SINGAPORE INTERNATIONAL SCHOOL
Since 1986

CAMBRIDGE
International Examinations

Cambridge International School

A & AS LEVEL INFORMATION BOOKLET

SINGAPORE INTERNATIONAL SCHOOL
CAMBRIDGE AS & A LEVEL COURSE PROGRAMME

Why do A Levels?

In order to secure a place at university, students must follow a programme where there is heavy emphasis on advanced study to prepare them for higher education. Cambridge International AS and A Level qualifications have a proven reputation for being excellent preparation for university, employment and life.

Thousands of learners use Cambridge International AS and A Levels every year to gain places at leading universities worldwide, including the UK, US, Australia, Canada and New Zealand. They are regarded as a passport to success.

All UK universities and over 450 US universities accept Cambridge International A Level qualifications, including Harvard, MIT, Stanford and Yale. In places such as the US and Canada, good grades in carefully chosen Cambridge International A Level subjects can result in up to one year university course credit.

To find out whether the university that students wish to apply to accept CIE qualifications, students should contact the university admissions office.

It is also possible to look up specific universities on the CIE recognitions database. The database can be accessed online at www.cie.org.uk/qualifications/recognition .

Choosing the right subject combination

More than with IGCSEs, subject choice at A Level is crucial. For many university courses there are specific subjects that must be studied at A Level. It is therefore important for students to research before choosing subjects. If students are unsure of the exact course that they would like to study at university, but they know what field it is going to be in, for example Science, this should guide their choices. If students are completely unclear as to their future direction they should focus on subjects that they enjoy and can do well in.

Subjects available at Singapore International School

Group A: Mathematics and Sciences
Mathematics
Biology
Chemistry
Physics
Computer Science

Group B: Languages
English Language

Group C: Arts and Humanities
Economics
Business Studies
Global Perspectives and Research

Grading System
Passing grades on the Cambridge International AS Level are A to E, with A being the highest. AS Level grades are submitted to university applications and are the basis for predicted grades which are also submitted by the school.

The Cambridge International A Level passing grades are A* to E with A* being the highest. These grades are submitted to admissions officers at the universities to which the students have applied. It is these final grades that determine whether a student is accepted or rejected by their chosen university.

Mathematics

Why Study Mathematics?

Cambridge International A & AS 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, recognizing when and how a situation may be represented mathematically;
- the use of mathematics as a means of communication;
- a solid foundation for further study.

Curriculum Contents:

Year 11 (AS Level)	Year 12 (A Level)
Topics covered in AS Pure Mathematics 1 (P1) include Quadratics; Function; Coordinate Geometry; Circular measure; Trigonometry; Vectors; Series; Differentiation and Integration. Topics covered in AS Mechanics 1 (P4) include Velocity and Acceleration; Forces and Motion; Vertical motion; Resolving forces; Friction; Motion due to Gravity; Newton's Laws of Motion; Energy, work and power; Potential energy and Force as a Vector Quantity.	Topics covered in A2 Pure Mathematics 3 (P3) include Polynomials; Modulus Function; Logarithmic and exponential functions; Trigonometry; Differentiation of trigonometric functions and products; Numerical Solution of equations. Topics covered in A2 Probability and Statistics (P6) include Representation of data; Permutations and combinations; Probability; Discrete random variables; The Normal Distribution.

How is the subject assessed?

Year 11 (AS Level)	Year 12 (A Level)
AS Mathematics Students take two examination papers- Pure mathematics 1 (P1) and Mechanics 1 (M1)	A2 Mathematics Students take two examination papers – Pure Mathematics 2 + 3(P3) and Probability and Statistics (P6).

How the subject could be used in the future (Careers)

Mathematics is a requirement for many university courses. The problem solving skills developed by studying mathematical techniques are transferable across many subject areas specifically science, business and economics.

Biology

Why Study Biology

Biology is the scientific exploration of the vast and diverse world of living organisms. It strives to tell us about the natural world around us. Biology can tell us about the physical makeup of our bodies and those of other animals and plants. It enables us to produce cures and treatments for many diseases. The study of biology has an immediate relevance to our daily lives. Are you intrigued with the incredible variety of organisms that inhabit our planet?

Have you wondered about their origin and how they have evolved? Have you asked yourself if we can reverse the destruction of ecosystems? Do you wonder where genetic engineering will lead? Are you interested in how the human brain functions to articulate, comprehend and pursue these problems? Then biology is the subject for you. Remember: the continual pursuit of biological understanding is essential if societies are to make informed choices to safeguard the future of the human race.

