UCAS

helping students into higher education

EXPERT GROUP REPORT FOR AWARD SEEKING ADMISSION TO THE UCAS TARIFF

HONG KONG DIPLOMA OF SECONDARY EDUCATION

Jill Johnson and Dr Geoff Hayward
February 2009

CONTENTS **PAGE**

LIST OF TABLES **PAGE**

LIST OF FIGURES PAGE

THE CONDUCT OF THE COMPARABILITY STUDY

In order to ensure a robust and transparent procedure for allocating UCAS Tariff points to qualifications seeking admission to the framework, UCAS approached the University of Oxford, Department of Educational Studies for assistance in developing an appropriate methodology.

Acknowledging the problematic nature of comparability studies, and recognising that a mechanical procedure would not work, the Department proposed a procedure based on the premise that such comparisons can only be achieved through the exercise of collaborative judgement by an Expert Group.

Guidelines were drawn up for the composition of the Expert Group, the evidence that would need to be collected and examined, and the choice of a benchmark qualification.

Procedures were developed for the conduct of the work of the Expert Group, including detailed sets of questions to be addressed at different stages in the process. Questions appropriate to the awards under consideration are selected and are used to guide, not constrain, the work of the Expert Group.

The judgements made by the Expert Group in this report are presented as suggested allocations of UCAS points which take account of the size and demand of the award seeking admission to the Tariff, and a candidate's level of attainment within that award. The guidelines also provide for an automatic review process to be conducted at a later stage in the light of further evidence. This latter point acknowledges the fact that both benchmark qualifications and those seeking admission to the Tariff may still be relatively new. Consequently, there may only be a relatively small amount of evidence (particularly candidate evidence) available at the time of the work of the Expert Group. There is, therefore, a need to review the decisions of the Group when more evidence becomes available and when HE admissions tutors have gained more experience of using the awards as entry qualifications.

The work of the Expert Group is subject to a quality assurance procedure by an independent auditor from higher education.

SUMMARY AND RECOMMENDATIONS

The Hong Kong Diploma of Secondary Education is a three-year senior secondary academic structure which commenced in September 2009. The first candidates sitting the Hong Kong Diploma of Secondary Education Examination (HKDSE) will complete in 2012.

Candidates take four core subjects (Chinese Language, English Language, Mathematics and Liberal Studies), plus two or three elective subjects. UCAS Tariff points are awarded to each individual component.

Whilst there are some vocational electives, only the academic subjects are included within the Tariff. Each component of the overarching Diploma will be graded from 5** to 1, with U being unclassified. For the purposes of this exercise only grades 5**, 5*, 5, 4 and 3 were being considered as appropriate levels of attainment for supporting progression to UK higher education.

Five parallel expert groups met in February 2009, covering three core compulsory subjects of English, mathematics, and liberal studies, and two elective subjects: geography and biology. Whilst slight differences in recommendations for Tariff points emerged from each subject group, these were resolved for all except mathematics.

Mathematics in the Hong Kong Diploma proved to be more problematic. All students taking the Diploma have to study, as a minimum requirement, a compulsory mathematics unit. In addition, there is the option to study one out of two optional units – Calculus and Statistics or Calculus and Algebra. The core unit is a stand-alone qualification, ie it is not subsumed into an overarching mathematics qualification consisting of the compulsory and optional unit in the way that AS mathematics is subsumed into GCE A level. Consequently, unlike other subjects in the Hong Kong Diploma, Tariff points need to be allocated separately to the compulsory and optional mathematics units. The higher education members of the mathematics expert group were unanimous that the compulsory unit, largely because it contained a significant proportion of level 2 (ie GCSE standard) material and lacked calculus (unlike AS mathematics), had reduced utility on its own for supporting progression to UK Higher Education. Thus, while the core mathematics curriculum represents a sound educational solution to the need to meet the needs of a range of learners to study mathematics to age 18, the corollary is a qualification which, in the view of the HE Experts, had lower than expected utility for supporting progression to UK HE.

In the case of the optional units, the mathematics Expert Group recommended a higher allocation of UCAS Tariff points to the calculus and algebra option than the calculus and statistics course. In part this was due to the former having components of what would be considered Further Mathematics in the UK context. However, a supervening principle of the Tariff is that we should not allocate differential numbers of UCAS Tariff points to qualifications at the same level in a suite. For example, the same grade in GCE A level mathematics and further mathematics GCE A level attracts the same number of UCAS Tariff points, as do the same levels of attainment in GCE physics and English. Applying this principle, and notwithstanding the arguments put forward by the HE experts, suggests that we should

allocate a similar quantum of UCAS Tariff points to the same level of attainment in the optional components.

Detailed discussions regarding the proposed allocations took place at the Tariff Reference and Advisory Groups in September 2009, followed by additional further communications with HKEAA, with the recommendations endorsed by the UCAS Board later that month.

All recommendations are provisional and subject to review upon the availability of candidate evidence.

Grade	All subjects except Mathematics	Mathematics compulsory component	Mathematics optional components
5**	No value pending receipt of candidate evidence (post 2010)		
5*	130	60	70
5	120	45	60
4	80	35	50
3	40	25	40

SECTION 1: THE COMPOSITION OF THE EXPERT GROUPS

The following individuals with expert knowledge and experience of the qualifications under consideration in this study were selected to form the Expert Groups:

Biology

- Harriet Jones, Lecturer, School of Biology, University of East Anglia
- Martin Speight, Organising Secretary for Biological Sciences Admissions, University of Oxford
- Al Venables, Senior Lecturer, Cardiff University
- Gwen Low, Chair of Examiners for GCE Biology, OCR
- Siu-kwan Choy, Assistant General Manager - Assessment Development, Hong Kong Examinations and Assessment Authority

English

- Helen McAllister, Assistant Director, The Language Centre, University of the Arts London
- John Coyle, Head of Department of English Literature, University of Glasgow
- Pat Waugh, Head of Admissions and former Head of English Studies Department, Durham University
- Shaun O'Toole, Chief Examiner for GCE English Language, AQA
- Christina Lee, General Manager - Assessment Development, Hong Kong Examinations and Assessment Authority

Geography

- Gavin Brown, Lecturer in Human Geography, University of Leicester
- Adrian Wood, Programme Manager – Geography, Coventry University
- Dianne Francombe, Director, Admissions and International Development, University of the West of England
- Tony Thomas, Chair of Examiners, Edexcel
- Gloria Leung, Manager - Assessment Development, Hong Kong Examinations and Assessment Authority

Liberal Studies

- Michaela Artingstall, Deputy Registrar, Newman University College
- Greg Spellman, Senior Lecturer Geography and Environmental Science, The University of Northampton
- Preston Hoggan, Chair of Subject Advisory Committee for Social Science, AQA
- Andrew Bettley, Coleg Llandrillo Cymru
- K Y Lo, Senior Manager - Assessment Development, Hong Kong Examinations and Assessment Authority

Mathematics

- Jonathan Robbins, Reader in Applied Mathematics and Admissions Tutor, Bristol University
- Niall MacKay, Admissions Tutor, University of York

- Ian Taylor, Mathematics with Computing Course Director, University of Ulster
- David Armitage, Retired Professor of Pure Maths, CCEA
- Tak-wing Wan, Assistant General Manager - Assessment Development, Hong Kong Examinations and Assessment Authority

UCAS staff acted as facilitators and secretaries for the meetings, ensuring that the Group worked systematically through the procedures.

The whole process was overseen and quality assured by Dr Geoff Hayward, an independent higher education based consultant.

Francis Cheung, Secretary General; Thomas Cheung, Director – Development and Educational Assessment: and George Pook, Deputy Secretary General designate, all from the Hong Kong Examinations and Assessment Authority, attended as observers to the meeting.

CVs of the experts within the Group are attached as Appendix 1.

SECTION 2: OVERVIEW OF THE AWARD SEEKING ADMISSION TO THE UCAS TARIFF - HONG KONG DIPLOMA OF SECONDARY EDUCATION EXAMINATION (HKDSE)

2.1 Aims and purpose of the qualifications

The name of the new examination is Hong Kong Diploma of Secondary Education Examination. The results of candidates are reported in terms of achievement in individual subjects. For each subject, there will be an achievement grade described in terms of levels, from Level 1 to Level 5, Level 5 being the highest. To annotate the best performers among the Level 5 candidates, 5* and 5** will be used. It aims to allow candidates to be considered for admission to tertiary institutions.

Upon achieving this qualification candidates' should be able to:

- be considered for admission to tertiary institutions
- be considered for general employment to various ranks in civil service
- demonstrate their levels of attainment in various subjects

2.2 History of the qualification

This is a new qualification. The first examination will be held in 2012.

The Hong Kong Education and Manpower Bureau (now known as the Education Bureau) announced in 2005 that the three-year senior secondary education system would be implemented at Secondary Four in September 2009. Under the new academic system, all students will be expected to complete three years of junior secondary education followed by three years of senior secondary education. Students entering Secondary One in September 2006 will sit for the first Hong Kong Diploma of Secondary Education Examination (HKDSE) in 2012, after completing six years of secondary education.

Most school candidates are expected to take four core subjects (Chinese Language, English Language, Mathematics and Liberal Studies), plus two or three elective subjects (from the following list) in the HKDSE.

Biology
Business, Accounting & Financial Studies
Chemistry
Chinese History
Chinese Literature
Design and Applied Technology
Economics
Ethics and Religious Studies
Geography
Health Management and Social Care
History
Information and Communication Technology
Literature in English
Music
Physical Education
Physics
Science
Technology and Living
Tourism and Hospitality Studies
Visual Arts

2.3 Entry requirements for the qualification

There are no specific entry requirements. However, candidates normally have completed six years of secondary education before taking HKDSE.

2.4 Age of candidates

Candidates are normally around the age of 18.

2.5 Guided Learning Hours

Each subject has different allocations of total lesson time, as portrayed in Table 1.

Table 1: Hong Kong Diploma of Secondary Education hours per subject

	English Language	Mathematics	Liberal Studies	Biology	Geography
Compulsory	305	270	180	200	170
Elective	100			50	50
Module (M1 or M2)		135			
Independent enquiry study	0		90		
Scientific investigations				20	
Fieldwork and spatial data enquiry					50
Total	**405**	**405**	**270**	**270**	**270**

2.6 Content and structure of the qualification

2.6A English Language

As an integral part of the continuum of English Language education at school level, the English Language curriculum at senior secondary level specifically aims to enable learners to:

- broaden and deepen the language competencies they have developed through basic education (Primary 1 – Secondary 3), so that they are able to use English with increasing proficiency for personal and intellectual development, effective social interaction, further study, vocational training, work and pleasure
- further develop their interest and confidence in using English as their understanding and mastery of the language grows
- further broaden their knowledge, understanding and experience of various cultures in which English is used
- develop and prepare themselves for further study, vocational training or work
- further develop learning how to learn skills and positive values and attitudes conducive to meeting the needs of our rapidly changing knowledge-based society. These include the interpretation, use and production of texts for pleasure, study and work in the English medium.

The senior secondary English Language curriculum consists of a compulsory part and an elective part. Both parts include the learning of English Language in the interpersonal, knowledge and experience strands. They also comprise the same learning objectives, which embody the essential content of learning for English Language at senior secondary level.

Compulsory part

In the compulsory part, teachers are encouraged to deliver the learning content by way of the task-based approach to language learning and apply the organising structure of modules, units and tasks to facilitate the learning and teaching of the four language skills, grammar, communicative functions, vocabulary and text-types. Suggested modules and units for senior secondary level are shown in Table 2:

Table 2: HK English Language – suggested modules

Getting along with others • Friendship and dating • Sharing, co-operation, rivalry	**Communicating** • The media and publications • international network (internet)
Study, school life and work • Study and related pleasure/problems • Experiments and projects • Occupations, careers and prospects	**Nature and environment** • protecting the environment • resources and energy conservation
Cultures of the world • Travelling and visiting • Customs, clothes and food of different places	**Technology** • changes brought about by technology
Wonderful things • Successful people and amazing deeds • Great stories • Precious things	**Leisure and entertainment** • The world of sports • "Showbiz"
The individual and society • Crime • Human rights (personal rights, civic rights, respect)	

Details regarding the learning objectives can be found on pages 13-28 of the English Language Curriculum and Assessment Guide (Secondary 4 – 6).

