nature with all teachers being committed Christians. All students are expected to be willing to support the Christian ethos of Hebron as well as pursue academic excellence within their own ability range.

The education is in the English language medium and is based on the long established and internationally recognized English 'A' level educational system. Most students reach very high levels of achievement and subsequently move on to universities around the world.

## 'A' Levels

This is a two year programme and we strongly recommend students to complete Std. 12 AND Std. 13.

'A' levels build on the IGCSE programme which is taught at Hebron, and enables students to develop the good study skills and habits necessary for the next level of their education. Students arriving from other systems - Indian or IB for instance - may find that there will be more adjustments to be made to their mode of study.

Who takes 'A' levels? How are they assessed?

'A' Level study is an academic programme; in England, a little more than 50% of 16 year olds embark on 'A' Levels - other students enter vocational training or apprenticeships. The pass grades for 'A' Level courses are A\*-E (a fail is labelled 'U' for unclassified). It is important to understand, that for many students, A\*, A, B and C grades at IGCSE will not translate into the same grade at 'A' Level.

Lower grades therefore do not necessarily indicate a decrease in achievement levels. Universities recognise the high standard of 'A' Levels; offers of a place are usually based on a requirement of obtaining three full A Levels in relevant subjects to the chosen course of study. While the most prestigious universities are going to require grades of A\*AA or AAA for entry into most courses, a mixture of B and C grades will enable students to enter middle ranking universities in all but the most popular courses - and grades of D and E will still meet the requirements of some universities.

Although universities only require students to study three subjects, at Hebron we encourage students with A\*- B grades in 9-10 IGCSE subjects to choose four subjects in Std 12; three subjects will then be carried on into Std. 13 as full A Levels.

The ability to study a 4<sup>th</sup> subject at 'AS' level should be seen both as a means of keeping career options open and as an opportunity to significantly broaden the curriculum at this level. For instance, those taking three Science subjects to A2 are strongly encouraged to take an additional non-science subject as an 'AS'. Likewise an Arts student can take a scientific discipline or Mathematics to broaden their curriculum. This increased breadth is strongly welcomed by 'Western' universities, though many Indian university courses remain more prescriptive.

At Hebron, students are also offered the chance to undertake an Independent Project Qualification (IPQ) – an essay/project of their own choice that is considered as the equivalent of an AS level. This course further broadens the Curriculum for students.

Students pursuing A Levels in the UK and, increasingly in other countries, will take all their 'A' level examinations at the end of the two year course and this is a route, called the linear route, that will be followed increasingly at Hebron School. Research shows that students achieve better outcomes through delaying their examinations till the end of their second year of A Level studies. At a minimum, in August 2022 the subjects offered at Hebron that fall into this category are: Design Technology, Religious Studies, Physics, Chemistry and Biology. Other subjects are likely to be added to the list. It is still possible to take an 'AS' only in these subjects for students who do not intend to continue to study the subject in Std 13.

The Std 12 lessons cover the foundational content and skills of an 'A' level. This foundation is built upon and developed in Std 13 lessons, which extend into more demanding material, as well as combining knowledge, understanding and skills from across the whole 'A' level course. Students will have improved in key skills by the end of Std 13 and so are likely to score higher by taking all the exams together after completing the whole course.

### **Student expectations at 'A' level**

While Advanced level courses extend from IGCSE courses, they involve a significant step up in content. 'A' level students are expected to do about three – four hours of study outside the classroom every day, during free periods and evening prep - and several hours at the weekend. These are considered a minimum not a maximum! Some courses also have occasional Saturday classes and extra support classes after normal lesson times. These commitments may seem large but as the subjects being studied have been chosen by the students, interest and motivation should be strong.

To assist students, their progress will be regularly monitored and support given by the Subject teachers, Class Tutor, and Head of A Levels. The PHSE tutors will also advise on careers and universities, both through regular individual interviews and PSHE lessons. A range of material, both printed and online, is made available to students to help them with their decisions.

Another significant difference at this level, concerns the approach to study students will be expected to adopt. Teachers will expect them to take increasing responsibility for their studies. This should involve reading around a subject, utilising the library and internet, and taking the initiative in seeking help when it is needed. A greater level of maturity will also be expected from all 'A' level students. It goes without saying that this includes a respect for the ethos and rules of the school. However, there is also an expectation that 'A' level students should be significant role models within the school.

As a Christian school we believe that spiritual and character development are just as important as academic achievement. To aid this there are numerous Christian, recreational and sporting opportunities as well as the social activities inherent within a boarding situation. It is expected that time spent in Stds 12/13 will help a student to develop leadership skills including, strength of character, responsibility, maturity, initiative, confidence, patience and tolerance.

## Entry Requirements to Std 12/13

'A' level courses are strongly academic and normally demand a good grounding in the subjects chosen. Students can consider A Level studies in a subject which they did not take at IGCSE if they have shown ability in a related subject. Sometimes subjects only become available for study at 'A' level. In this case grades in related subjects may be required as indicators of an ability to succeed at 'A' level. The following minimum requirements are therefore set down for entry into Std 12:

- Grade B (or 6/7) or above at IGCSE in the chosen A Level subjects.
- Grade C or above in at least two other subjects, including English Language and Mathematics. In some circumstances, students will be required to re-take their English Language and possibly Mathematics along with their 'A' level subjects.
- For A level subjects that were not taken at IGCSE level, specific requirements may be set down. This may involve specific testing at the School, or levels of achievement in other subjects.
- A positive attitude to the academic and social side of Hebron.
- A willingness to contribute to the Christian ethos of the school.
- Other qualifications may be acceptable and can be discussed.

### Making your 'A' level choices: Some thoughts for students

The following points are crucial in your decision-making.

- The main criteria for choosing an 'A' level subject should be enthusiasm and aptitude. Problems can arise when a selection is made for other reasons, especially when it is contrary to advice given by subject teachers or Heads of Schools.
- Some students will already have an idea about the university course that they would like to study. Discussions, at this stage, are essential to ensure that these ideas are feasible.
- When it comes to the question of which 'A' levels match particular careers, there are few hard and fast rules in the 'West' any more. Within certain constraints you are able to play to your academic strengths. It is most important to choose subjects you will enjoy and achieve the best grades in. Indian Universities, by contrast, are often much more prescriptive.
- Many university courses, especially those in the Sciences, do require some specific subjects at 'A' level. However, for many careers any combination of subjects is acceptable. For example, careers in chartered accountancy, law, hotel management, broadcasting, banking and many others follow equally well from Arts and Science 'A' levels and degrees. For a few careers, certain 'A' levels are probably more suitable than others, though even here universities have become much more flexible in recent years. The position in Indian universities can be a little different, especially for certain Science courses. Students must check specific requirements via University prospectuses and websites.
- Students applying for medicine to Indian Universities (and Australian citizens applying to Australian universities), need to take English Language or Literature to 'AS' level. Students must check specific requirements via University prospectuses and websites.
- The best university courses always require high 'A' level grades, in all subjects. You must consider this in your planning.
- Allow for breadth of study with your 4<sup>th</sup> choice. This is best taken from a different part of the curriculum, especially if all your first three choices are from the same area.
- At Hebron students normally select 4 subjects in Standard 12. Those taking Further Mathematics usually take it as a fifth subject. An IPQ can also replace one subject.