Curriculum Contents:

Year 11 (AS Level)	Year 12 (A Level)
Cell structure; Cellular transport; Biological molecules; Cell division; Genetic Control; Transport; Gas Exchange; Immunity and Ecology.	Energy and Respiration; Photosynthesis; Regulation and control; Inherited change Selection and evolution; Biodiversity and conservation; Gene technology; Biotechnology; Crops and plants; Aspects of human reproduction.

How is the subject assessed?

Year 11 (AS Level)	Year 12 (A Level)
Paper 1: Multiple choice questions Paper 2: Structured questions Paper 3: Advanced practical skills	Paper 4: Structured questions Paper 5: Planning, analysis and evaluation

How the subject could be used in the future (Careers)

Knowledge of biology can lead to careers in the following areas: Research, Health care, Environmental management and conservation: Education, Biotechnology, Forensic science, Politics and policy, Business and industry, Economics, Mathematics, Science writing and communication and Art. For more details visit http://www.aibis.org/careers/

Chemistry

Why Study Chemistry

Chemistry provides important understanding of our world and how it works. It is an extremely practical science that greatly impacts our daily living. Realize it or not, deep down we are all chemists. Every time we light a match, boil an egg or simply breathe in and out, we perform a chemical reaction. Our bodies grow, develop and function as a result of chemical processes. Our clothes and nearly all of the objects of our everyday life are manufactured by the chemical transformation of raw materials like oil or iron ore, or by the chemical treatment of natural products like wood or wool.

If we are to protect the planet from the harmful effects of human activity, we need to understand as clearly as possible the complex chemical systems which make up our environment of land, sea and air.

Have you ever wondered why leaves turn colors in the fall and how a battery generates electricity? Chemistry supplies answers to these questions and countless others like them. If you enjoy seeing how chemical principles operate in all aspects of our lives, from everyday activities to far-reaching matters then this is the subject for you.

Curriculum Contents:

Year 11 (AS Level)	**Year 12 (A Level)**
Atoms, molecules and stoichiometry; Atomic structure; Chemical bonding; States of matter; Chemical energetic; Electrochemistry; Equilibria; Reaction kinetics; Inorganic chemistry; Organic chemistry.	Chemical energetic; Electrochemistry; Equalibria; Reaction kinetics; Inorganic chemistry; Organic chemistry; Applications of chemistry.

How is the subject assessed?

Year 11 (AS Level)	**Year 12 (A Level)**
Paper 1: Multiple choice questions Paper 2: Structured questions Paper 3: Advanced practical skills	Paper 4: Structured questions Paper 5: Planning, analysis and evaluation

How the subject could be used in the future (Careers)

Knowledge of chemistry can lead to careers in the following fields: Education, Finance, Forensics, Health and Safety, Finance, Laboratory work, Law, Consultancy, Media, Sales and marketing. For more details visit http://www.rsc.org/Education/SchoolStudents/profiles/index.asp

Physics

Why study Physics?

Physics is at the heart of everything and is crucial to understanding the world around us, the world inside us, and the world beyond us. It is the most basic fundamental of science. Physics challenges our imaginations with concepts like relativity and string theory, and it leads to great discoveries, like computers and lasers, that change our lives.

Physics encompasses the study of the universe from the largest galaxies to the smallest subatomic particles. It explores questions like how did the universe begin? How it end? What is a black hole? Is time travel possible? If you have an enquiring mind, always asking why things happen, then physics will help you find the answers. It forms the basis of most modern technologies and holds the future to global well being.

Curriculum Contents:

Year 11 (AS Level)	**Year 12 (A Level)**
General Physics, Newtonian mechanics; Matter; Oscillations and waves; Electricity and magnetism; Modern physics	General physics; Newtonian mechanics; Matter; Oscillations and waves; Electricity and magnetism; Modern physics; Gathering and communicating information

How is the subject assessed?

Year 11 (AS Level)	Year 12 (A Level)
Paper 1: Multiple choice questions Paper 2: Structured questions Paper 3: Advanced practical skills	Paper 4: Structured questions Paper 5: Planning, analysis and evaluation

How the subject could be used in the future (Careers)

Knowledge of physics can lead to careers in the following fields: Astronomy, Meteorology, Education, Research, Leisure, IT, Industry, Engineering, Finance and Marketing. For more details visit http://www.physics.org/article-careers.asp?contentid=404 .

Computer Science

Why Study Computer Science?

Learners will study topics including information representation, communication and Internet technologies, hardware, software development, and relational database modelling. As they progress, learners will develop their computational thinking and use problem solving to develop computer-based solutions using algorithms and programming languages. Studying Cambridge International AS and A Level Computer Science will help learners develop a range of skills such as thinking creatively, analytically, logically and critically.