Elective part

The elective part includes a range of extension modules which reinforce different aspects of English Language learning. It serves the purposes of adding variety to the English Language curriculum, broadening students' learning experience and catering for their diverse needs and interests.

The proposed modules in the elective part are categorised into the two groups:

Table 3: HK English Language elective – proposed modules

Language Arts	Non-Language Arts
• Learning English through drama • Learning English through short stories • Learning English through poems and songs • Learning English through popular culture	• Learning English through sports communication • Learning English through debating • Learning English through social issues • Learning English through workplace communication

The modules in the elective part represent a structured and focused way of using various approaches to learning English over a sustained period of time. They focus not so much on the explicit teaching of subject knowledge and skills (ie the four skills, grammar, communicative functions, vocabulary and text-types), as on providing learners with

opportunities to apply them through following a particular approach or exploring a particular topic, which may or may not be covered in the compulsory part. In addition to developing learners' language skills, the modules enhance the further development of generic skills such as communication, critical thinking, creativity and collaboration.

Learners are required to choose three of the modules in the elective part during senior secondary, and they should opt for at least one module from each group to avoid a lopsided choice of modules.

The outlines of the eight suggested modules are on pages 31-48 of the English Language Curriculum and Assessment Guide (Secondary 4 -6).

2.6B Mathematics

The mathematics curriculum comprises a compulsory part and an extended part. All students must study the compulsory part. The inclusion of the extended part is designed to provide more flexibility and diversity in the curriculum. The extended part provides additional mathematical knowledge to the compulsory part. Students, based on their individual needs and interests, are encouraged to take at most one of the two modules.

The principles of curriculum design of the compulsory part comply with those of the mathematics curriculum (S4 – 6) as a whole, but have two distinguishing features.

First, the compulsory part serves as a foundation for all students and at the same time provides flexibility to cater for the diverse needs of individual students. Its contents are categorised into foundation topics and non-foundation topics. The foundation topics constitute a coherent set of essential concepts and knowledge, while the non-foundation topics cover a wider range of content.

Second, the topics in the compulsory part emphasize the relevance of mathematics to various human activities. Students are expected to engage in different activities to foster their awareness of the worldwide use of mathematical terminology, notation and strategies to solve problems. Also, to enable students to recognise and appreciate the interconnection between the different parts of mathematics they have learnt at both the junior and senior secondary levels, a "Further Applications" unit is incorporated into the compulsory part.

The extended part is designed for students who need more mathematical knowledge and skills for their future studies and careers, and for those whose interests and maturity have been developed to A level and enables them to benefit from further mathematical study in different areas. The extended part aims at extending students' mathematics horizon beyond the compulsory part. Students have to handle more complicated problems in the extended part than in the compulsory part.

Two modules are offered as choices for students in the extended part. They are Module 1 (Calculus and Statistics) and Module 2 (Algebra and Calculus). Students are allowed to take, at most, one of the two modules.

Module 1 (Calculus and Statistics) is intended to cater for those students who will be involved in disciplines or careers which demand a wider scope and deeper understanding of mathematics, and for those who would like to learn more mathematical applications at the senior secondary level. Module 2 (Algebra and Calculus) is designed to suit the needs of students who will be involved in mathematics-related fields and careers, and those who would like to learn more in-depth mathematics at the senior secondary level.

Syllabus Topics

The synopsis of the syllabus content is given in
Table 4. Details of the syllabus content can be found in Chapter 2 “Curriculum Framework” of the Mathematics Curriculum and Assessment Guide (Secondary 4 – 6).

Table 4: HK Mathematics syllabus content

compulsory part	**M1 (Calculus and Statistics)**	**M2 (Algebra and Calculus)**
Number and Algebra	**Foundation Knowledge Area**	**Foundation Knowledge Area**
• Quadratic equations in one unknown • Functions and graphs • Exponential and logarithmic functions • More about polynomials • More about equations • Variations • Arithmetic and geometric sequences and their summations • Inequalities and linear programming • More about graphs of functions	• Binomial expansion • Exponential and logarithmic functions	• Surds • Mathematical induction • Binomial Theorem • More about trigonometric functions • Introduction to the number *e*
Measures, Shape and Space	**Calculus Area**	**Calculus Area**
• Basic properties of circles • Locus • Equations of straight lines and circles • More about trigonometry	Differentiation and Its Applications • Derivative of a function • Differentiation of a function • Second derivative • Applications of differentiation Integration and Its Applications • Indefinite integrals and their applications • Definite integrals and their applications • Approximation of definite integrals using the trapezoidal rule	Limits and Differentiation • Limits • Differentiation • Applications of differentiation Integration • Indefinite integration • Definite integration • Applications of definite integration

Data Handling Strand	Statistics Area	Algebra Area
• Permutation and combination • More about probability • Measures of dispersion • Uses and abuses of statistics	Further Probability • Conditional probability and independence • Bayes' theorem Binomial, Geometric and Poisson Distributions and Their Applications • Discrete random variables • Probability distribution, expectation and variance • Binomial distribution • Geometric distribution • Poisson distribution • Applications of binomial, geometric and Poisson distributions Normal Distribution and Its Applications • Basic definition and properties • Standardisation of a normal variable and use of the standard normal table • Applications of the normal distribution Point and Interval Estimation • Sampling distribution and point estimates • Confidence interval for a population mean • Confidence interval for a population proportion	Matrices and Systems of Linear Equations • Determinants • Matrices • Systems of linear equations Vectors • Introduction to vectors • Scalar product and vector product • Applications of vectors
Further Learning Unit	**Further Learning Unit**	**Further Learning Unit**
• Further applications • Inquiry and investigation	• Inquiry and investigation	• Inquiry and investigation

2.6C Liberal Studies

The curriculum comprises three areas of study, namely "Self and Personal Development", "Society and Culture" and "Science, Technology and the Environment", all of which represent broad areas of concern about the human condition and the contemporary world. They serve as platforms for the exploration of related issues, so that students can develop a more coherent understanding of the world and come to appreciate the connections among concepts.

The area of study on "Self and Personal Development" focuses on issues that have relevance to students at the personal level. It aims at helping students to develop an understanding of themselves and a positive outlook on life. "Society and Culture" deals with the human condition in social and cultural contexts, with students exploring the social and cultural development of the local community, the nation and the world. Finally, "Science, Technology and the Environment" examines the development of society in relation to the physical world and advances in technology. It cultivates an awareness of how science, technology and human activities affect the environment.

Independent Enquiry Study (IES) is a self-directed learning experience in which the students themselves choose their titles, the scope, the methods of their investigative study, and the ways of presenting the findings and products of the study. The IES integrates knowledge acquired from the three areas of study, and enhances the ability to synthesize knowledge in general through enquiry into issues of interest to individual students.

Table 5: HK Liberal Studies curriculum framework

Areas of study	**Independent Enquiry Study (IES)**
Self & personal development • Module 1: Personal development & interpersonal relationships	Students are required to conduct an IES making use of the knowledge and perspectives gained from the three areas of study and extending them to new issues or contexts. To help students develop their IES titles, the following themes are suggested: • Media • Education • Religion • Sports • Art • Information and communication technology (ICT)
Society & culture • Module 2: Hong Kong today • Module 3: Modern China • Module 4: Globalisation	
Science, technology & the environment • Module 5: Public health • Module 6: Energy technology & the environment	

Syllabus topics for Liberal Studies are in the form of enquiry key questions, as presented in Table 6.

Table 6: HK Liberal Studies syllabus topics

AREA OF STUDY: SELF AND PERSONAL DEVELOPMENT	
Module 1: Personal Development and Interpersonal Relationships	
1. Understanding oneself	What challenges and opportunities does a person have during adolescence?
2. Interpersonal relationships	What interpersonal factors facilitate adolescents to reflect upon and prepare for the transition to adulthood?
AREA OF STUDY: SOCIETY AND CULTURE	
Module 2: Hong Kong Today	
1. Quality of life	Which directions might be chosen in maintaining and improving Hong Kong residents' quality of life?
2. Rule of law and socio-political participation	How do Hong Kong residents participate in political and social affairs and come to grips with rights and responsibilities with respect to the rule of law?
3. Identity	How are the identities of Hong Kong residents developed?
Module 3: Modern China	
1. China's reform and opening-up	What impact has reform and opening-up had on the overall development of the country and on people's life?
2. Chinese culture and modern life	With respect to the evolution of concepts of the family, what kind of relationship between traditional culture and modern life has been manifested? To what extent are traditional customs compatible with modern Chinese society?
Module 4: Globalisation	
1. Impact of globalisation and related responses	Why do people from different parts of the world react differently to the opportunities and challenges brought by globalisation?
AREA OF STUDY: SCIENCE, TECHNOLOGY AND THE ENVIRONMENT	
Module 5: Public Health	
1. Understanding of public health	How is people's understanding of disease and public health affected by different factors?
2. Science, technology and public health	To what extent does science and technology enhance the development of public health?
Module 6: Energy Technology and the Environment	
1. The influences of energy technology	How do energy technology and environmental problems relate to each other?
2. The environment and sustainable development	Why has sustainable development become an important contemporary issue? What is the relationship between its occurrence and the development of science and technology?

2.6D Biology

The biology curriculum (Secondary 4 – 6) consists of compulsory and elective parts. The compulsory parts cover a range of contents that enables students to develop understanding of fundamental biological principles and concepts, and the scientific process skills. There are four topics in the compulsory part – Cells and Molecules of Life, Genetics and Evolution, Organisms and Environment, and Health and Diseases.

The elective part is designed to cater for the diverse interests, abilities and needs of students. It aims to provide an in-depth treatment of some of the topics in the compulsory part, an application of essential knowledge and concepts, or an extension of certain areas of study. There are four topics in the elective part – Human Physiology: Regulation and Control; Applied Ecology; Microogranisms and Humans; and Biotechnology. Students are required to study any two out of the four topics.

Syllabus topics

The synopsis of the syllabus content for is shown in Table 7. Details of the syllabus content can be found in Chapter 2 "Curriculum Framework" of the Biology Curriculum and Assessment Guide (Secondary 4 – 6).

Table 7: HK Biology syllabus content

Topics in compulsory part	Topics in elective part
Cells and molecules of life • Molecules of life • Cellular organisation • Movement of substances across membrane • Cell cycle and division • Cellular energetics Genetics and evolution • Basic genetics • Molecular genetics • Biodiversity and evolution Organisms and environment • Essential life processes in plants • Essential life processes in animals • Reproduction, growth and development • Coordination and response • Homeostasis • Ecosystems Health and diseases • Personal health • Diseases • Body defence mechanisms	Human Physiology: Regulation and Control • Regulation of water content (osmoregulation) • Regulation of body temperature • Regulation of gas content in blood • Hormonal control of reproductive cycle Applied Ecology • Human impact on the environment • Pollution control • Conservation • Sustainable development Microorganisms and Humans • Microbiology • Use of microorganisms • Microbial genetics • Harmful effects of microorganisms Biotechnology • Introduction to biotechnology • Techniques in modern biotechnology • Biotechnology in medicine • Biotechnology in agriculture • Bioethics

2.6E Geography

The geography curriculum comprises a compulsory part and an elective part.

The compulsory part is structured around seven geographical issues and problems that have a strong relevance for Hong Kong students and are expected to be issues of considerable public concern for a reasonable period of time. These seven issues and problems are grouped under three major themes which are developed from patterns, problems and issues arising from various aspects of our natural and human environments and their respective interactions.

The elective part is designed to cater for the HKDSE students who are expected to have a wider range of abilities, interests and needs. The four electives, out of which students study any two, range in nature from those which place a stronger emphasis on academic rigour and conceptual frameworks, to those with a more career-related focus and a greater relevance to recent developments in Hong Kong and its neighbouring regions.

In both the compulsory and elective parts of the syllabus, guiding questions are provided for teachers' and students' reference. The synopsis of the syllabus content for geography is given in Table 8 below. Details of the syllabus content can be found in Chapter 2 "Curriculum Framework" of the Geography Curriculum and Assessment Guide (Secondary 4 – 6).