Some students may find four AS subjects too challenging and find it more appropriate to re-sit one or more core subjects at IGCSE, or start a new IGCSE subject at St 12 or even St 13 where some may be on offer. This may then count as one choice in place of an AS. This is usually a better option than to embark on an AS Level course in a subject where you have achieved a C or D grade at IGCSE.

Those who can advise you – Class tutors, subject teachers, Heads of Schools, parents, 'A' level students, and the Academic Vice-Principal - all have information which may be valuable. However, at this stage we believe that the student should have a significant input into this decision-making. If you are forced into a set of courses which you do not want to do, then you will probably under-achieve and not reach your potential.

#### Guidelines to AS/A2 subjects on offer at Hebron

- Art & Design
- Biology
- Business
- Chemistry
- Computer Science
- Design & Technology
- English Language (AS)
- English Literature
- French
- German
- Geography
- History
- Information Technology
- Mathematics & Further Mathematics
- Music
- Physics
- Religious Studies
- International Project Qualification

You will find below a brief outline on each of the subjects offered at Hebron. For further information on A2 and AS courses and specimen examination papers consult:

<https://www.cambridgeinternational.org/> for Cambridge International  
<https://qualifications.pearson.com/en/home.html> for Edexcel courses

## AS - 2 Components

Component 1 – Coursework Internally set and externally graded.

Component 2 – Examination externally set and externally graded.

## A2 – 1 component

Component 3 – Personal investigation internally set and externally graded.

## Preamble

A level Art and Design is the first step along the road for many exciting careers including: Graphic Design, Illustration, Animation, Fashion, Interior Design, Architecture, Product Design... to name but a few! The AS & A2 courses are very broad based and tailored to individual needs and interests. You will learn many new techniques and be encouraged to experiment with different media. Art history is at the core of what we do and is studied through DVD discussions and a trip to the Bangalore Art Galleries where students can analyze and compare the work of artists first hand. It is recommended but not compulsory that A level art students have access to their own digital camera.

## Requirements:

It is recommended that students have attained a C in Art and Design at IGCSE level. Students that have not taken art prior to AS level will be required to do some assessments with the Head of Art, admission to the course will then be at their discretion.

## AS Course Content

Component 1. This is an internally set assignment, which is marked by Cambridge International. There is no question paper for this component. There are two parts to this component: a portfolio; a final outcome. Candidates explore and develop coursework based on a theme, producing a portfolio of work leading to a final outcome. The teacher may set themes or candidates may choose one in consultation with their teacher. Cambridge International will assess the portfolio and the outcome together and award a single mark out of 100. This is worth 50% of the overall grade at AS level.

Component 2 is an AS Level component. Cambridge International marks this externally set assignment. There is a question paper for this component. There are two parts to this component: supporting studies, created during the preparation period; a final outcome, produced during a supervised test of 15 hours' total duration. Candidates select one starting point to work on. Candidates produce their supporting studies during the preparation period, after receipt of the paper and before the supervised test. This is worth 50% of the overall grade at AS level.

## A2 Course Content

Component 3 is the A Level component. This internally set assignment is marked by Cambridge International. There is no question paper for this component. There are two parts to this component: practical work; written analysis of between 1000 and 1500 words. The Personal Investigation should be an in-depth study that demonstrates the candidate's ability to carry out independent research from a starting point of their choice through to a fully realised and coherent conclusion. Candidates identify a theme informed by an aspect of art and design, photography or craft, for the investigation. Then, in consultation with their teacher, they set themselves a specific brief, which clarifies the content, direction and research material to be explored.

During their investigation candidates produce practical work supported by written analysis containing detailed research. First-hand studies from primary sources such as visits to local galleries, studios or buildings, or contact with local artists, designers or craftspeople must form at least part of the research. Cambridge International will assess the practical work and the written analysis together and award a single mark out of 100.

The combined overall grade for A2 level will be awarded as follows:

Components 1 and 2 - 50%

Component 3 - 50%

Coursework Component AS - 0% A2 - 0%

AS - 3 Papers:

Paper 1 Theory paper 1¼ hours 40 multiple choice questions

Paper 2 Theory paper 1¼ hours short answer questions

Paper 3 Practical Exam 2 hours laboratory based exam

A2 - 2 papers:

Paper 4 Theory paper 2 hours short answer questions

Paper 5 Written paper 1¼ hours testing advanced practical skills

Preamble

As well as the need for biological understanding in traditional occupations, a good understanding of Biology is becoming more important for all citizens of the modern world. This may be illustrated by the way citizens of today are confronted by issues stemming from concern for the environment, the impact of new technology on the biosphere, and ethical issues arising from new genetic and medical knowledge. Equally, studying a modern Biology course gives tremendous insight into the wonders of the Living World.

Course Content

The study of this subject at AS level follows naturally from an IGCSE course (or any other equivalent) in Biology. We expect prospective AS level students to have attained a minimum grade B at GCSE level. Presenting, understanding and applying data are key skills for a Biologist. Equally at AS and A2 Level, a good grasp of chemical concepts is very important. Students without a strong foundation in IGCSE Mathematics and Chemistry will therefore find the course very challenging.

The course places a strong emphasis on the biochemistry and physiology of plant and animal cells, including topics dealing with the structure and function of quite complex biological molecules, the rate of enzyme controlled reactions, transport in plant and animal tissue and genetic control. In addition, there are sections on the physiology of gas exchange and on various aspects of human health and disease.

The A2 course builds on a firm knowledge and understanding of foundational principles such as the details of Respiration and Photosynthesis, Homeostasis and Co-ordination and Control mechanisms involved both in plants and humans with the impact of biotechnology in relevant areas. Other areas considered include Inherited changes, Genetic Technology, Biodiversity and its conservation and selection, including theories of evolution. The course entails the relevance of principles that are applied in our modern world with the aim of enhancing our lives.

There is a significant practical element to the course which fosters skills of planning, interpretation of data and evaluation using various statistical analysis tools, as well as manipulation of equipment and observation and presentation of results.

When possible, A2 Biology students participate in a field study trip based on conservation, using statistical tools, and observing principles involved in use of sophisticated equipment in research laboratories.

Future Study and Career Options

Completing the course successfully will give access into medical, dental and veterinary courses (with good grades); into pharmacology and biochemistry (if studied with Chemistry); pure and applied Biology; zoology or botany; microbiology; agriculture; marine biology; ecology and other specialist Biology-based courses. It would also give access to the nursing profession, psychology courses and teaching and laboratory-based work in hospitals and research labs.

Coursework Components AS – 0% A2 – 0%

AS - Paper 1 (1¼ hours) - four short answers and one essay (40 marks)

AS - Paper 2 (1½ hours) - two data response questions (60 marks)

A2 - Paper 3 (3 hours) - a single detailed case study requiring short and long form answers. (Total 100 marks)

## Preamble

The study of Cambridge International AS and A Level 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.

Cambridge learners of Business will develop:

- The capacity to analyse characteristics and activities of business organisations and how they respond to the changing demands of their environments
- An understanding of how effective managers and leaders develop successful organisations in terms of customer focus and the products/services they offer
- The opportunity to reflect on how successful business organisations engage in financial and accounting practices to maximise value for stakeholders' value
- Development of knowledge that relates to strategic planning and decision-making to ensure business survival, change, and sustainable success
- A solid foundation for further study.