Curriculum Contents:

Year 11 (AS Level)	Year 12 (A Level)
Information Representation Communication & Internet technologies Hardware Processor Fundamentals System Software Security, privacy and data integrity Ethics and Ownership Database and Data Modeling Algorithm design and problem solving Programming Software development	Data Representation Communications and Internet Technologies Hardware System Software Security Monitoring and Control Systems Computational thinking and problem solving Algorithm design methods Further programming Software development

How is the subject assessed?

Year 11 (AS Level)	Year 12 (A Level)
Paper 1 - Theory Fundamentals	Paper 3 - Advanced Theory
Paper 2 - Fundamental problem–Solving and programming skills	Paper 4 - Further problem–Solving and programming skills

How the subject could be used in the future (Careers)

A detailed knowledge of Computers can lead to careers in the following areas: Database administrator, Games developer, Information systems manager, IT consultant, Multimedia programmer, Network engineer, Systems analyst, Systems developer, Computer maintenance, support and administration. Students should also be able to appreciate the ethical issues that arise with current and emerging computing technologies.

English Language

Why Study English Language?

Successful English language students gain lifelong skills including:

- the ability to write clearly and persuasively;
- the ability to use appropriate styles and registers for different contexts;
- the ability to analyse a variety of complex texts in different forms and styles;
- an understanding of language use to inform and persuade.

Curriculum Contents:

Throughout the course students will develop the ability to read with understanding written material in a variety of forms, and to comment on its effectiveness. Students will also further their knowledge and understanding of English language. Furthermore, students will also extend on their ability to write clearly, accurately and effectively for a particular purpose or audience.

How the subject is assessed?

There are four papers in this syllabus, Paper 1, Paper 2, Paper 3 and Paper 4. Papers 1 and 2 are taken at AS Level and Papers 3 and 4 are taken at A Level. Each paper carries the same number of marks.

Year 11 (AS Level)	Year 12 (A Level)
Paper 1: Passages for Comment Paper 2: Composition	Paper 3: Text Analysis Paper 4: Language Topics

How the subject could be used in the future (Careers)

The study of English occurs in a world of rapid cultural, social, economic and technological change, which places complex demands on citizens to be literate. As literate citizens, students need to be able to interpret, respond to and create face-to-face, written, spoken/signed, visual, nonverbal and auditory texts communicated through a range of mediums. They also need to be able to draw on a repertoire of resources to interpret and create texts for personal, cultural, social and aesthetic purposes now and beyond school. The study of English Language will assist students who are interested in pathways beyond school that lead to work or tertiary studies. It is worth noting that English is a prerequisite for admission to many university courses.

Economics

Why Study Economics?

Through the medium of the Economics curriculum it is hoped that students will develop effective study skills, be able to exercise critical, coherent and independent thought. It is also intended that students will develop the capacity to solve problems effectively and make decisions. Economics is a subject which encourages students to form reasoned arguments and to present students to form reasoned arguments and to present them clearly. By working both independently and cooperatively students develop research skills, learn to organize their work effectively, and to use a variety of media and technologies to research and to present data.

Curriculum Contents:

Students will study different economic concepts and relate them to the real world. The course looks at government strategies to control economic variables such as inflation, interest rates and employment as well asthe basic economic problem of resource allocation supply, demand, economic development and international trade.

Year 11 (AS Level)	Year 12 (A Level)
• Basic economic ideas • The price system • Government intervention in the price system • Measurement in the Macroeconomy • International Trade • Macroeconomic problems and policies	• Economic Efficiency • Consumer Theory • Theory of the Firm • Labour Market Economics • Microeconomic and macro Economic Problems and Policy • International Economic Problems and Policy • Development economics

How is the subject assessed?

Year 11 (AS Level)	Year 12 (A Level)
Paper 1: Multiple choice Paper 2: Data response and structured essay	Paper 3: Multiple choice Paper 4: Data response and structured essay

How the subject could be used in the future (Careers)

An AS/A Level in Economics provides a firm foundation for further study in the subject and can move towards careers in the following areas, business management; government; economic and market research; banking and finance; management consultancy; teaching and retailing.

Business Studies

Why Study Business Studies?

Business Studies enables students to understand and appreciate the nature and scope of business, and the role it plays in society. The syllabus covers economic, environmental, ethical, governmental, legal, social and technological issues, and encourages a critical understanding of organisations, the markets they serve and the process of adding value.