Table 8: HK Geography syllabus content

THE COMPULSORY PART	**THE ELECTIVE PART**
Living with our physical environment	**Dynamic earth: The building of Hong Kong**
• Opportunities and risks – Is it rational to live in hazard-prone areas? • Managing rivers and coastal environments: a continuing challenge Case/specific examples: river environment in China (local streams in Hong Kong and Chang Jiang) and coastal environment in Hong Kong and the UK	• Earth's structure and processes • Physical landscape of Hong Kong • Processes shaping the physical landscape of Hong Kong • Management of geological resources and geological hazards Case/specific example: Hong Kong
Facing changes in the human environment	**Weather and Climate**
• Changing Industrial Location – How and why does it change over space and time? Case/specific examples: China's iron and steel industry and the US information technology industry. • Building a Sustainable City – Are environmental conservation and urban development mutually exclusive? Case / specific examples: Hong Kong and some other examples of sustainable cities in the world	• Processes in the climatic system • Weather and climate of Hong Kong • Climate of China • Relationship between climatic hazards and human activities Case/specific examples: Hong Kong and the mainland of China
Confronting global challenges	**Transport Development, Planning and Management**
• Combating famine – Is technology a panacea for food shortage? Case/specific examples: Nomadic herding in	• The development of transport and logistics in Hong Kong • Transport problems in Hong Kong • Transport planning and traffic management in

Sahel and irrigation farming in Southern California • Disappearing green canopy – who should pay for the massive deforestation in rainforest regions? • Global warming – is it fact or fiction?	Hong Kong • A regional case study–The transport system of the Shujiang (Pearl River) Delta and the role of Hong Kong Case/specific examples: Hong Kong and the Shujiang (Pearl River) Delta
	Regional study of Shujiang (Pearl River) Delta
	• Shujiang (Pearl River) Delta as a region • Shujiang (Pearl River) Delta as an agricultural region: characteristics and recent changes • Shujiang (Pearl River) Delta as a manufacturing region: characteristics and development • Shujiang (Pearl River) Delta as a polluted region: causes, consequences and management Case/specific examples: Shujiang (Pearl River) Delta

2.7 Assessment – procedures, methods and levels

2.7A English Language

The assessment of this subject is based on the English Language Curriculum and Assessment Guide (Secondary 4 to 6) jointly prepared by the Curriculum Development Council and the Hong Kong Examinations and Assessment Authority. The overall aim of the assessment is to evaluate candidates' achievement of the learning targets and objectives of the curriculum. Candidates have to refer to the curriculum framework for the forms and functions, skills and strategies, and attitudes that they are expected to achieve at the end of S6.

The assessment objectives are to assess candidates' achievement with respect to the following broad learning outcomes as stated in Chapter 2 of the Curriculum and Assessment Guide:

Table 9: HK English Language assessment objectives

Reading	**Writing**
To assess the ability of candidates to: • identify the main theme and key details of a broad range of texts • determine the purpose and meaning of a broad range of texts • identify the contextual meaning of words and phrases • interpret the tone and mood of a writer • distinguish and evaluate views, attitudes or arguments in fairly complex texts • understand the use of a range of language features in fairly complex texts • interpret, analyse, select and organise ideas and information from various sources	To assess the ability of candidates to: • write texts for different contexts, audiences and purposes with relevant content and adequate supporting details • convey meaning using varied vocabulary, linguistic devices and language patterns appropriately and accurately • plan and produce coherent and structured texts with ideas effectively presented and developed • write texts using appropriate tone, style and register and the salient features of different genres draft and revise written texts.
Listening	**Speaking**
To assess the ability of candidates to: • understand and interpret the purpose and meaning of a range of spoken texts • identify the key details of a range of spoken texts • interpret speakers' feelings, views, attitudes and	To assess the ability of candidates to: • express information and ideas (eg personal experiences, feelings, opinions, imaginative ideas and evaluative remarks) with suitable elaboration • convey meaning using a range of vocabulary

intentions • understand speakers with a variety of accents and speeches delivered at a moderate pace • understand the use of a range of language features in fairly complex spoken texts.	and language patterns appropriate to the context, purpose and audience • establish and maintain relationships/spoken exchanges using formulaic expressions and appropriate communication strategies (eg making an appropriate opening and closing, negotiating meaning, making suggestions, using appropriate degrees of formality) • develop and link ideas using suitable organising techniques (e.g. sequencing and developing ideas, using discourse markers, summarising) • pronounce words clearly and accurately • support communication using delivery techniques (e.g. pace, volume, intonation, stress, eye contact, gesture).

The assessment will consist of a public examination component and a school-based assessment component as outlined in Table 10.

Table 10: HK English Language assessment

Component			Weighting	**Duration**
Public examination	Paper 1	Reading	20%	1.5 hours
	Paper 2	Writing	25%	2 hours
	Paper 3	Listening & Integrated Skills	30%	2 hours
	Paper 4	Speaking	10%	0.33 hours
School-based assessment (for school candidates only)			15%	

Paper 1 – Reading

This paper will be divided into three sections, each worth 10% of the subject mark. All candidates must do Section 1 and then choose either Section 2, the easiest section, or Section 3, the most difficult section. Candidates attempting Sections 1 and 3 will be able to attain the full range of possible levels, while Level 4 will be the highest level attainable by candidates attempting Sections 1 and 2.

Candidates will be required to respond to a variety of written texts of different lengths and levels of difficulty. A range of question types will be used, including multiple-choice items, short responses and more extended open-ended responses.

Paper 2 – Writing

Part A will be a short, guided task (about 200 words). Candidates will be provided with the situation and the purpose for writing, as well as some relevant information. The task in Part B will be longer and more open-ended (about 400 words). Candidates can choose one out of eight questions, each based on one of the eight modules in the elective part of the curriculum.

Paper 3 – Listening and Integrated Skills

There are three sections in this paper, each worth 15% of the subject mark. All candidates must do Section 1 and then choose either Section 2, the easiest section, or Section 3, the most difficult section. Candidates attempting Sections 1 and 3 will be able to attain the full range of possible levels, while Level 4 will be the highest level attainable by candidates attempting Sections 1 and 2.

Section 1, the compulsory section, will consist of a variety of listening tasks. Sections 2 and 3 will comprise integrated listening/reading and writing tasks of different levels of difficulty based on the same theme. Candidates will be required to process information by selecting and combining data from spoken/written sources in order to complete various listening/writing tasks in a practical work or study situation. All the information necessary to complete these tasks will be provided. At least one of the writing tasks will require candidates to produce an extended piece of writing (100 – 200 words).

Paper 4 – Speaking

Part A: Group interaction

Four candidates will be grouped together and will take part in a group discussion based on a given short text. These texts may include advertisements, book synopses, film reviews, letters or short news reports. Candidates may be required to make suggestions, give advice, make and explain a choice, argue for and/or against a position, or discuss the pros and cons of a proposal. Candidates will be given 10 minutes for preparation and will be allowed to make notes. During the discussion they may refer to their notes.

Part B: Individual response

Each candidate will respond individually for one minute to an examiner's question(s), which will be based on the group discussion task. Candidates may be required to make and justify a choice, decide on and explain a course of action, argue for or against a position, and so on.

School-based Assessment (SBA)

This will consist of two parts.

Part A comprising a reading/viewing programme where students will need to read/view four texts over the course of three years (at least one each from the following four categories: print fiction, print non-fiction, non-print fiction and non-print non-fiction), write up some comments and personal reflections, and then take part in a discussion with classmates on the texts they have read/viewed, or make an individual presentation and respond to their teacher's questions, which will be derived from their written personal comments. The assessment will be based on the student's oral performance. The reading/viewing/writing will only serve as the means to this end and will not be assessed.

Teachers need to conduct two assessments in S5 and S6, and report two marks, with one mark based on a group interaction and one on an individual presentation.

Part B will consist of a group interaction or an individual presentation based on the modules in the elective part of the curriculum. The focus will be on the ability of students to reflect on, make use of and speak about the knowledge, skills and experience gained in the elective module(s). The assessment will be based on the student's oral performance. Guidelines on suitable assessment tasks and assessment criteria will be provided for both parts, as well as samples of performance to illustrate assessment formats and standards.

2.7B Mathematics

The assessment objectives for the compulsory part and modules 1 and 2 can be found in Table 11.

Table 11: HK Mathematics assessment objectives

Compulsory part	Module 1 (Calculus and Statistics)	Module 2 (Algebra and Calculus)
To test the candidates': • knowledge of the mathematical facts, concepts, skills and principles presented in the Curriculum and Assessment Guide • familiarity with and use of mathematical symbols • ability to use appropriate mathematical techniques for solving a variety of problems • ability to communicate ideas and to present arguments mathematically.	To test the candidates': • understanding of the concepts, principles and methods in Calculus and Statistics presented in the Curriculum and Assessment Guide • ability to apply appropriate techniques in Calculus and Statistics for solving a variety of problems.	To test the candidates': • understanding of the concepts, principles and methods in Algebra and Calculus presented in the Curriculum and Assessment Guide • ability to apply appropriate techniques in Algebra and Calculus for solving a variety of problems.

The mode of public assessment for mathematics is summarised in Table 12.

Table 12: HK Mathematics assessment

Component		Weighting	Duration
compulsory part			
Public examination	Paper 1: Conventional questions Paper 2: Multiple-choice questions	65% 35%	2.25 hours 1.25 hours
Module 1 (Calculus and Statistics)			
Public examination	Conventional questions	100%	2.5 hours
Module 2 (Algebra and Calculus)			
Public examination	Conventional questions	100%	2.5 hours

The examination for the compulsory part will consist of two papers:

Paper 1 will consist of two sections in which all the questions are to be attempted. Section A will consist of questions on the foundation topics of the compulsory part together with the foundation part of the Secondary 1-3 mathematics curriculum. Section B will consist of questions on the compulsory part together with the foundation part and the non-foundation part of the Secondary 1-3 mathematics curriculum.

Paper 2 will consist of two sections in which all the questions are to be attempted. Section A will consist of questions on the foundation topics of the compulsory part together with the foundation part of the Secondary 1-3 mathematics curriculum. Section B will consist of questions on the compulsory part together with the foundation part and the non-foundation part of the Secondary 1-3 mathematics curriculum. All questions in the paper will be multiple-choice questions.

The Module 1 (Calculus and Statistics) examination is a single paper divided into two sections in which all the questions are to be attempted. Section A (50 marks) will consist of 8-12 short questions. Section B (50 marks) will consist of 3-5 long questions.

Module 2 (Algebra and Calculus) examination will consist of one paper divided into two sections in which all the questions are to be attempted. Section A (50 marks) will consist of 8-12 short questions. Section B (50 marks) will consist of 3-5 long questions.

2.7C Liberal Studies

Table 13 illustrates the design of the public assessment.

Table 13: HK Liberal Studies assessment

Component	Part	Weighting	Duration
Public examination	Paper 1:Data-response questions Paper 2:Extended-response questions	50% 30%	2 hours 1.25 hours
School-based assessment	Independent Enquiry Study	20%	

Public examination

Paper 1 consists of three compulsory data-response questions. The paper aims to assess abilities such as identification, application and analysis of given data. The data define the scope and reflect the complex or controversial nature of the issue involved; and such questions also reflect the cross-modular nature of the curriculum.

Paper 2 consists of three extended-response questions of which candidates only need to answer one. Each question provides a wider context for students to demonstrate various higher-order skills, such as drawing critically on relevant experience, creative thinking, and communicating in a systematic manner.