## Course Structure

Much of the work in A-level Business involves detailed investigations of individual businesses and their activities. Case studies involve some quantitative analysis; particularly at A2 Level, hence some mathematical ability is useful. At least a B in IGCSE Maths is desirable but not essential for students going beyond AS Level Business. The AS and A Level syllabus content is divided into six main topic areas:

### 1. Business and its Environment

This topic area is concerned with understanding the nature and purpose of business activity and identifying the structures, functions, cultures and objectives of different business organisations. Central to an understanding of business and its internal and external environments is a recognition that the world in which businesses operate is in a constant state of change. The impact of political, economic, social, technological, legal, environmental and ethical factors and how these might influence business activity is considered. The extent to which businesses can respond and adapt to such change is likely to determine their success.

### 2. People in Organisations

This topic area focuses on how businesses can develop and use policies, procedures, structures, systems and approaches to management and leadership that will harness the human potential within an organisation and achieve organisation goals. An understanding of the central role of effective management and leadership in achieving efficiency and competitiveness is required. Candidates will need to understand the distinct bodies of theory that underpin the concepts of business management and leadership. The importance of motivation techniques and theories in understanding employee needs will be considered. The contribution to business success made by human resource management through effective workforce planning and the recruitment, selection and training of workers will also be explored.

### 3. Marketing

This topic area develops an understanding of the importance of the marketing function for business competitiveness. The significance of marketing orientation – the process of aligning a business to its operating environment, customers, other stakeholders and markets – is emphasised. An understanding of the principles and practices of marketing and their application to commercial and not-for-profit organisations is considered.

The relationship between marketing and other business functions such as operations management, finance and human resource management is also considered. The application of marketing concepts and methods to assist marketing and business decisions is explored. Central to the understanding of marketing is the objective of satisfying the needs and wants of customers through effective market research, applying an appropriate marketing mix and establishing an organisation with a strong customer focus.

#### 4. Operations & Project Management

Operations management is the discipline of how resources are managed to achieve the efficient production/provision of goods and services. Project management is the discipline of managing resources to successfully complete one-off projects. This topic area promotes understanding of operations and project decisions and how design, planning, quality and workforce issues interrelate to achieve operations objectives. Candidates should develop an understanding of the benefits and limitations of a variety of techniques and analytical frameworks used by operations and project managers. Central to the understanding of how successful operations and project management support effective manufacturing and service businesses is a recognition of the importance of innovation in product and service delivery in dynamic and volatile business environments.

#### 5. Finance & Accounting

This topic area introduces candidates to the importance of the management of finance, the keeping of and analysis of accounts, and the assessment of business financial performance. Candidates need to understand: the basic principles and techniques of financial management; the value of financial statements and some key accounting techniques used to promote profit, measure performance and exert control in business organisations; the use of financial management information in managerial decision making; the links between financial management and other management activity; the importance of identifying and interpreting management accounting information, recognising uses and limitations. Central to the role of finance and accounting is an understanding of how information can be used to create and measure value.

#### 6. Strategic Management (A Level only)

Introduced at A Level, this topic area explores the business concepts and theories that underpin strategic management and considers why strategy is practised in a range of business contexts from commercial and entrepreneurial to social and not-for-profit organisations. Strategy in business is concerned with the key decisions that are taken to ensure that businesses survive and succeed in the long term. Such decisions often involve initiating and managing major change policies and programmes. The topic area investigates the strategic management process model of strategic analysis, strategic choice and strategic implementation. The associated strategic thinking and analysis tools that help to frame choices and put resulting strategies into action are also considered.

#### Further Studies and Career Options

Many undergraduate and graduate courses offer business and related subjects such as Accounting, Marketing, Advertising, Production, Sales and Distribution, Human resources, Logistics and Supply Chain management. Business at A level is more than an introduction to these and similar courses.

Apart from a general business degree, which will continue the topics studied at A-level, there is the choice to specialize in one of two ways. Firstly there is specialisation in business functions that are common to all types of industry, commerce and public service. This includes Marketing, Information Technology or Human Resource Management. Secondly, there is specialisation with a focus on any of the following businesses or industries: finance, retailing, hotel and hospitality management, logistics, events management and project management.

Career options open to a business studies graduate are wide and include in the field of Management; Administration; Financial Services; Human Resources; Marketing; Advertising and Teaching.



## Assessment

Assessment of AS level Chemistry is through 3 Examination Papers taken at the end of the first year of the A level course.

Paper 1 (1 hour) Multiple Choice  
Paper 2 (1¼ hour) Short Answers  
Paper 3 (2 hours) Practical Exam

Assessment of A2 level Chemistry is through 2 Examination Papers taken at the end of the second year of the A level course.

Paper 4 (2 hours) Core & Applications Short Answers  
Paper 5 (1¼ hours) Written paper testing advanced practical skills

## Preamble

Chemistry opens up a wide range of career opportunities. It is essential for any medical based profession linking effectively with Biology, and is very useful to support Mathematics and Physics for engineering. You can also study Chemistry itself and find yourself at the forefront of research into, and production of, new and improved materials such as those needed for integrated circuits, contact lenses, and biodegradable plastics. Chemists provide the background to environmental pollution issues as well as servicing essentials for life through pharmaceuticals.

A Level Chemistry students normally attain a minimum grade of B in GCSE, IGCSE or O-Level.

## Course Structure

The course followed is prescribed and examined by Cambridge International Examinations and is developed around the following key concepts:

- Atoms and forces: Matter is built from atoms interacting and bonding through electrostatic forces. The structure of matter affects its physical and chemical properties, and influences how substances react chemically.
- Experiments and evidence: Chemists use evidence gained from observations and experiments to build models and theories of the structure and reactivity of materials.
- Patterns in chemical behaviour and reactions: By identifying patterns in chemical behaviour we can predict the properties of substances and how they can be transformed into new substances by chemical reactions. This allows us to design new materials of use to society.
- Chemical bonds: The understanding of how chemical bonds are made and broken by the movement of electrons allows us to predict patterns of reactivity.
- Energy changes: The energy changes that take place during chemical reactions can be used to predict both the extent and the rate of such reactions.

Students will engage in regular practical work that enhances investigative skills and links theory to real world Chemistry.

## Preamble

This course 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.

The approach of the course is to help learners to become:

- 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.

## Prior learning

Learners who are beginning this course should have previously completed a Cambridge IGCSE course, or the equivalent, in Computer Science or in Information Technology. The course content builds on the understanding developed at Key Stage 4 (GCSE or equivalent), enabling learners to make a smooth transition to the next level of study.

We recommend learners wishing to study Computer Science at this level should have gained preferably a B in their IGCSE examination. An aptitude and an enthusiasm for basic coding skills (block coding) are essential.