Curriculum Contents:

Students will study different business concepts and strategies wherever possible in relation to their own country and in an international context. The skills and theory of strategic management will be thoroughly explored as will motivational theories, economic activities and operations and project management. Financial information will be analysed and used in the decision making process. The AS course builds on the work done at IGCSE and the A Level course builds on the work done at AS Level. The curriculum is outlined below:

Course Content	**Year 11 (AS Level)** **Core Topics**	**Year 12 (A Level)** **Extension Topics**
1. Business and its environment	• Enterprise • Business structure • Size of business • Business objectives • Stakeholders in a business	• Business structure • Size of business • External influences on business activity
2. People in organisations	• Management and leadership • Motivation • Human resource management	• Human resource management • Organisation structure • Business communication
3. Marketing	• What is marketing? • Market research • The marketing mix	• Marketing planning • Globalisation and international marketing
4. Operations and project management	• The nature of operations • Operations planning • Inventory management	• Operations planning • Capacity utilization • Lean production and quality management • Project management
5. Finance and accounting	• The need for business finance • Sources of finance • Forecasting cash flows and managing • Working capital • Costs • Accounting fundamentals	• Costs • Budgets • Contents of published accounts • Analysis of published accounts • Investment appraisal
6. Strategic management	Only covered at A Level	• What is strategic management? • Strategic analysis

		• Strategic choice • Strategic implementation

How is the subject assessed?

Papers	**Weight**	
	Year 11 (AS Level)	**Year 12 (A Level)**
Paper 1 (Based on Core Topics) Duration: 1 hour 15 mins Section A: 4 short answer questions Section B: Essay on Core curriculum (1 from a choice of 3 questions)	 20% 20%	 10% 10%
Paper 2 (Based on Core Topics) Duration: 1 hour 30 mins 2 data response questions	60%	30%
Paper 3 (Based on Core + Extension topics) Duration: 3 hours Case Study: 5 questions + 1 essay (from a choice of 2)	N/A	50%

How the subject could be used in the future (Careers)

As an introduction to studying business or any related subject such as marketing, accountancy and economics at university level. As a preparation for work in any professional or commercial field ranging from hospitality management, business reporting, organizational or functional management, entrepreneurship, banking, investment and indeed, any area which requires management, planning and critical thinking.

Global Perspectives and Research

Why Study Global Perspectives and Research?

It is widely recognised that we live in an increasingly digitised and inter-connected world. The means by which we access information and the pace with which this takes place are profoundly changing the way we learn, communicate and work. Increasingly, young people are faced with access to a multiplicity of competing ideas. In such an information-rich society, young people need the skills and dispositions to be able to think critically. In the broadest sense this means that they need to: deconstruct arguments, differentiate between the ways in which people express their perspectives, views and arguments, assess and evaluate claims and develop strong lines of reasoning.

Curriculum Contents:

<table>
<tr><th colspan="2">Year 11 (AS Level): Global Perspectives</th><th>Year 12 (A Level): Research Report</th></tr>
<tr><td>Theme</td><td>Topic</td><td rowspan="2">Research Report

The Research Report focuses on the ability to design, plan and manage an extended research project, allowing students to develop skills in:

- collecting and analysing information
- evaluating and making reasoned judegements
- communicating findings and conclusions</td></tr>
<tr><td>Ethics

Economics

Environment

Politics and Culture</td><td>- Genetic engineering
- Medical ethics and priorities
- Standards of living vs quality of life
- Ethical foreign policies
- Religious-secular divide
- Globalisation of economic activity
- Migration and work
- Impact of the internet
- Global trade
- Ethics and economics of food
- Economic role of women
- Science and politics of climate change
- Industry and pollution
- Biodiversity
- Challenge of genetic modification
- Urbanisation and the countryside
- China as an emerging superpower
- Endangered cultures
- International law
- Supra-nations organisations (UN, etc.)
- Integration and multiculturalism</td></tr>
</table>

How is the subject assessed?

Year 11 (AS Level): Global Perspectives	Year 12 (A Level): Research Report
Students are assessed in three ways: 1. An examination, testing skills of critical analysis of arguments and issues. 2. Submission of a piece of work from the student's e-portfolio, covering reconstruction of the context of an argument or issue (comparing, evaluating and reflecting on different perspectives). 3. A presentation, undertaken and submitted within a defined window near the end of the course, and based on pre-released stimulus material.	Students submit a single report between 4500 and 5000 words. It is a single piece of extended writing in the form of a dissertation or a report based on an investigation or field of study.

How the subject could be used in the future (Careers)

Global Perspectives and Research has been designed to develop thinking and reasoning skills, as well as research and communication skills. This will enable students to meet the demands of the twenty-fist century and to make a successful transition to university.