In the examination, candidates are expected to:

- demonstrate a sound understanding of the key ideas, concepts and terminologies required to give an informed response to the question
- identify concepts from and/or apply concepts to contemporary issues appropriately, and in the latter case provide examples/evidence to support arguments whenever appropriate
- demonstrate an understanding of how certain themes/concepts are relevant to or manifested across the domains of self, society, nation, the world and the physical environment
- provide reasons to justify the values they hold in analysing issues
- identify the values underlying different views on contemporary issues, and differentiate among facts, opinions and value judgments
- draw critically upon their relevant experience and encounters within the community, and with the environment and technology
- identify contradictions and dilemmas, including those with moral and social implications, from information related to controversial issues, and consider such issues from a range of perspectives so as to draw conclusions
- provide reasonable suggestions and appropriate solutions for problems

- show openness and tolerance towards views, especially non-mainstream views that are supported by argument
- respond in a way that reflects a proper understanding of the requirements of the questions in the examination paper
- communicate clearly and accurately in a concise, logical and systematic manner
- make effective use of data to describe, explain and deduce
- make judgments based on a sound rationale.

For each question, there is a set of marking guidelines in level-wise framework showing the general requirements of the question. The marking guidelines produce a reliable and fair marking while there are no model answers to the questions.

School-based Assessment

The IES is adopted as the mode of SBA. It is an investigative study in which various skills such as problem-solving, data gathering and analysis, and communication are assessed.

The assessment of IES is scheduled into three stages, namely the project proposal stage, the data collection stage and the production completion stage. For each stage, the assessment comprises two components: task and process. The weightings of the task and the process are equal. At each stage, schools are required to submit two IES scores for each student on task and process.

Table 14: HK Liberal Studies – IES assessment framework

Stage	Assessment Items ('task' & 'process')	Weighting	Number of mark submissions
1	Project proposal	25%	One
	Process		One
2	Data collection	25%	One
	Process		One
3	Product	50%	One
	Process		One

***Note**: The weightings for 'Task' and 'Process' at each stage shall be half of the total weighting at that stage.*

At each stage, students are required to perform different tasks and are assessed on both Task and process components. The assessment requirements of the task and the process for each stage are shown in
Table 15.

Table 15: HK Liberal Studies – IES assessment requirements

Stage	Assessment requirements	
	Task	**Process**
1	• the selection of a study area/ theme • collection of background information • confirmation of the question for enquiry and design of work plan and schedule	• to include information which is relevant to the issue concerned • to relate concepts and knowledge to the issue concerned • to make reasoned argument • to provide ideas and viewpoints • to identify and/or compare multiple perspectives
2	• the collection and organisation of data/ information	
3	• the analysis of data/information	

	• evaluation of different view points • presentation of results and amendments according to feedback • writing up of study report, and adoption of suitable ways to show the results of the study	of the issue concerned • to self reflect their own learning progress • to exchange ideas and information with others • to communicate • to adopt means for bringing out ideas • to manage time and resource • to ask questions, seek support and resources • to explore different alternatives and possibilities • to solve problems and make continuous improvements.

2.7D Biology

The public assessment of biology will consist of a public examination component and a school-based assessment component as outlined in the following table:

Table 16: HK Biology assessment

Component		Weighting	Duration
Public examination	Paper 1: Compulsory part of the curriculum	60%	2.5 hours
	Paper 2:Elective part of the curriculum	20%	1 hour
School-based assessment (SBA)		20%	

The objectives of the public assessment of biology are to evaluate candidates' ability to:

- recall and show understanding of facts, concepts and principles of biology, and the relationships between different topic areas in the curriculum framework
- apply biological knowledge, concepts and principles to explain phenomena and observations, and to solve problems
- formulate working hypotheses, and plan and perform tests for them
- demonstrate practical skills related to the study of biology
- present data in various forms, such as tables, graphs, charts, drawings, diagrams, and transpose them from one form into another
- analyse and interpret both numerical and non-numerical data in forms such as continuous prose, diagrams, photographs, charts and graphs – and make logical deductions and inferences and draw appropriate conclusions
- evaluate evidence and detect errors
- generate ideas, select, synthesize and communicate ideas and information clearly, precisely and logically
- demonstrate understanding of the applications of biology to daily life and its contributions to the modern world
- show awareness of the ethical, moral, social, economic and technological implications of biology, and critically evaluate biology-related issues
- make suggestions, choices and judgments about issues affecting the individual, society and the environment.

The format of the examination is as follows:

Paper 1 comprises two sections, A and B. Section A consists of multiple-choice questions and carries 18% of the subject mark. Section B includes short questions, structured questions and

essay, and it carries 42% of the subject mark. Candidates have to attempt all questions in paper 1.

Paper 2 consists of structured questions set on the four elective topics of the curriculum. Candidates are to attempt questions from any two of the four electives.

In the public examination, candidates' ability to demonstrate their knowledge and understanding in different areas of biology, and to apply them to familiar and unfamiliar situations will be assessed.

School-based assessment (SBA)

School-based assessment (SBA) is compulsory for all school candidates. The SBA of biology comprises two components: practical related tasks and non-practical related tasks. Candidates will be assessed by their teachers on their performance in a wide range of skills involved in these two types of tasks throughout S5 and S6.

Practical related tasks refer to laboratory work and fieldwork in biology. Candidates will be required to carry out practical work including scientific investigations. In S5 and S6, they will be assessed in two ability areas, A and B. Ability area A carries 6% of the subject mark, while ability area B carries 8% of the mark. Details of the two ability areas are shown below.

Ability area A:

- to organise and perform practical work, including the use of suitable apparatus and equipment, and the appropriate manipulative skills in carrying out the work
- to make accurate observations and measurements.

Ability area B:

- to identify the problem to be investigated and to formulate a hypothesis, where applicable, and put it in a testable form
- to devise a plan of investigation in accordance with the problem being investigated
- to record and to present results in an appropriate form
- to interpret and discuss results, and to draw appropriate conclusions.

Non-practical related tasks refer to assignments that constitute part of the learning activities provided to candidates. They should be aligned closely with the curriculum emphases (vis. scientific inquiry, science-technology-society-environment connections, nature and history of biology). Examples of such tasks include: information searching and report writing, survey studies, field-studies or site-visit reports, designing posters/pamphlets/web pages, writing articles, building models or developing multimedia artefacts. Besides the understanding and application of biological knowledge and concepts, candidates' generic skills (creativity, critical thinking skills, communication skills and problem-solving skills) will be assessed. The assessment of non-practical related tasks carries 6% of the subject marks.

Table 17 summarises the percentage weighting and the minimum number of assessments required in S5 and S6 for the different areas of the SBA.

Table 17: HK Biology SBA requirements

	Minimum number of assessments					
	Practical related task				Non-practical related task (assignment)	
	Ability area A		Ability area B			
Weighting in subject	6%		8%		6%	
S5	1	2	1	2	1	2
S6	1		1		1	

2.7E Geography

The objectives of the geography assessment are to evaluate candidates' abilities and competencies in the subject of geography. The assessment will:

- help to identify candidates' needs and to assess their progress in development of skills, understanding, attitudes and interest
- measure attainment and inform learning and teaching
- make judgments on the learning processes and outcomes
- cover appropriate learning objectives, generic skills, values and attitudes
- be based on standard-referencing principles for grading and evaluating candidates' performance
- employ both formative and summative methods to facilitate understanding of candidates' progress.

By the end of the course, candidates are expected to be able to:

- understand how natural environments influence human activities, and how human activities alter the natural environment
- describe the major characteristics of chosen places and environments and explain how these characteristics are created by interaction within and between a range of physical and human processes
- describe how interactions within and between physical and human process create geographical patterns at different scales and lead to changes in places and environments over space and time
- understand and critically evaluate the concept of regional identity
- understand "sustainable development"
- recognise the role of perceptions, values and attitudes in decision-making about places and environments, and use this understanding to explain the resulting changes
- recognise how conflicting demands on the environment may arise and evaluate the different strategies for managing the environment
- appreciate how increasing global interdependency influences their lives, their nation and the environment
- identify geographical questions and issues and develop a logical sequence of enquiry based on their knowledge and understanding in geography

- select and use appropriate geographical and generic skills for investigation of geographical questions and issues; present and interpret their investigation findings in an effective way; and draw conclusions based on evidence.

The public assessment will consist of a public examination component and a school-based assessment component as outlined in the following table:

Table 18: HK Geography assessment model

	Paper 1	**Paper 2**	**SBA**
Weighting	60%	25%	15%
Duration	2.5 hours	1 hour	From S5 to S6
Scope	compulsory part	elective part	Fieldwork
Section/ question type:	• Multiple-choice (MC) • Data/skill-based/ structured • Short essay	• Data/skill-based/ structured • Short essay	One report submitted in S6 before the public examination.

The examination will consist of two papers.
Paper 1 will consist of three sections (A, B & C) and questions will be set from the compulsory part.

Section A will include multiple-choice questions, which cover any topic from the compulsory part. Candidates will answer all 40 MC questions and are advised to spend not more than one hour in this section.

Section B will have four data/skill-based questions and Section C will have three short-essay questions. Candidates will be required to answer two questions from Section B and one question from Section C. They are advised to spend about 30 minutes on each question in these two sections.

However, candidates are free to make their own time allocation for the three sections in this paper.

Paper 2 will consist of two sections (D and E) and the questions will be set from the elective part. Both Sections D and E will carry four questions each. Candidates are required to choose one question from each section, of which the two questions chosen must be taken from two different electives.

Both Papers 1 and 2 may include the testing of skills, attitudes and values, and map work using local topographical maps (1:20 000/1:5 000), and/or simplified map extracts.

School-based assessment (SBA)
For geography SBA will not be formally assessed until 2014. Candidates are required to submit an individual fieldwork report of 1,200 - 2,000 words or equivalent in Chinese. It must take the form of a geographical enquiry capable of demonstrating the ability of the candidate in the following areas:

- to identify a geographical issue/problem/phenomenon worth investigating and formulate a plan for enquiry
- to gather and process data and information collected from the field and from secondary sources
- to review and analyse the data and information collected to draw conclusions/to propose solutions/to make decision
- to present and interpret findings of the enquiry to demonstrate an understanding of geographical concepts, knowledge and terminology
- to evaluate the enquiry and to suggest, if any, alternative approaches or extensions.

Fieldwork, which occupies 15% of the assessment, involves a process of enquiry that demonstrates candidates' understanding and skills within a geographical context. It refers to candidates' gathering information in the field and is not a library research project. Thus, the findings need to come mainly from first-hand data collected by candidates but can be supplemented by appropriate information and data from secondary sources. The enquiry should consist of five main stages:

1	Planning and preparation	10 marks
2	Data collection	20 marks
3	Data processing, presentation analysis	30 marks
4	Interpretation and conclusion	30 marks
5	Evaluation	10 marks
	Total =	100 marks

2.8 Grading

In Chapter 5 of the Curriculum and Assessment Guide, the following is documented:

> 'In setting standards for the HKDSE, levels 4 and 5 will be set with reference to the standards achieved by students awarded grades A-D in the current HKALE. It needs to be stressed, however, that the intention is that the standards will remain constant over time – not the percentages awards different levels, as these are free to vary in line with variations in overall performance. Referencing levels 4 and 5 to the standards associated with the old grades A-D is important for ensuring a degree of continuity with past practice, for facilitating tertiary selection and for maintaining international recognition.'

2.8A HK English Language level descriptions

The following table shows the level descriptors for the different skills assessed through the qualification.