## Course Content Overview

### AS Curriculum content

- Information representation
- Communication
- Hardware
- Processor Fundamentals
- System Software
- Security, privacy and data integrity
- Ethics and Ownership
- Databases
- Algorithm Design and Problem-Solving
- Data Types and Structures
- Programming
- Software Development

### A Level A2 Content

- Data Representation
- Communication and internet technologies
- Hardware and Virtual Machines
- System Software
- Security
- Artificial Intelligence (AI)
- Computational thinking and problem solving
- Further Programming

## Assessment

<b>Paper 1 Theory Fundamentals</b>	<b>Paper 3 Advanced Theory</b>
1 hour 30 minutes	1 hour 30 minutes
75 marks Paper 1 will assess sections 1 to 8 of the syllabus content. Written paper. Externally assessed. Candidates answer all questions. 50% of the AS Level 25% of the A Level	75 marks Paper 3 will assess sections 13 to 20 of the syllabus content. Written paper. Externally assessed. Candidates answer all questions. 25% of the A Level
<b>Paper 2 Fundamental Problem-solving and Programming Skills</b>	<b>Paper 4 Practical</b>
2 hours	2 hours 30 minutes
75 marks Paper 2 will assess sections 9 to 12 of the syllabus content. Candidates will need to write answers in pseudocode. Written paper. Externally assessed. Candidates answer all questions.  50% of the AS Level 25% of the A Level	75 marks Paper 4 will assess sections 19 to 20 of the syllabus content. Candidates will submit complete program code and evidence of testing. Candidates will be required to use either Java, VB.NET or Python programming languages. Externally assessed. Candidates answer all questions on a computer without internet or email facility.  25% of the A Level

## Further Studies & Career Options

A Level Computer Science provides a suitable foundation for the study of IT, Computer Science, Engineering, Artificial Intelligence, Data Science, computer game development, or any related courses in higher education. Equally it is suitable for candidates intending to pursue careers or further study in Computer Science or engineering, or as part of a course of general education.

Career options:

Some of the jobs where your degree would be useful include:

- Air Traffic Controller
- Robotics Consultant
- Chief Information Officer
- Law Enforcement Officer
- Video Game Developer
- Internet Safety Analyst
- Computer Engineer
- Computer Programmer
- Interface Designer
- Technical Writer
- Satellite Communications Consultant
- Manufacturing Machine Designer
- Telecommunication Consultant
- Professor/Teacher

# Design and Technology (Product Design)

Course: Edexcel A2 9DT0

The Pearson Edexcel Level 3 Advanced GCE in Design and Technology (Product Design) consists of one externally-examined paper and one non-examined assessment component.

## Component 1: Principles of Design and Technology (Paper code: 9DT0/01)\*

**Written examination: 2 hours 30 minutes 50% of the qualification**

**120 marks**

And:

## Component 2: Independent Design and Make Project (Paper code: 9DT0/02)

**Non-examined assessment 50% of the qualification**

**120 marks**

The Design and Technology course is primarily concerned with the process of designing and making and how this relates to the manufactured world around us. Students will develop their knowledge, understanding and skills by working through a range of practical projects and briefs. This will entail developing their initial design ideas from concept through to the making of the final product. To allow the students to work effectively while designing and manufacturing, the following course content is taught:

## Component 1: Principles of Design and Technology (Paper code: 9DT0/01)\*

### Content overview

Topic 1: Materials

Topic 2: Performance characteristics of materials

Topic 3: Processes and techniques

Topic 4: Digital technologies

Topic 5: Factors influencing the development of products

Topic 6: Effects of technological developments

Topic 7: Potential hazards and risk assessment

Topic 8: Features of manufacturing industries

Topic 9: Designing for maintenance and the cleaner environment

Topic 10: Current legislation

Topic 11: Information handling, Modelling and forward planning

Topic 12: Further processes and techniques.

## Component 2: Independent Design and Make Project (Paper code: 9DT0/02)

### Content overview

- Students individually and/or in consultation with a client/end user identify problem and design context.
- Students will develop a range of potential solutions which include the use of computer aided design and evidence of modelling.
- Students will be expected to make decisions about the designing and development of the prototype in conjunction with the opinions of the client/end user.
- Students will realise one potential solution through practical making activities with evidence of project management and plan for production.
- Students will incorporate issues related to sustainability and impact their prototype may have on the environment
- Students are expected to analyse and evaluate design decisions and outcomes of prototypes/products made by themselves and others
- Students are expected to analyse and evaluate wider issues in design technology, including social, moral, ethical and environmental impacts.

### Further Studies and Career Options

The course will be of value to anyone who wishes to pursue a university or higher education course leading to a career in a creative field. For example:

Architecture, Interior Design, Industrial/Product Design, Environmental Design, Mechanical, Aeronautical or Production Engineering.

# English Language Cambridge

Course: CIE 9093

## AS & A Levels

### Content

Cambridge International AS Level English Language provides candidates opportunities to make critical and informed responses to texts which are wide-ranging in their form, style and context. Candidates will also produce their own imaginative writing, and will demonstrate their ability to produce writing for given audiences. Those who opt for Cambridge International A Level English Language will develop a strong foundation in the study of linguistics, focusing on spoken language, English as a Global Language, Child language Acquisition and Language and Self-identity.

#### AS 2 papers

Paper 1 (2 hours 15 min) Passages

Paper 2 (2 Hours) Writing

#### A2 2 papers

Paper 3 (2 hours 15 min) Language Analysis

Paper 4 (2 hours 15 min) Language Topics

#### The syllabus aims:

To develop a critical and informed response to texts in a range of forms, styles, contexts and audiences; the interdependent skills of reading, analysis and research; effective, creative, accurate and appropriate communication; and a firm foundation for further study of language and linguistics.

#### AS Paper 1 Passages

This paper has two sections, Section A: Directed response, and Section B: Text analysis. Each section is worth 25 marks.

Candidates must answer two compulsory questions: Question 1 in Section A, and Question 2 in Section B. Each question requires candidates to respond to one unseen text.

#### AS Paper 2 Writing

This paper has two sections, Section A: Shorter writing and reflective commentary, and Section B: Extended writing. Each section is worth 25 marks. Candidates must answer two questions: Question 1 in Section A (compulsory), and one question in Section B.

#### A Level Paper 3 Language Analysis

This paper has two sections, Section A: Language change, and Section B: Child language acquisition. Each section is worth 25 marks. Candidates must answer both questions.

#### A Level Paper 4 Language Topics

This paper has two sections, Section A: English in the world, and Section B: Language and the self. Each section is worth 25 marks.

Candidates must answer both questions.

## Assessment objectives

Candidates are assessed on their ability to:

1. Read with understanding and analyse texts in a variety of forms
2. Demonstrate a knowledge and understanding of English language and its use in a variety of contexts
3. Write clearly, accurately, creatively and effectively for different purposes/audiences, using different forms. Learners who follow the Cambridge International AS & A Level English Language syllabus will develop the following skills and understanding:

- Sustaining accurate, fluent and consistent writing
- Producing informed responses appropriate to the specified form, style, context, and audiences
- Conveying knowledge and understanding from both specific examples and wider studies. These are highly transferable skills and may help learners in other subject areas, as well as equipping them for higher education or employment.

**AS 2 Papers**

Paper 1 (2 hours) 2 questions from different sections

Paper 2 (2 hours) 2 questions from different sections

**A2 2 Papers**

Paper 3 (2 hours) 2 questions from different sections

Paper 4 (2 hours) 2 questions from different sections.

**Preamble**

Successful English Literature learners develop a lifelong understanding and enjoyment of literary texts, and, importantly, gain a range of essential skills. These include the ability to write clearly and effectively and the ability to analyse texts in different forms and styles. Skills in developing arguments and in researching and managing information are also imparted through the course.

**Course Structure**

This Literature syllabus contains a number of set text options within certain prescribed limits of genre.

**AS level - Paper 1 – Drama and Poetry**

Candidates must answer two questions: one question from a choice of Drama set texts in Section A and one question from a choice of Poetry set texts in Section B. Each question requires candidates to demonstrate a response showing understanding of the text and an informed independent opinion and to communicate these clearly and appropriately. Questions on the relation of textual parts to their wholes, on the effective use of narrative methods, and on the style and language of texts will test understanding of the ways in which writers' choices of form, structure and language shape meaning.

**Paper 4 – Prose and Unseen (2 hours)**

Candidates must answer two questions: one question from a choice of Prose set texts in Section A and one question from a choice of two previously unseen texts in Section B. For section B, candidates will be required to write a critical appreciation of previously unseen passages. The passages will cover at least two of the categories of prose, poetry and drama. All questions require candidates to demonstrate a response, showing understanding of the text, an informed independent opinion, and to communicate these clearly and appropriately.

**Advanced level - Paper 3 - Shakespeare and Drama (2 hours)**

This paper is divided into Section A: Shakespeare and Section B: drama. There are two questions on each text: one essay question and one passage based question. All questions require candidates to demonstrate a response showing understanding of the text and an informed independent opinion, and to communicate these clearly and appropriately. Candidates' work should be informed by some understanding of the ways in which other readers have interpreted the texts.

**Paper 4 – Pre-and Post – 1900 Poetry and Prose (2 hours)**

Candidates must answer two questions: one question from a choice of pre-1900 poetry and prose set texts in Section A and one question from a choice of post-1900 poetry and prose set texts in Section B. As in paper 3, all questions require candidates to demonstrate a response showing understanding of the text and an informed independent opinion, and to communicate these clearly and appropriately. Candidates' work should be informed by some understanding of the ways in which other readers have interpreted the texts.



## French

Course: Edexcel

French AS XFR01 French A2 YFR01

## German

German AS XGN01 German A2 YGN01

Coursework Components AS - 0% A2 - 0%

### Preamble

Students wishing to study French and/or German at this level should have gained at least a 7 in their GCSE examination including a 7 in the written part of their GCSE. An aptitude and an enthusiasm for language learning are of course essential! The course content builds on the understanding developed at Key Stage 4, enabling pupils to make a smooth transition to the next level of study. We use A-level course books, as well as magazine/newspaper articles, CD/DVD materials, online resources and native speaker support if available. The International A Level is aimed at students studying the language while living outside of Europe.

### Aims

- To enhance linguistic skills; develop control of the language system to convey meaning, using spoken and written skills, including an extended range of vocabulary, for both practical and intellectual purposes as increasingly confident, accurate and independent users of the language
- To develop the ability to interact effectively with users of the language in speech and in writing, including through online media
- To develop language learning skills and communication strategies to sustain communication and build fluency and confidence
- To engage critically with intellectually stimulating texts, films and other materials in the original language, developing an appreciation of sophisticated and creative uses of the language and understanding them within their cultural and social context
- To develop knowledge about matters central to the society and culture, past and present, of the country or countries where the language is spoken
- To foster the ability to learn other languages; equip pupils with transferable skills such as autonomy, resourcefulness, creativity, critical thinking, and linguistic, cultural and cognitive flexibility that will enable them to proceed to further study or to employment.

### Course Structure

#### French/German AS Level

General topic areas covered at AS Level:

- Youth matters (family relationships and friendships, peer pressure and role models, music and fashion, technology and communication)
- Lifestyle, health and fitness (food and diet, sport and exercise, health issues, urban and rural life) Environment and travel (tourism, travel and transport, natural disasters and weather, climate change and its impact, energy pollution and recycling)
- Education and employment (education systems and types of schooling, pupil/student life, volunteering and internships, jobs and unemployment)

Assessment:

#### Unit1: Spoken Expression and Response (40 marks)

The student chooses two general topic areas of which Edexcel allocates one for the assessment. The assessment consists of a response to a stimulus card and a discussion on the same topic but addressing other subtopics within the same general topic.

#### Unit 2: Understanding and Written Response (90 marks)

The paper consists of three sections:

A Listening

B Reading comprehension and grammar

C essay 240-280 words)

## French/German A2 Level

General topic areas covered at A2 Level:

- Technology in the French/German speaking world (scientific advances, technological innovations, impact on life and environment)
- Society in the French/German speaking world ( migration, equality, politics, customs) Ethics in the French/German speaking world (beliefs, law and order, moral issues)

Assessment:

Unit 3: Understanding and spoken response (40 marks)

Section A: Debate

The student chooses a debate topic, introduces it and discusses it with the examiner for about 5 min.

Section B: Further issues

The examiner introduces two more issues for discussion. These are based on the seven general topic areas that were covered during AS and A2.

Unit 4: Research, understanding and written response (90 marks)

Section A: Listening

Section B: Reading comprehension and grammar

Section C: essay (300-400 words)

The essay is based on a research topic chosen in advance. This can be from the following areas:

- Geography (key people, events, issues, customs, traditions, beliefs, religions)
- History (a period of history, key people, events, issues)
- Literature (set list of books)
- Film (set list of films)

Description of assessment tasks:

Listening: Students respond to multiple choice and open response comprehension questions based on recordings in a variety of contexts and sources

Reading comprehension: Students will have to respond to multiple choice and open response comprehension questions based on a variety of text-types and genres

Essay: Students respond to an essay question based on the four general topic areas (AS Level) or on their research project (A2 Level)

## Further Studies and Career Options

French and German AS/A2 combine well with any other subjects and prepare you to take your place in a multi lingual global society. These qualifications offer a suitable progression route to further study at university level and may also add to an individual's employability profile, particularly for UK organisations trading overseas as well as with international companies based in the UK and globally. Students can progress to a wide range of careers in areas such as journalism and media, education, science, medicine, the civil service, sales, marketing, retail, and charities.

# Geography Course: CIE 9696

Coursework Components AS - 0%; A2 - 0%.

## Preamble

Traditionally in Britain, Geography has been viewed as a link between the Sciences and the Arts and this remains central to the philosophy of the subject at this level. The 'A' level course studies both human and physical environments and especially the way they are inter-connected. Special attention is given to their use, misuse and development in a sustainable way. This draws on areas from science, economics, politics and the business world. Contemporary issues and patterns are central to the studies. Anyone interested in the world we live in and the future of Planet Earth would find this course of value and interest.

## Course Structure

All components will be externally assessed.