Table 19: HK English Language level descriptors

SUBJECT DESCRIPTORS		
Level 5	**Level 4**	**Level 3**
The typical performance of a candidate at this level:	The typical performance of a candidate at this level:	The typical performance of a candidate at this level:

• Understands spoken English, both literal and figurative, when delivered at near-natural speed in familiar accents and a wide range of situations, and is able to evaluate views expressed and identify the speakers' attitudes and intentions through stress and intonation. • Understands complex texts and is able to follow the development of an argument and evaluate the opinions presented within them, make inferences and work out the meaning of unfamiliar words from the context, and respond comprehensively to written instructions requiring relevant information from the texts to be used to complete a task. • Writes in an interesting, relevant, organised and creative way, using a wide range of sentence structures and vocabulary accurately, and adopting a style suitable to the purpose. • Expresses a wide range of ideas fluently in clear, accurate, well-pronounced English, consistently initiating and maintaining exchanges and responding to others in a sustained and constructive manner.	• Understands spoken English, both literal and figurative, when delivered at moderate speed in familiar accents and most situations, and is able to evaluate views expressed in fairly complex texts and identify the speakers' attitudes and intentions through obvious features of stress and intonation. • Understands fairly complex texts and is able to follow the development of an argument and identify the opinions presented within them, make obvious inferences and work out the meaning of unfamiliar words from the context when clear textual support is given, and respond to written instructions requiring relevant information from the texts to be used to complete a task. • Writes in an interesting, relevant, organised and creative way, using a range of sentence structures and vocabulary accurately, and adopting a style suitable to the purpose, especially when the text type is familiar. • Expresses a range of ideas fluently, if with occasional hesitation, in clear, accurate, well-pronounced English, initiating, and maintaining exchanges and responding to others in a sustained manner, especially when with a sympathetic partner.	• Understands literal spoken English when delivered at moderate speed in familiar accents in familiar situations, and is able to identify views expressed in straightforward texts and the speakers' attitudes and intentions when they are explicitly expressed. • Understands simple texts, especially if the topic is familiar, and is able to follow the development of an explicit argument and identify explicit opinions presented within them, make straightforward inferences and work out the meaning of unfamiliar words when a familiar context is given, and respond in part to simple written instructions requiring relevant information from the texts to be used to complete a task. • Writes in a relevant, organised and creative way when the context is familiar, using some more complex sentence structures and common vocabulary accurately, and adopting the main elements of a style suitable to the purpose. • Uses a range of simple common expressions with fluency, pronouncing familiar words accurately, and responding to others in a sustained manner.
READING DESCRIPTORS		
Level 5	**Level 4**	**Level 3**
General comprehension		
• The main theme and subthemes or focuses of complex texts are identified with less familiar topics. • Views and attitudes expressed in complex texts are evaluated and alternative views are compared. The development of a point of view or argument is followed, and the reasons are fully understood.	• The main theme or ideas of fairly complex texts are identified. • Views and attitudes are identified, and the development of an argument followed.	• The main theme or ideas of a paragraph are identified if a text is straightforward. • Explicitly expressed views and attitudes are identified.
Specific comprehension		
• Inferences are made in a wide range of complex texts, including those based on an understanding of the wider meaning of a text. The purposes of the texts are understood. • The meanings of words and	• Obvious inferences are made in fairly complex texts. More sophisticated inferences are made if the text is simple and the topic is familiar. • The meaning of words and phrases is identified when a context is given by one or	• Explicitly stated information is understood in fairly complex texts on familiar themes. • Straightforward inferences are made. • The meaning of words and phrases is identified when a familiar context is given.

phrases are identified when a context is given, including a context based on more than one part of a text. This includes both literal and figurative language.	more sentences or a paragraph in fairly complex texts.	
Awareness of style		
• Tone and mood are interpreted in all texts.	• Tone and mood are interpreted in fairly complex texts.	• Tone and mood are interpreted in simple texts.
WRITING DESCRIPTORS		
Level 5	**Level 4**	**Level 3**
Content		
• The content is relevant and extensive, shows an awareness of purpose, and engages the reader's interest. • Creativity and imagination are shown when appropriate.	• The content is relevant, in parts detailed and engages the reader's interest. • Creativity and imagination are shown in most parts of the writing.	• Most of the content is relevant. • Several examples of creativity and imagination are evident in the writing.
Language and style		
• A wide range of sentence structures is used accurately and appropriately. • Meaning is conveyed through accurate and appropriate punctuation and grammar. • Vocabulary is wide and appropriate, with some use of more ambitious and sophisticated language. • Register, tone and style are appropriate to the text type.	• A range of sentence structures is used accurately and appropriately • Punctuation and grammar is sufficiently accurate to convey meaning. Errors do not affect overall clarity. • Vocabulary is moderately wide, appropriate, and most words are spelt correctly. • Register, tone and style are mostly appropriate to the text type.	• Simple sentences, and some complex sentences are well formed. • Basic punctuation and some basic grammatical structures are accurate. • Common vocabulary is used appropriately and spelt correctly. • There is some evidence of use of register, tone and style appropriate to the text type.
Organisation		
• The structure of the writing is wholly coherent and appropriate to the genre and text type. • Paragraphing is effective. • Cohesion between sentences and paragraphs is sophisticated.	• The structure of the writing is coherent in most parts and appropriate to the genre and text type. • Paragraphing is sufficiently effective for overall coherence to be maintained. • Cohesion between most sentences and paragraphs is successful.	• Some sections of the writing are coherent and appropriate to the genre and text type. • Paragraphing is effective in parts. • Cohesion between some sentences and paragraphs is successful.
LISTENING DESCRIPTORS		
Level 5	**Level 4**	**Level 3**
General comprehension		
• The main theme and subthemes or focuses of complex spoken texts are identified. • Views and attitudes expressed in complex spoken texts are evaluated. The development of a point of view or argument is followed, and the reasons are fully understood.	• The main theme or ideas of a text are identified. • Views and attitudes expressed in a fairly complex text on familiar topics are evaluated. The development of a point of view or argument is followed, and the reasons are understood.	• The main theme or ideas of a spoken text are identified when it is straightforward. • Explicitly expressed views are identified.
Specific comprehension		
• Inferences are made from complex spoken texts and	• Obvious inferences are made from fairly complex spoken	• Explicitly stated information is understood in spoken texts

their purposes understood when delivered at near-natural speed in different varieties of English in familiar accents in a wide range of situations. • Both explicitly stated and implied information is extracted from spoken texts. Figurative language is understood.	texts when delivered at moderate speed in familiar accents in most situations. • Explicitly stated and some implied information is extracted from spoken texts. Literal and simple figurative language is identified.	when delivered at moderate speed in familiar accents in familiar situations. • Straightforward inferences are made from literal language.
Awareness of sound patterns		
• Speakers' attitudes and intentions are identified based on features of stress and intonation.	• Speakers' attitudes and intentions are identified based on obvious features of stress and intonation.	• Straightforward attitudes of speakers are identified based on stress and intonation.
SPEAKING DESCRIPTORS		
Level 5	**Level 4**	**Level 3**
Pronunciation and delivery		
• Pronunciation of words is clear and accurate. • Use of stress and intonation enhances communication. • Fluency is sustained with only occasional hesitation.	• Pronunciation of familiar words is clear and accurate. • Stress and intonation are sufficiently appropriate to convey meaning. • Fluency is sustained, with some hesitation.	• Pronunciation of most words can be understood. • Some stress and intonation patterns help convey meaning. • Fluency is evident in response to prompting.
Communication strategies		
• A wide range of expressions and strategies is used to initiate, maintain interaction and to respond purposefully to others. • Body language enhances communication.	• A range of expressions and strategies is used to maintain interaction and to respond purposefully to others. • Some features of body language support communication.	• Some expressions and strategies are used to respond purposefully to others.
Vocabulary and language patterns		
• Vocabulary is varied and appropriate. • Language patterns are accurate and appropriate.	• Vocabulary is appropriate. • Language patterns are mostly accurate and appropriate. Any errors made do not impede communication.	• A range of simple vocabulary is used appropriately. • Simple language patterns are used accurately and appropriately. Errors do not usually impede communication.
Ideas and organisation		
• Relevant information and ideas are clearly expressed and developed. • Topics are expanded on cogently with explanations or detail. • Conversational exchanges are well sustained.	• Most information and ideas are relevant and clearly expressed and developed. • Topics are often expanded on with explanations or detail. • Conversational exchanges are sustained.	• Some ideas and information are relevant and expressed clearly. • Detail is added to some responses. • Conversational exchanges are sustained when prompted.

2.8B HK Mathematics level descriptors

There are three different level descriptors for the Hong Kong Diploma of Secondary Education in mathematics – compulsory, module one and module 2. These are portrayed in Table 20.

Table 20: HK Mathematics level descriptors

Level 5	Level 4	Level 3

compulsory part		
• Demonstrate comprehensive knowledge and understanding of the mathematical concepts in the curriculum by applying them successfully at a sophisticated level to a wide range of unfamiliar situations. • Communicate and express views precisely and logically using mathematical language, notations, tables, diagrams and graphs. • Recognise patterns, make generalisations with complete justification, draw full and relevant conclusions, and evaluate the significance and reasonableness of results. • Integrate knowledge, understanding and skills from different areas of the curriculum in handling complex tasks using a variety of strategies.	• Demonstrate sound knowledge and understanding of the mathematical concepts in the curriculum by applying them successfully to unfamiliar situations. • Communicate and express views accurately using mathematical language, notations, tables, diagrams and graphs. • Recognise patterns, make generalisations with partial justification, draw full and relevant conclusions, and explain the significance and reasonableness of results. • Integrate knowledge, understanding and skills from different areas of the curriculum in handling a range of tasks	• Demonstrate adequate knowledge and understanding of the mathematical concepts in the curriculum by applying them successfully to familiar and some unfamiliar situations. • Communicate and express views appropriately using mathematical language, notations, tables, diagrams and graphs. • Recognise patterns, make generalisations with partial justification, draw relevant conclusions, and are aware of the significance and reasonableness of results. • Integrate knowledge, understanding and skills from different areas of the curriculum in handling mathematical tasks in explicit situations.
Module 1 (Calculus and Statistics)		
• Demonstrate comprehensive knowledge and understanding of the calculus and statistics concepts in the curriculum by applying them successfully at a sophisticated level to a wide range of unfamiliar situations. • Communicate and express views and arguments precisely and logically using mathematical language, notations, tables, diagrams and graphs. • Formulate mathematical models successfully in complex situations, employ appropriate strategies to arrive at a complete solution, and evaluate the significance and reasonableness of results. • Integrate knowledge and skills from different areas of the curriculum in handling complex tasks using a variety of strategies.	• Demonstrate sound knowledge and understanding of the calculus and statistics concepts in the curriculum by applying them successfully to unfamiliar situations. • Communicate and express views and arguments accurately using mathematical language, notations, tables, diagrams and graphs. • Formulate mathematical models successfully in unfamiliar situations, employ appropriate strategies to arrive at a solution, and explain the significance and reasonableness of results. • Integrate knowledge and skills from different areas of the curriculum in handling a range of tasks.	• Demonstrate adequate knowledge and understanding of the calculus and statistics concepts in the curriculum by applying them successfully to familiar and some unfamiliar situations. • Communicate and express views and arguments appropriately using mathematical language, notations, tables, diagrams and graphs. • Formulate mathematical models in familiar situations, employ relevant mathematical techniques to arrive at some results, and are aware of the significance and reasonableness of results. • Integrate knowledge and skills from different areas of the curriculum in handling mathematical tasks in explicit situations. • Apply calculus and statistics techniques in solving simple real-life problems.
Module 2 (Algebra and Calculus)		
• Demonstrate comprehensive knowledge and understanding of the algebra and calculus concepts in the curriculum by applying them successfully at a sophisticated level to a wide range of unfamiliar situations. • Communicate and express	• Demonstrate sound knowledge and understanding of the algebra and calculus concepts in the curriculum by applying them successfully to unfamiliar situations. • Communicate and express views and arguments	• Demonstrate adequate knowledge and understanding of the algebra and calculus concepts in the curriculum by applying them successfully to familiar and some unfamiliar situations. • Communicate and express

views and arguments precisely and logically using mathematical language, notations, tables, diagrams and graphs. • Provide complex mathematical proofs successfully in a logical, rigorous and concise manner. • Integrate knowledge and skills from different areas of the curriculum in handling complex tasks using a variety of strategies.	accurately using mathematical language, notations, tables, diagrams and graphs. • Provide mathematical proofs successfully in a logical manner. • Integrate knowledge and skills from different areas of the curriculum in handling a range of tasks.	views and arguments appropriately using mathematical language, notations, tables, diagrams and graphs. • Employ appropriate strategies to provide mathematical proofs. • Integrate knowledge and skills from different areas of the curriculum in handling mathematical tasks in explicit situations. • Apply algebra and calculus techniques in solving simple problems involving mathematical contexts successfully.