Component	Weighting	
	AS Level	A Level
<b>Paper 1</b> <b>Core Physical Geography</b> <b>1 hour 30 minutes</b> Section A: Three data response questions (30 marks) Section B: One structured question from a choice of three (30 marks) 60 marks	50%	25%
<b>Paper 2</b> <b>Core Human Geography</b> <b>1 hour 30 minutes</b> Section A: Three data response questions (30 marks) Section B: One structured question from a choice of three (30 marks) 60 marks	50%	25%
<b>Paper 3</b> <b>Advanced Physical Geography Options</b> <b>1 hour 30 minutes</b> Candidates answer questions on two of the optional topics. Each topic consists of one structured question (10 marks) and a choice of essay questions (20 marks). 60 marks	–	25%
<b>Paper 4</b> <b>Advanced Human Geography Options</b> <b>1 hour 30 minutes</b> Candidates answer questions on two of the optional topics. Each topic consists of one structured question (10 marks) and a choice of essay questions (20 marks). 60 marks	–	25%

Students achieving a Grade C in the IGCSE Geography examination will be able to choose this as an AS option, provided that application and effort are consistent. Equally, any student who has not taken Geography previously, will be able to pick this up as an AS subject provided that they evidence a mature attitude towards their studies.

Students may sit the AS components at the end of the first year (Papers 1 and 2), or they may sit the full A level (Papers 1-4) at the end of the second year.

AS - Both physical and human Geography topics are explored. Physical topics include plate margin studies, hydrology and the atmosphere. These are studied from a scientific perspective but within the context of related human environments. The Human syllabus focuses on population and settlement issues in HICs and LICs exploring both global and local issues. Both courses provide opportunities for fieldwork and local studies.

A2 - Two options are studied from the following physical optional topics:

Paper 3:

1. Hazardous environments - the hazards associated with tectonic environments, (earthquakes and volcanoes), tropical storms and avalanches. The means of managing these, often high population environments, is central to the investigations.
2. Coastal environments – This explores a variety of natural environments, their complex workings and the planned management of at risk coastal environments.
3. Hot arid and semi-arid environments – This topic explains the causes of desert formation and explores the landforms, soils and vegetation, and the sustainable management of these environments.

A2 - Two options are studied from the following Human optional topics:

1. Global Interdependence- considers international trading patterns and the factors both historic and economic that influence them. The role of international tourism as a major player in the global economy and the impact the industry is having on local environments, societies and economies is a significant part of the course.
2. Environmental Management – considers how energy resources are exploited in different parts of the world and considers the environmental impact they create. Management policies for a range of degraded environments from urban and rural locations in both LICs and MICs are a significant part of this course.
3. Economic transition – This explores national and regional economic development, along with the idea of the globalization of economic activity. The management of economic transition is studied and an understanding of global disparities between regions is evaluated.

All optional topics involve the development of case studies.

#### Further Studies & Career Options

In British universities, Geographers tend to move towards either the Arts or Sciences side depending on their interests or specialist knowledge. Degrees are available as either B.Sc. or B.A. Your 'A' level subjects may determine which course you would take. Geography, because of its diverse nature, provides a wide range of useful skills for many different careers. These include spatial awareness, an ability to analyse and synthesise, statistical and presentational skills. Most graduate geographers enter the business field, areas of environmental management, or work with a strong social or development component. Geographical Information Systems (GIS) is a rapidly developing area of employment.

**AS - 2 papers**

Students focus on changes in Europe between 1794 and 1921. Content is focused on the French, Russian and Industrial Revolutions. The emergence of Germany as a world power is also studied. Paper 1 is a document study and Paper 2 is assessed by essay style questions.

**A2 - 2 papers**

The development of the Cold War is analysed in depth and examined via a document question for Paper 3. The world since 1945 is studied for Paper 4 with focus on the modern history of the Middle East, Southeast Asia and the superpowers, via essay questions.

**Preamble**

The history A Level course complements without replicating the prior learning of students at Hebron School. It also serves as a valuable standalone qualification, enabling students to understand the political, social and economic configuration of the modern world, equipping them with the necessary skills to study and research beyond A Level.

Students wishing to study history should have attained a grade B / 6 at GCSE in this or a similar subject.

**Course structure**

Students are prepared for both AS papers at the end of std. 12 and for both A2 papers at the end of std. 13. Students are taught the course content alongside research skills, with especial focus on answering the different exam style questions at regular intervals.

**Assessment**

All papers are externally assessed. There is no coursework. Papers 1 & 3 are 1 hour 15 minutes long. Papers 2 & 4 are 1 hour 45 minutes long. Papers 1 & 3 provide stimulus material which students must use in their answers. All papers require students to master the ability to write longer essay style answers.

**Further Studies & Career Options**

Students develop very good skills of reading, writing and evaluation – particularly in regard to source material. Class work demands that students are strong communicators and able to research effectively. These skills are valued in higher education institutions and a range of careers.

Students who wish to study new disciplines of Classics, Politics, Economics, International Relations, PPE or Law at university will find History A Level a great help in preparing them. Studying History is excellent preparation for a wide range of careers which include Journalism, Media, Law, Politics, Government and Civil Service whilst being beneficial for any profession involving management or dealing with people.

## Preamble

This course encourages learners to become effective and discerning users of IT. It helps them to develop a broad range of IT skills, knowledge and understanding. Learners study the structure and use of IT systems within a wide range of organisations and apply their knowledge and understanding to solve IT problems, including the use of a variety of computer networks. As a result, learners gain an understanding of IT system life cycles and gain awareness of emerging technologies and how these affect the workplace. They also learn about the wider impact of IT on society in general. At A Level learners also study simple practical programming for the web relevant to their own use of IT, and basic practical methods of digital sound, video and animation production skills.

## Prior learning

Learners who are beginning this course should have previously completed a Cambridge IGCSE course, or the equivalent in Information Technology or in Computer Science. The course content builds on the understanding developed at Key Stage 4 (GCSE or equivalent), enabling learners to make a smooth transition to the next level of study.

We recommend learners wishing to study Information Technology at this level should have gained preferably a B in their IGCSE examination. An aptitude and an enthusiasm for practical Information Technology skills are of course essential.

## Course Content

Information Technology is a subject that requires frequent access to computer and internet facilities for learners to develop a broad range of vocational IT skills. Having a personal Notebook/Laptop PC is not essential but would be beneficial for personal study and IT skills practice.

## AS Curriculum content

1. Data, information, knowledge and processing
2. Hardware and software
3. Monitoring and control
4. E-safety and health and safety
5. The digital divide
6. Using networks
7. Expert systems
8. Spreadsheets
9. Database and file concepts
10. Sound and video editing

## A2 All of the AS course plus:

1. Emerging technologies
2. Role and impact of IT in society
3. Networks
4. Project management
5. Systems life cycle
6. Graphics creation
7. Animation
8. Mail Merge
9. Programming for the web

## Assessment

Component	Weighting	
	AS Level	A Level
<p><b>Paper 1 Theory</b> <b>1 hour 45 minutes</b></p> <p>This written paper tests sections 1–10 of the syllabus content. Candidates answer each question in the spaces provided on the question paper. All questions are compulsory.</p> <p>90 marks</p>	50%	25%
<p><b>Paper 2 Practical</b> <b>2 hours 30 minutes</b></p> <p>This paper tests sections 8–10 of the syllabus content. Candidates will also need to use their previous knowledge from sections 1–7. All tasks are compulsory.</p> <p>Candidates must use the most appropriate software and the most appropriate methods.</p> <p>110 marks</p>	50%	25%
<p><b>Paper 3 Advanced Theory</b> <b>1 hour 45 minutes</b></p> <p>This written paper tests sections 11–19 of the syllabus content. The content of sections 1–10 is assumed knowledge.</p> <p>Candidates answer each question in the spaces provided on the question paper. All questions are compulsory.</p> <p>90 marks</p>	–	25%
<p><b>Paper 4 Advanced Practical</b> <b>2 hours 30 minutes</b></p> <p>This paper tests sections 16–19 of the syllabus content, and sections 8–9 of the syllabus content within a problem-solving context. Candidates will also need to use their previous knowledge from all sections of the syllabus. All tasks are compulsory.</p> <p>Candidates must use the most appropriate software and the most appropriate methods.</p> <p>110 marks</p>	–	25%

### Further Studies & Career Options

Cambridge International A Level Information Technology provides a suitable foundation for the study of IT, Computer Science, Engineering, Project management or any related courses in higher education. Equally it is suitable for candidates intending to pursue careers or further study in IT, or as part of a course of general education.