2.8C HK Liberal Studies level descriptors

The level descriptions for Hong Kong Diploma – Liberal Studies are as follows:

Table 21: HK Liberal Studies level descriptors

Level 5	Level 4	Level 3
• Evaluate the causes, impacts and tension of the issue concerned by applying relevant concepts and knowledge and providing sufficient background information. • Identify, organise and analyse related and sufficient information. • Analyse and evaluate the commonalities and differences among diverse issues in complex contexts. • Evaluate various viewpoints and synthesize own opinions and suggestions supported by logical arguments and sufficient examples. • Communicate ideas in a concise, logical, well-balanced and systematic way. • Conceptualise evidence and show respect for evidence, demonstrate open-mindedness and tolerance towards a wide range of views and values. • Work independently and reflect comprehensively and thoroughly on the implementation of the enquiry learning process.	• Discuss the causes and impacts of the issue concerned by applying relevant concepts and providing sufficient background information. • Identify, organise and compare relevant information. • Explain and scrutinise some commonalities and differences among some issues in complex contexts. • Elaborate various viewpoints and synthesize own opinions and suggestions supported by logical arguments and some examples. • Communicate ideas in a concise, logical and balanced way. • Solicit evidence and show respect for evidence, demonstrate open-mindedness and tolerance towards different views and values. • Work with minimal supervision from teachers, and reflect comprehensively on the implementation of the enquiry learning process.	• Identify the causes and impacts of the issue concerned by referring to relevant concepts and providing some background information. • Identify and edit relevant information. • Organise, classify and compare relevant items among some issues in complex contexts. • Discuss viewpoints and give own opinions and suggestions supported by arguments and some examples. • Communicate ideas in a concise and balanced way. • Identify and show respect for evidence, demonstrate open-mindedness and tolerance towards different views. • Work with some supervision from teachers and reflect extensively on the implementation of the enquiry learning process.

2.8D HK Biology level descriptors

The typical performance of candidates at each level is portrayed in Table 22.

Table 22: HK Biology level descriptors

Level 5	Level 4	Level 3
• Demonstrate comprehensive knowledge and understanding of facts, concepts and principles in biology. • Apply the concepts of biology to a wide range of unfamiliar situations. • Analyse, synthesize and critically evaluate information from multiple perspectives and in an in-depth manner. • Effectively communicate ideas in a succinct, logical and coherent manner with accurate use of scientific terminology and appropriate formats. • Design and conduct scientific investigations, evaluate procedures, handle and analyse data collected, and draw valid conclusions.	• Demonstrate sound knowledge and understanding of facts, concepts and principles in biology . • Apply the concepts of biology to unfamiliar situations. • Analyse, synthesize and evaluate information from several perspectives. • Communicate ideas in a logical and coherent manner using scientific terminology and appropriate formats. • Design and conduct scientific investigations, handle and interpret data collected, and draw conclusions.	• Demonstrate adequate knowledge and understanding of facts, concepts and principles in biology. • Apply the concepts of biology to unfamiliar situations with guidance. • Construct relationships and analyse information. • Communicate ideas in a clear, structured manner using scientific terminology and appropriate formats. • Design and conduct scientific investigations, handle and interpret data collected, and draw conclusions with guidance.

2.8E HK Geography level descriptors

Table 23: HK Geography level descriptors

Level 5	Level 4	Level 3
• Demonstrate comprehensive knowledge of the curriculum content by applying logically their knowledge to unfamiliar geographical contexts at a range of spatial and temporal scales, and evaluating the potentials and limitations of geographical concepts and principles. • Explain complex spatial and ecological relationships and processes. • Logically analyse, synthesize and interpret a range of geographical information including spatial and temporal data at different scales. • Demonstrate evaluative-inferential skills in examining a wide range of sources and evidence with imaginative and creative thinking. • Design and conduct geographical enquiry studies independently by acquiring geographical data using a wide range of skills and techniques, from both primary and secondary sources; and drawing logical conclusions	• Demonstrate sound knowledge of the curriculum content by applying their knowledge to different geographical contexts at a range of scales, and recognising the limitations of geographical concepts and principles. • Explain spatial and ecological relationships and processes. • Analyse, synthesize and interpret a range of geographical information. • Demonstrate evaluative and inferential skills in examining a range of geographical sources and evidence in a structured format. • Design and conduct geographical enquiry studies by acquiring geographical data using a range of skills, suitable techniques and sources and drawing well-reasoned conclusions from the data. • Communicate with competent and accurate use of a range of geographical terminology.	• Demonstrate adequate knowledge of the curriculum content by describing major spatial and ecological processes in different geographical contexts. • Analyse and interpret geographical information from a variety of sources. • Demonstrate evaluative and problem-solving skills. • Design and conduct geographical enquiry studies by acquiring geographical data with relevant techniques and drawing valid conclusions. • Communicate their knowledge and understanding appropriately using geographical terminology with accuracy.

from the data and discussing limitations. • Consistently communicate in a coherent, creative, logical manner with control or originality in using extensive geographical terminology.		

2.9 QA systems and code of practice

Question setting

Question setting is completed by a moderation committee appointed by the HKEAA. The moderation committee normally comprises the following members: the chief examiner, the setter/s, two moderators and the subject manager. The steps typically followed by the moderation committees in setting and moderation work are as follows:

- a pre-setting meeting is held to determine the orientation, emphasis and distribution of the questions, with reference to the syllabus, how the subject is actually taught in schools, and subject reports of previous years. Members' attention will also be drawn to the Guidelines for Moderation Committee Members which sets out the question paper requirements (see sample appended). The setter will then prepare draft questions based on what has been agreed at this meeting
- over a period of several months, the moderation committee will meet at regular intervals, wherein amendments are made to the draft paper until members are satisfied that the questions are consistent with the curriculum aims and assessment objectives; and appropriate in terms of coverage, standard and wording; and that the marking scheme is easy to follow and allows a reasonable room for markers to exercise their own judgment and discretion.

The moderated question paper will then be passed to the language officers for language polishing. Comments and suggestions made by the language officers will be referred back to the moderation committee for its consideration.

Marking

Marking is normally handled by a panel of markers. Markers are recruited from the teaching profession. Applicants will be selected according to a point system based on their academic qualifications, teaching experience and marking experience. A panel of assistant examiners headed by the chief examiner is set up to ensure the quality of marking. The work of markers is scrutinised by the panel of assistant examiners, who will conduct two stages of check marking of samples of scripts from markers. The first stage of check marking ensures that markers truly understand the marking schemes and the second stage of check marking ensures that the marking standard is consistent throughout the marking process.

Quality assurance

The quality of question papers will be monitored every year by the subject committee set up by HKEAA. The subject committee comprises school teachers and representatives from tertiary institutions. They conduct a post-mortem review on the quality of the question papers every year after the examination.

In addition, samples of worked scripts of candidates will also be sent to Cambridge International Examinations to ensure that the quality of the papers and the grading standards are maintained.

SECTION 3: OVERVIEW OF THE BENCHMARK AWARDS

3A AQA GCE A LEVEL ENGLISH LANGUAGE A

3A.1 Aims and purpose of the qualification

This A level specification is designed to encourage candidates to deepen their interest and enjoyment in the use of English as they:

- develop and apply their understanding of the concepts and methods appropriate for the analysis and study of language
- undertake independent investigative work related to language in use
- engage creatively and independently with a varied programme for the study of English from the past to the present day
- develop their skills as producers and interpreters of language.

There is a coherent development from AS with its focus on language in its personal and immediate contexts to A2 which places language in its wider social, historical and global contexts.

- Learners develop their writing skills in both AS and A2 units.
- There is an emphasis on learners' critical skills and their ability to analyse how language and social values are interconnected.
- Essay questions enable learners to draw on their own examples of language in use, based on the study of language relevant to them.

AS learners:

- explore language and representation through analytical and creative work
- have the opportunity to explore creative and transactional forms of writing
- will develop their understanding of how language creates meanings in written, spoken and electronic modes.

The AS course also provides learners who may not specialise further in English language with valuable insights into:

- the language development of children
- the importance of cultural sensitivity in language.

A2 learners explore:

- how the English language has changed since 1600 and is changing today
- how English varies globally, regionally and socially
- cultural debates about the nature and significance of language
- how to carry out language research on topics of their own choice and contribute to a language debate in a particular form.

Stretch and challenge is provided for A2 learners by Unit 3 Section B: Language Discourses, which requires learners to evaluate how language and language issues are debated and represented in society, and by Unit 4 Language Investigation which requires primary and secondary research skills and the ability to work independently. The language intervention element requires learners to communicate their knowledge to a non-specialist audience.

3A.2 History of the qualification

This specification is for first teaching from September 2008. It provides continuity with AQA's six unit qualification GCE English Language A (5701, 6701). The new specification was developed to meet QCA's revised subject criteria for GCE English Language.

3A.3 Entry requirements for the qualification

Whilst there are no prior learning requirements for the qualification, the awarding body recommend that candidates should have acquired the skills and knowledge associated with a GCSE English course or equivalent.

3A.4 Age of candidates

There are no age restrictions.

3A.5 Guided Learning Hours (GLH)

360 hours.

3A.6 Content and structure of the qualification

At AS, this specification will introduce candidates to advanced language study and develop their ability to write for a variety of specific audiences and purposes. It introduces key concepts of use-related variation and develops the ability to use linguistic frameworks to analyse and interpret language building on the core variation concepts of audience, purpose, field and genre, adding the idea of mode.

At A2, the specification introduces candidates to independent, investigative language study. It enables them to pursue areas of individual interest and to explore methodological issues concerning data collection and analysis. It enables them to develop a creative and critical approach to their studies and places language in its wider geographical, social and temporal contexts.

Table 24: AQA GCE A level English Language A content

Unit 1 ENGA1 **Seeing Through Language**	**Unit 2 ENGA2** **Representation and Language**
• Language and mode – employs the core variation concepts of audience, purpose, field and genre and adds the idea of mode. • Language development – how children go through the initial phases of language acquisition and how they develop writing skills.	• Language investigation – investigate how texts might produce social values and how they might contribute to maintaining or changing values. • Language production – a genre-based text written to produce or challenge a particular representation of a social group, individual, event or institution.
Unit 3 ENGA3 **Language Explorations**	**Unit 4 ENGA4** **Language Investigations and Language Interventions**
• How and why language changes and varies. • Analysis and evaluation of spoken and written language in both their immediate and wider contexts. • An exploration of the wider social and cultural debates concerning language. • Popular texts aimed at non-linguistic audiences	• An original piece of language research. • A methodology to collect original data. • Appropriate linguistic frameworks for analysis. • The reading of appropriate secondary sources to illuminate the investigation. • Writing about a language debate in a particular form for a non-specialist audience.

• How writers use language to convey their ideas about language.	• How to transform and represent linguistic ideas for a non-specialist audience.

3A.7 Assessment – procedures, methods and levels

Table 25 below shows the approximate weighting of each of the assessment objectives in the AS and A2 units, whilst assessment methods are summarised in Table 26.

Table 25: AQA GCE A level English Language A assessment objectives

Assessment objectives		Unit 1	Unit 2	Unit 3	Unit 4	Overall AO weighting (%)
AO1	Select and apply a range of linguistic methods, to communicate relevant knowledge using appropriate terminology and coherent, accurate written expression.	10	3.3	6.7	3.3	23.3
AO2	Demonstrate critical understanding of a range of concepts and issues related to the construction and analysis of meanings in spoken and written language, using knowledge of linguistic approaches.	10	0	13.3	3.3	26.7
AO3	Analyse and evaluate the influence of contextual factors on the production and reception of spoken and written language, showing knowledge of the key constraints of language.	10	6.7	10	3.3	30
AO4	Demonstrate expertise and creativity in the use of English in a range of different contexts, informed by linguistic study.	0	10	0	10	20
	Overall weighting of units (%)	30	20	30	20	100

Table 26: AQA GCE A level English Language A assessment methods

Unit	Level	Assessment type	Assessment detail	Weight of A level	Availability
Unit 1	AS	Written examination 2 hours	Language analysis task and language development essay	30%	Jan, June
Unit 2	AS	Coursework (2,000-2,500 words)	One investigation and one production task plus commentary	20%	Jan, June
Unit 3	A2	Written examination 2.5 hours	Language variation and change task and language discourses task	30%	Jan, June
Unit 4	A2	Coursework (3,000-3,750 words)	One investigation and one intervention task	20%	Jan, June

Synoptic assessment

Synoptic assessment in English Language requires candidates to synthesize the insights they have developed through the application of linguistic knowledge to the study of speech and writing, including multimodal texts. Critical understanding of meaning and variation in language will be informed by the appropriate use of linguistic analyses. Candidates will need to demonstrate their skills of interpretation and expression in insightful, accurate, well-argued responses.

Synoptic assessment in AQA English Language A is assessed in the A2 units which are designed to enable candidates to produce a range of writing and to make connections

between all elements of the specification. In Unit 3, Language Explorations, candidates will be assessed on their ability to analyse and evaluate spoken and written language in both their immediate and wider contexts. Candidates will need to demonstrate an ability to write in an academic form. Questions 1 and 2, Language Variation and Change, will require candidates to use their critical analysis skills when studying data in order to show their understanding of language as a culturally and institutionally situated social discourse. Question 3, Language Discourses, will require candidates to evaluate how language and language issues are debated and represented in society.

Language Investigations and Interventions, Unit 4, enables candidates to develop further a creative and critical approach to their studies by undertaking independent language study and by writing in a particular form for a non-specialist audience. It will be necessary for candidates to draw on the knowledge, understanding and skills they have developed at AS level. For the investigation element, candidates will be required to choose an investigation topic and generate a hypothesis. Candidates will then need to collect their own data and will be assessed on their ability to work with data in greater detail and depth using their critical skills. Candidates will be required to synthesize their findings by drawing conclusions in relation to their aims. Candidates will need to evaluate the methodology used in their investigations and to reference their sources in an academic format. For the linked intervention element, candidates will need to transform and represent linguistic ideas connected to their investigation for a non-specialist audience.

The requirement that stretch and challenge is included at A2 is met by a number of requirements in the specification. These include:

- making connections across all units
- demonstrating knowledge and understanding of major research ideas
- studying language beyond its immediate context by looking at geographical, social and temporal contexts
- developing skills of critical analysis that enable candidates to explore how underlying assumptions and values influence the way ideas about language are represented in society
- expressing knowledge and understanding in both academic and non-academic forms of writing
- extended writing in the form of a language investigation which requires candidates to conceptualise a task, formulate an approach and collect data in order to carry out independent analysis and evaluation.

3A.8 Grading

The AS qualification will be graded on a five-point scale: A, B, C, D and E. The full A level qualification will be graded on a six-point scale: A*, A, B, C, D and E. To be awarded an A*, candidates will need to achieve a grade A on the full A level qualification and an A* on the aggregate of the A2 units. For both qualifications, candidates who fail to reach the minimum standard for grade E will be recorded as U (unclassified) and will not receive a qualification certificate. Individual assessment unit results will be certificated.

3A.9 QA systems and code of practice

AQA GCE English Language A is covered by a standard QCA code of practice. All procedures conform to the 'QCA code of practice for GCSE, GCE and AEA'.

Examiner recruitment

Examiners are recruited almost exclusively from practising or former teachers of GCE English.

Question setting

A setter (who is almost always the Chief or Principal Examiner) prepares the first drafts of question papers (QPs). The first drafts are then considered by the reviser, who is an experienced examiner. The reviser's comments are incorporated by the setter before the papers are subjected to a formal scrutiny process at a meeting of the question paper evaluation committee (QPEC). The final draft of the QP is produced after the QPEC meeting and typeset. After checking and proof-reading by the AQA subject officer and the setter, the qp is sent for further scrutiny by the scrutineer, who has not previously seen the QP. The QP is then sent by the subject officer for a final check to the principal examiner, the chief examiner and the chair of examiners.

Standardised examining

Question papers are marked by panels of examiners headed by a Principal Examiner or the Chief Examiner.

The Principal or Chief Examiner initially selects a number of scripts to be presented at the standardisation meeting. He or she marks the scripts and presents them to a pre-standardisation meeting where team leaders and the Chair of Examiners are in attendance. The scripts are discussed, mark schemes modified and final marks agreed upon.

There then follows a standardisation meeting attended by all examiners for the paper. Assistant examiners provisionally mark a sample of their allocation of scripts before attending the standardisation meeting. At the standardisation meeting, the examiners finalise the mark scheme, discuss its application to responses observed in provisional marking, and are trained in its interpretation and use. After the standardisation meeting, examiners begin marking.

The quality of their work is monitored at two stages during the marking period: immediately after the standardisation exercise when they have to send a sample of 10 scripts to their team leader; and mid-way through the marking period when they have to submit a sample of 50 scripts. Procedures exist for situations where examiners are inconsistent, consistent but inaccurate, or about whom there are lingering doubts.

Grade review

There is a marking review process for candidates who fall on a particular borderline mark related to a grade.

3B CCEA GCE A LEVEL MATHEMATICS

3B.1 Aims and purpose of the qualification

Courses based on the CCEA mathematics specification should encourage students to:

- develop their understanding of mathematics and mathematical processes in a way that promotes confidence and fosters enjoyment
- develop abilities to reason logically and recognise incorrect reasoning, to generalise and to construct mathematical proofs
- extend their range of mathematical skills and techniques and use them in more difficult unstructured problems
- develop an understanding of coherence and progression in mathematics and of how different areas of mathematics can be connected
- recognise how a situation may be represented mathematically and understand the relationship between 'real world' problems and standard and other mathematical models, and how these can be refined and improved
- use mathematics as an effective means of communication
- read and comprehend mathematical arguments and articles concerning applications of mathematics
- acquire the skills needed to use technology such as calculators and computers effectively, recognise when such use may be inappropriate and be aware of limitations
- develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general
- take increasing responsibility for their own learning and the evaluation of their own mathematical development.

3B.2 History of the qualification

CCEA works in conjunction with all other general qualifications awarding bodies to develop specifications which meet regulatory criteria and are accredited by QCA. An initial specification was developed and accredited as part of the Curriculum 2000 initiative. Since that time all awarding bodies have been required to introduce amendments. The present specification is comparable in terms of content and standards with those offered by other GCE awarding bodies.

GCE mathematics criteria are presently being revised, with a view to introducing a new specification for first teaching in 2012.

3B.3 Entry requirements

Students undertaking the course are required to have the breadth of knowledge, understanding and skills developed through completion of a GCSE course in mathematics. The specification and all associated support and assessment materials are provided in English. Prospective students must, therefore, have a sufficient command of the English language to understand the requirements and contexts of assessment in examination papers.

3B.4 Age of candidates:

The qualification is normally taken by 18 year old students in full-time education.

3B.5 Guided Learning Hours

The course requires approximately 320GLH.

3B.6 Structure and content and of the qualification

GCE Mathematics offers candidates four qualifications – GCE AS and GCE A level in Mathematics and GCE AS and GCE A level in Further Mathematics. In total there are 13 modules, of which students must complete six for A level Mathematics and a further six for Further Mathematics:

- 4 Core modules (addressing Pure Mathematics) C1, C2, (AS) C3, C4 (A2)
- 3 Further Pure Mathematics modules (compulsory for the Further Mathematics qualifications) FP1 (AS) FP2, FP3 (A2)
- 4 Mechanics modules (optional) M1 (AS) M2, M3, M4 (A2)
- 2 Statistics modules (optional) S1 (AS) S2 (A2).

All modules are assessed through external examination papers, each lasting 1.5 hours. The topics within each module are set out in the following tables:

Table 27: CCEA A level Mathematics modules – Core Mathematics

MODULE C1 – AS CORE MATHEMATICS 1		**MODULE C2 – AS CORE MATHEMATICS 2**	
1	Laws of indices for all rational indices. Use and manipulation of surds.	1	Co-ordinate geometry of the circle using the equation of the circle in the form $(x-a)^2+(y-b)^2=r^2$, and including use of the following circle properties: • angle in a semicircle is a right angle; • perpendicular from centre to a chord bisects the chord; • perpendicularity of radius and tangent.
2	Quadratic functions and their graphs; the discriminant of a quadratic function; completing the square. Solution of quadratic equations. Simultaneous equations; analytic solution by substitution, eg of one linear and one quadratic equation. Solution of linear and quadratic inequalities	2	Sequences, including those given by a formula for the *n*th term and those generated by a simple relation of the form $x_{n+1}=f(x_n)$ • arithmetic series, including the formula for the sum of the first *n* terms. • the sum of a finite geometric series; the sum to infinity of a convergent geometric series, including the use of $\lvert r\rvert<1$. • binomial expansion of $(1+x)^n$ for positive integer *n*; the notations $n!$ and $\binom{n}{r}$.
3	Algebraic manipulation of polynomials, including expanding brackets and collecting like terms, factorisation and simple algebraic division. Use of the Factor Theorem and the Remainder Theorem	3	Sine and cosine rules and the area of a triangle in the form $\frac{1}{2}ab\sin C$. Radian measure, including use for arc length and area of a sector. Sine, cosine and tangent functions; their graphs, symmetries and periodicity. Knowledge and use of $\tan\theta=\frac{\sin\theta}{\cos\theta}$ and $\sin^2\theta+\cos^2\theta=1$. Solution of simple trigonometric equations in a given interval.

4	Graphs of functions; sketching curves defined by simple equations. Geometrical interpretation of algebraic solution of equations. Use of intersection points of graphs to solve equations. Knowledge of the effect of simple transformations on the graph of $y = f(x)$ as represented by $y = af(x)$, $y = f(x) + a$, $y = f(x + a)$, $y = f(ax)$.	4	$y = ax$ and its graph. • Laws of logarithms: $\log_a x + \log_a y = \log_a (xy)$ $\log_a x - \log_a y = \log_a \left(\frac{x}{y}\right)$ $k \log_a x = \log_a (x^k)$. • The solution of equations of the form $a^x = b$.
5	Equation of a straight line, including the forms $y - y_1 = m(x - x_1)$ and $ax + by + c = 0$. Conditions for two straight lines to be parallel or perpendicular to each other.	5	Indefinite integration as the reverse of differentiation. Integration of x^n and related sums and differences. Approximation of area under a curve using the trapesium rule. Interpretation of the definite integral as the area under a curve. Evaluation of definite integrals.
6	The derivative of $f(x)$ as the gradient of the tangent to the graph of $y = f(x)$ at a point; the gradient of the tangent as a limit; interpretation as a rate of change; second order derivatives. Differentiation of xn and related sums and differences. Applications of differentiation to gradients, tangents and normals, maxima and minima and stationary points, increasing and decreasing functions.		
	MODULE C3 – A2 CORE MATHEMATICS 1		**MODULE C4 – A2 CORE MATHEMATICS 2**
1	Simplification of rational expressions including factorising and cancelling, and algebraic division. Rational functions; partial fractions with denominators not more complicated than repeated linear terms. The modulus function. Combinations of simple transformations on the graph of $y = f(x)$ as represented by $y = af(x)$, $y = f(x) + a$, $y = f(x + a)$, $y = f(ax)$.	1	Definition of a function; domain and range of functions; composition of functions; inverse functions and their graphs.
2	Parametric equations of curves; conversion between parametric and Cartesian forms.	2	Understanding of the graphs and appropriate restricted domains of secant, cosecant, cotangent, arcsin, arccos and arctan.
3	Binomial series for any rational value of *n*.	3	Knowledge and use of double angle formulae; use of formulae for $\sin(A \pm B)$, $\cos(A \pm B)$ and $\tan(A \pm B)$; and of expressions for $a\cos\theta + b\sin\theta$ in the equivalent forms of $r\cos(\theta \pm \alpha)$ or $r\sin(\theta \pm \alpha)$.
4	Knowledge of secant, cosecant and cotangent and of arcsin, arccos and arctan. Their relationships to sine, cosine and tangent. Knowledge and use of the equivalents of	4	Differentiation of simple functions defined implicitly or parametrically. Formation of simple differential equations.