Some of the jobs where your degree would be useful include:

- Systems Analyst
- Software Development Manager
- Systems Designer
- E-Commerce System Developer
- User Experience (UX) Researcher
- Web Designer
- Database Administrator
- Interaction Designer (websites, games, Apps)
- Database Architect
- Business Intelligence Analyst
- Entrepreneur
- Application Developer
- Operations Manager
- Professor/Teacher

# Mathematics (Edexcel IAL)

Mathematics XMA01 and YMA01

Further Mathematics XFM01 and YFM01

Coursework Components AS - 0% A2 - 0%

## Mathematics

AS – Two Pure Mathematics modules (P1 & P2), and Decision Maths (D1).

A2 - Two Pure Mathematics modules (P3 & P4), and Statistics (S1).

## Further Mathematics

AS – Two Pure Mathematical modules (FP1 & FP2) and Mechanics M1.

A2 – Pure Mathematics FP3, Mechanics (M2), and Statistics (S2).

## Admission Requirements

Students wishing to study Mathematics at A Level must have an IGCSE grade of B or above. Students wishing to study Further Mathematics at A Level must have an IGCSE Additional Mathematics grade of C or above.

## Preamble

The course enables students to acquire a wide range of mathematical knowledge and skills. But its aims go far beyond that, encouraging clear thinking, accuracy, the development of problem solving skills and the ability to draw conclusions and present arguments clearly.

The Mechanics content of the course complements Physics. The Statistics content complements Geography, Biology and other subjects. The Decision Mathematics content complements Computer Studies.

## Course Structure

Pure Mathematics covers topics including algebra, series, trigonometric, Equations and identities, differentiation, integration and complex numbers.

Mechanics covers topics from kinematics, forces, momentum and moments through to elastics, potential energy, circular motion, statics and simple harmonic motion.

Decision Mathematics covers algorithms for sorting data, bin packing algorithms, graphs and networks, Kruskal's, Dijkstra's & Prim's algorithms, critical path analysis, minimum route algorithms, and linear programming.

Statistics covers topics including probability, correlation, discrete random variables, continuous random variables, the Binomial, Poisson and Normal distributions and hypothesis testing.

Further Pure Mathematics includes differential equations, polar coordinates, proof by induction, De Moivre's Theorem, advanced calculus, vector algebra, matrix algebra, eigenvalues, and hyperbolic functions.

At present, for the Mathematics and Further Mathematics courses, we have 8 periods per week. To take the Further Mathematics course a knowledge equivalent to that of Additional Mathematics at IGCSE is required. It may be possible for someone to take up AS in Further Mathematics in Std 13 if they have performed suitably well in AS Mathematics in Std 12, depending on timetable restrictions.

## Further Studies & Career Options

A degree in Mathematics opens the door to a whole range of careers. Also, many other university courses, (in particular science and business related courses), include a significant mathematics component. A sound knowledge of A Level Mathematics can give you a head start when studying these subjects at degree level.



# Music Course: Edexcel AS: 8MU0, A2: 9MU0

Coursework components: 30% Performing 30% Composing

Exam: 40% Written and Listening paper - 2 hours

## Preamble

This qualification will support students in forming personal and meaningful relationships with music through the development of musical knowledge, understanding and skills, including performing, composing and appraising. Students will be encouraged to engage critically with a wide range of music and musical contexts and develop an understanding of the place of music in different cultures and contexts.

Students are expected to have done GCSE Music. It is also recommended that students have passed Grade 5 Theory and ABRSM grade 7/8 should be expected to be passed by the **end** of the course. Grade 8 theory which is an equivalent to AS/A level can be offered as an alternative, if there is not sufficient number of students.

## Course Structure

A-level Music can be a complimentary subject to any other A-level subjects, whether you wish to go into science or humanities after school. It shows a wide interest range and will broaden your artistic awareness.

## AS LEVEL

### Component Overview Assessment

Component 1 Performing 30% NEA: Total performance time of 6 minutes Solo and/or ensemble: Total of 60 marks, 12 available for difficulty of pieces.

Component 2 Composing 30% NEA: 2 compositions: 2 pieces – 30 marks each Total of 60 marks.

Component 3 Appraising 40 % exam	6 Areas of study with 2 set works in each: <ul style="list-style-type: none"><li><input type="checkbox"/> Vocal Music</li><li><input type="checkbox"/> Instrumental Music</li><li><input type="checkbox"/> Music for Film</li><li><input type="checkbox"/> Popular Music and Jazz</li><li><input type="checkbox"/> Fusions</li><li><input type="checkbox"/> New Directions</li></ul>	Exam 1hr 30 mins Total 80 marks
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## A2 LEVEL

### Component Overview Assessment

Component 1 Performing 30% NEA: Total performance time of 8 minutes: Solo and/or ensemble:  
Total of 60 marks - 12 available for difficulty of pieces

Component 2 Composing 30% NEA	2 compositions 1 free or free choice brief – min 4 min 1 brief assessing technique – min 1 min Together total min of 6 minutes	2 pieces 40 marks 20 marks Total of 60 marks
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Component 3 Appraising 40% exam	6 Areas of study with 3 set works in each Vocal Music <input type="checkbox"/> Instrumental Music <input type="checkbox"/> Music for Film <input type="checkbox"/> Popular Music and Jazz <input type="checkbox"/> Fusions <input type="checkbox"/> New Directions	Exam 2hrs Total 100 marks
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### Further Studies & Career Options

This qualification will allow students to develop particular strengths and interests, encourage lifelong learning and provide access to higher education, music conservatories and university degree courses in music and music-related subjects, as well as music-related and other careers.

# Physics

Course: CIE 9702

Coursework AS - 0% A2 - 0%

## Assessment

Assessment of AS level Physics is through 3 Examination Papers taken at the end of the first year of the A Level course.

Paper 1 (1¼ hours) Multiple Choice

Paper 2 (1¼ hours) Short Answers

Paper 3 (2 hours) Practical Exam

Assessment of A2 level Physics is through 2 Examination Papers taken at the end of the second year of the A Level course.

Paper 4 (2 hours) Core & Applications Short Answers

Paper 5 (1¼ hours) Written paper testing advanced practical skills

## Preamble

Physics is a key part of science and technology, dealing with how and why things behave as they do. You may not be certain about your choice of career, but if you are fascinated by the world around you and would like to understand more about it, then study Physics. Students should have achieved a minimum B grade in Physics at GCSE, IGCSE or O-levels to have a realistic chance of coping with the concepts at this level.

## Course Structure

The course followed is prescribed and examined by Cambridge International Examinations and is developed around the following key concepts:

**Models of physical systems:** Physics is the science that seeks to understand the behaviour of the Universe. The development of models of physical systems is central to Physics. Models simplify, explain and predict how physical systems behave.

**Testing predictions against evidence:** Physical models are usually based on prior observations, and their predictions are tested to check that they are consistent with the behaviour of the real world. This testing requires evidence, often obtained from experiments.

**Mathematics as a language and problem-solving tool:** Mathematics is integral to physics, as it is the language that is used to express physical principles and models. It is also a tool to analyse theoretical models, solve quantitative problems and produce predictions.

**Matter, energy and waves:** Everything in the Universe comprises matter and/or energy. Waves are a key mechanism for the transfer of energy and are essential to many modern applications of Physics.

**Forces and fields:** The way that matter and energy interact is through forces and fields. The behaviour of the Universe is governed by fundamental forces that act over different length scales and magnitudes. These include the gravitational force and the electromagnetic force.

## Further Studies and Career options for Physics

A physics degree is a great starting point for a career in scientific research, as well as in a range of careers in the business, finance, IT and engineering sectors.

Some of the most popular physics-related courses at graduate and postgraduate level include: Astro Physics, Quantum Physics, Engineering and Technology (Electrical, Telecommunications, Instrumentation and Control, Computer Science and IT, Medical Physics, Electronics, Mechanical, Energy, Aeronautical and Aerospace, Micro-Electronics and Nanotechnology and Bio- Engineering), Particle Physics and Medical Sciences.

Career options:

Jobs directly related to your degree include:

- Geophysicist/field seismologist
- Higher education lecturer
- Metallurgist
- Nanotechnologist
- Radiation Protection Practitioner
- Research scientist (physical sciences)
- Secondary school teacher

Jobs where your degree would be useful include:

- Investment analyst
- Meteorologist
- Nuclear engineer
- Operational researcher
- Aircraft maintenance Engineer
- Pilots

Typical employers:

Employers of physics graduates include academic institutions, government research organisations and industry. Industries employing physicists are varied and include:

- aerospace and defence
- education
- energy
- engineering
- instrumentation
- manufacturing
- renewable energy
- science and telecommunications

## Religious Studies Courses: Edexcel 8RS0 & 9RS0

Religious Studies covers several disciplines including Biblical Studies, Philosophy, Ethics, History, Language, and Literature. Religious Studies looks at the deepest issues of life. It offers an academic approach to the study of religion in general and Christianity in particular.

### Course Overview

Following the new Edexcel syllabus for 2016 Hebron offers three subject areas:

**Paper 1: Philosophy of Religion (9RS0/01; written examination - 2 hours, 80 marks)** Philosophical issues and questions; The nature and influence of religious experience; Problems of evil and suffering; Philosophical language; Works of scholars; Influences of developments in religious belief.

**Paper 2: Religion and Ethics (9RS0/02; written examination - 2 hours, 80 marks)** Significant concepts in issues or debates in religion and ethics; A study of three ethical theories; Application of ethical theories to issues of importance; Ethical language; Deontology, Virtue Ethics and the works of scholars; Medical ethics: beginning and end of life issues.

**Paper 3: New Testament Studies (9RS0/03; written examination - 2 hours, 80 marks)**

Social, historical and religious context of the New Testament; Texts and interpretation of the Person of Jesus; Interpreting the text and issues of relationship, purpose and authorship; Ways of interpreting the scripture; Texts and interpretation: the Kingdom of God, conflict, the death and resurrection of Jesus; Scientific and historical-critical challenges, ethical living and the works of scholars.

### Objectives

The aims and objectives of this qualification are to enable students to:

- develop their interest in a rigorous study of religion and belief and relate it to the wider world
- develop knowledge and understanding appropriate to specialist study of religion
- develop an understanding and appreciation of religious thought and its contribution to individuals, communities and societies
- adopt an enquiring, critical and reflective approach to the study of religion
- reflect on and develop their own values, opinions and attitudes in the light of their study.

Students will require a minimum of a B grade in GCSE Religious Studies to be eligible to take it at AS. At present, all students sit an AS examination at the end of standard 12 (3 papers) and an A2 examination at the end of standard 13 (3 papers). The standard 13 examination is a compilation of both AS and A2 material. Students can opt to just complete the AS course and drop it at A2 if they so choose.

### Further Studies and Career Options

Universities and Theological/Bible Colleges offer a wide range of theology and ministry courses for those interested in careers ranging from the academic theologian to various positions in church and missions ministry. In addition, however, Religious Studies offers an excellent background for many other disciplines. It is an extremely useful subject to have studied for any career to do with people; for example, anthropology, counselling, education, law, medicine, psychology, psychiatry, sociology, political science, international studies, criminology, journalism and media.

## Assessment

The IPQ is a stand-alone externally assessed qualification rated as an Advanced Level course by the British University body UCAS. It can take the place of an AS Level in a student's programme of study and is roughly equivalent to the value of an AS Level as a qualification.

Students are assessed by a research log and a single piece of writing, not exceeding 5000 words. Students are graded A\*-E.

## Preamble

The course is designed for students to carry out an independent research project to complement their Cambridge International AS or A Level subjects and adds value to their university application.

Studying for the Cambridge IPQ allows students to demonstrate engagement with their chosen discipline beyond preparation for an exam. Academic evidence suggests that this sort of deeper engagement will help improve exam performance. It also allows students to position themselves well in university applications. Highly competitive universities value evidence of student passion for their subject.

## Course structure

Students select a topic that they are interested in and then develop a research question that they will investigate. Throughout the course there are research deadlines to meet. Students are guided by a mentor in their research but must show a high level of organisation and discipline as they will be mostly working alone on their project.

Guided learning hours for this qualification are around the same over a year as a Cambridge International AS Level qualification.

## The Value of an IPQ

The IPQ is a wonderful opportunity for students to undertake original research beyond the remit of their A Level courses. For those studying subjects in one academic area it allows a demonstration of wider interests and abilities.

Universities applications are enriched by discussing IPQ studies. Further to this, students need to show a great deal of maturity and independence of thought to complete the project. Such qualities are much sought after in higher education and appreciated by universities.

Further information is available from [camebridgeinternational.org](http://camebridgeinternational.org)

## What happens next?

Do further research on each A Level you are considering taking. As well as discussing your future options with your family, talk to your teachers to further find out what is involved in each course. Ask them for an honest opinion of your potential in the subject. Talk to students who are already taking that subject. The more information you have the better informed your A Level choices will be and the more likely you are to enjoy your future studies.

In the final term of the academic year you will be asked to submit your choices for Standard 12. Remember that most students will take four courses. Many will carry on with three to Standard 13.

Whatever you choose we very much look forward to you thriving in your A Level studies, making a difference to the Hebron community and thoroughly enjoying your time in Standards 12 and 13.