	$\sin^2\theta + \cos^2\theta = 1$.		
5	The function e*x* and its graph. The function ln*x* and its graph; ln*x* as the inverse function of e*x*. Exponential growth and decay.	5	Simple cases of integration by substitution and by parts; these methods as the reverse processes of the chain and product rules respectively. Simple cases of integration using partial fractions. Evaluation of volume of revolution. Analytical solution of simple first order differential equations with separable variables.
6	Differentiation of e^x, ln*x*, sin*x*, cos*x*, tan*x* and their sums and differences. Differentiation using the product rule, the quotient rule, the chain rule and by the use of $\frac{dy}{dx} = \frac{1}{\left(\frac{dx}{dy}\right)}$. Indefinite integration as the reverse of differentiation; in particular, integration of e*x*, $\frac{1}{x}$, sin*x*, cos*x*.	6	Vectors in two and three dimensions. Magnitude of a vector. Algebraic operations of vector addition and multiplication by scalars and their geometrical interpretations. Position vectors; the distance between two points; vector equations of lines. The scalar product; its use for calculating the angle between two lines.
7	Location of roots of f(x) = 0 by considering changes of sign of f(x) in an interval of x in which f(x) is continuous. Approximate solution of equations using simple iterative methods, including recurrence relations of the form x_{n+1} = f(x_n). Numerical integration of functions.		

Table 28: CCEA A level Mathematics modules – Further Pure Mathematics

	MODULE FP1 — FURTHER PURE MATHEMATICS 1	**MODULE FP2 – FURTHER PURE MATHEMATICS 2**	**MODULE FP3 – FURTHER PURE MATHEMATICS 3**
1	Matrices: addition, multiplication, null and unit matrices. Solution of linear equations in 2 and 3 unknowns. Evaluation of inverses of non-singular matrices.	Partial fractions.	Differentiation of $\sin^{-1} x$, $\cos^{-1} x$, $\tan^{-1} x$.
2	Linear mappings and transformations in the plane.	Summation of finite series. Use of $\sum r$, $\sum r^2$ and $\sum r^3$.	Repeated integration by parts. Simple reduction formulae.
3	Determinants; implication of the sero value of the determinant of: • a simple transformation matrix • the coefficient matrix of a system of simultaneous linear equations.	Proof by mathematical induction.	Integration of $\frac{1}{a^2 + x^2}$, $\frac{1}{\sqrt{a^2 - x^2}}$.
4	Eigenvalues and eigenvectors of 3 × 3 matrices.	General solution of trigonometric equations.	The hyperbolic and inverse hyperbolic functions; their definitions, graphs, derivatives and integrals.
5	Binary operations and groups; period of an element; cyclic groups, isomorphism between groups. Subgroups.	Simple treatment of the co-ordinate geometry of the parabola and ellipse in Cartesian and parametric	Cartesian equation of a line.

		form. Change of origin without rotation.	
6	Further co-ordinate geometry of a circle.	De Moivre's theorem for general index excluding proof. The *n* th roots of a complex number. The exponential form of a complex number. Complex roots of simple polynomials with real coefficients.	Vector product.
7	Complex numbers; Cartesian and polar form, modulus, argument, conjugate. Argand diagrams. Sum, difference, product and quotient of two complex numbers. Simple loci.	Analytical solution of the differential equations $y' + p(x)y = q(x)$ and $ay'' + by' + cy = f(x)$ where *a*, *b* and *c* are constants. Solutions satisfying boundary conditions.	Vector and Cartesian equations of a plane. Lines normal and parallel to a plane; planes normal and parallel to a line; angle between a line and a plane; equation of the line of intersection of two planes.
8		Maclaurin's theorem. The derivation of the series expansion of $(1+x)^n$, e^x, $\ln(1+x)$, $\sin x$, $\cos x$ and $\tan^{-1} x$. Simple exercises on, approximations by and simple variations on these expansions. Summation of infinite series using series expansions. $\sin x \approx x$, $\cos x \approx 1 - \frac{1}{2}x^2$, $\tan x \approx x$.	

Table 29: CCEA A level Mathematics modules –Mechanics

MODULE M1 – MECHANICS 1		**MODULE M2 – MECHANICS 2**	
1	Displacement, velocity and acceleration; displacement-time graphs; velocity-time graphs. Equations for uniform acceleration. Application of differentiation and integration to problems in kinematics set as a function of time.	1	Displacement, velocity, acceleration, force etc as vectors.
2	Force as a localised vector. Magnitude, direction, components and resultants.	2	Integration and differentiation of vectors.
3	Friction.	3	Variable acceleration along a straight line.
4	Equilibrium of a particle.	4	Projectiles. Motion in a vertical plane with constant acceleration, ie under gravity.
5	Moment of a force about a point. The principle of moments.	5	Uniform motion in a horizontal circle. Conical pendulum.
6	Equilibrium of a rigid body.	6	Gravitational potential energy (*mgh*). Kinetic energy. Work done. Work-energy principle. Principle of conservation of mechanical energy.
7	Mass and acceleration. Newton's laws of motion to include motion of connected particles.	7	Power treated as rate of doing work (leading to $P = Fv$) and rate of increase of energy.
8	Impulse and momentum. Principle of conservation of linear momentum; direct impact.		

	MODULE M3 – MECHANICS 3		MODULE M4 – MECHANICS 4
1	Centre of mass. System of particles at fixed points. Rods. Rectangular, triangular and circular laminae. Composite laminae. Suspended laminae.	1	Centre of mass of laminae and solids. Composite bodies. Suspended bodies. Toppling problems.
2	Further particle equilibrium.	2	Force systems in two dimensions; general resultant of coplanar force systems.
3	Resultant velocity. Relative velocity.	3	Light pin-jointed frameworks.
4	Hooke's Law. Elastic springs and strings.	4	Method of dimensions.
5	Work and kinetic energy. Work-energy principle. Energy stored in an elastic spring or string. Simple problems involving kinetic energy, gravitational potential energy and elastic potential energy.	5	Universal Law of Gravitation; satellite motion.
6	Simple harmonic motion. Simple pendulum. Oscillations of a particle attached to the end of an elastic spring or string.	6	Further circular motion on banked corners.
		7	Motion in a vertical circle.
		8	Direct impact of elastic spheres; Newton's law of restitution. Elastic collisions between a smooth sphere and a plane or between smooth spheres.

Table 30: CCEA A level Mathematics modules – Statistics

	MODULE S1 – STATISTICS 1		MODULE S2 – STATISTICS 2
1	Appreciation of the inherent variability of data. Collection, ordering and presentation of data.	1	Expectation algebra.
2	Calculation and interpretation of appropriate summary measures of the location and dispersion of data.	2	Linear combination of independent Normal variates.
3	Sample space: events, mutually exclusive and exhaustive events. Classical and limiting relative frequency definitions of probability.	3	Simple random sampling. Central Limit Theorem. Point estimation of population mean and variance. Standard error of mean. Confidence intervals for population mean.
4	Addition Law; Multiplication Law; statistical dependence and independence.	4	Hypothesis testing. Normal test for the mean. *t*-test for the mean.
5	Probability functions, mean, variance and standard deviation.	5	Bivariate distributions; scatter diagrams; product-moment correlation.
6	Discrete probability distributions: uniform, binomial, Poisson.	6	Linear regression.
7	Continuous probability distribution; probability density function f ; mean, variance and standard deviation.		
8	Normal distribution; linear transformation of a Normal variable; the standard Normal distribution.		

3B.7 Assessment

Assessment of course content is carried out through the following assessment objectives and associated minimum weightings (see Table 31). Candidates must demonstrate their ability to:

Table 31: CCEA Mathematics assessment objectives

Assessment objective		Weighting
AO1	Recall, select and use their knowledge of mathematical facts, concepts and techniques in a variety of contexts.	30%
AO2	Construct rigorous mathematical arguments and proofs through use of precise statements, logical deduction and inference and by the manipulation of mathematical expressions, including the construction of extended arguments for handling substantial problems presented in unstructured form.	30%
AO3	Recall, select and use their knowledge of standard mathematical models to represent situations in the real world; recognise and understand given representations involving standard models; present and interpret results from such models in terms of the original situation, including discussion of the assumptions made and refinement of such models.	10%
AO4	Comprehend translations of common realistic contexts into mathematics; use the results of calculations to make predictions, or comment on the context; and, where appropriate, read critically and comprehend longer mathematical arguments or examples of applications.	5%
AO5	Use contemporary calculator technology and other permitted resources (such as formulae booklets or statistical tables) accurately and efficiently; understand when not to use such technology, and its limitations; give answers to appropriate accuracy.	5%

Not all assessment objectives are assessed in every paper, but the total assessment will address the assessment objectives as set out above. The weightings given to any particular objective may vary from year to year but will reflect the minimum requirements indicated above. The weighting given to the assessment objectives in each paper will reflect the principles of fitness for purpose and will take into account the nature of the module being assessed.

Assessment methodology and examination availability

Each module is assessed through one external examination paper lasting 1.5 hours. All modules, with the exception of F3, M3, M4 and S2, are available in both summer and winter sessions. The exceptions are available during the summer session only.

Table 32: CCEA Mathematics assessment methodology

Module	Level	Compulsory/ optional	Nature of assessment	Weight of A level	Availability
Module C1	AS	Compulsory for Mathematics	External examination 1.5 hrs	16.67%	Jan, June
Module C2	AS	Compulsory for Mathematics	External examination 1.5 hrs	16.67%	Jan, June
Module C3	A2	Compulsory for Mathematics	External examination 1.5 hrs	16.67%	Jan, June
Module C4	A2	Compulsory for Mathematics	External examination 1.5 hrs	16.67%	Jan, June
Module FP1FP1PFP1	AS	Compulsory for Further Maths	External examination 1.5 hrs	16.67%	Jan, June
Module FP2	A2	Compulsory for Further Maths	External examination 1.5 hrs	16.67%	Jan, June
Module FP3	A2	Compulsory for Further Maths	External examination 1.5 hrs	16.67%	June
Module M1	AS	Optional	External examination 1.5 hrs	16.67%	Jan, June
Module M2	A2	Optional	External examination 1.5 hrs	16.67%	Jan, June
Module M3	A2	Optional	External examination 1.5 hrs	16.67%	June
Module M4	A2	Optional	External examination	16.67%	June

			1.5 hrs		
Module S1	AS	Optional	External examination 1.5 hrs	16.67%	Jan, June
Module S2	A2	Optional	External examination 1.5 hrs	16.67%	June

Performance descriptions

Performance descriptions were developed by the regulators to indicate the characteristic features of the performance of a candidate at A/B and E/U boundaries. In practice most candidates will show uneven profiles across the attainments listed, with strengths in some areas compensating in the award process for weaknesses or omissions elsewhere.

The performance descriptions in Table 33 relate to the A2 units and subsume those for the AS units.

Table 33: Performance indicators – CCEA A level Mathematics

	AO1	AO2	AO3	AO4	AO5
	Candidates:	Candidates:	Candidates:	Candidates:	Candidates:
A/B boundary performance description	• have a sound grasp of almost all of the facts, concepts and techniques associated with work at A2 level and a strong grasp of those at AS level • correctly recall most of the relevant formulae • cope well with unstructured problems and are able to deal with most of the unfamiliar contexts presented at A2 level • usually choose a suitable strategy, method or technique • make few calculation or conceptual errors.	• make good use of logical chains of reasoning and solve most equations • show confidence in manipulating mathematical expressions at A2 level • can use a variety of mathematical representations and can transform between them • are able to present rigorous multi-step arguments, including proofs • use symbolic notation accurately and efficiently.	• work confidently with familiar and unfamiliar models to represent a range of real world contexts • show some awareness of the limitations of a model and can state the assumptions made • can often suggest refinements and draw sensible conclusions	• understand and use mathematical information at A2 level • normally interpret their answers in the context in which questions are set.	• usually use tables, calculators and other permitted resources efficiently and accurately • usually give answers to the appropriate accuracy, giving exact answers in appropriate form, for example using fractions or surds.

E/U boundary performance description	• show limited ability to use facts, formulae, concepts and techniques beyond GCE AS Mathematics • are likely to gain most of their marks in questions which are structured or are set in a familiar context or are presented in familiar terms or direct them to use a particular technique.	• use routine procedures and given formulae in constructing simple arguments • can usually develop one or two simple steps of logical reasoning and/or correct manipulation • often produce an incomplete or only partially correct solution, having selected a correct method.	• recognise and apply standard models in simple contexts and often attempt to interpret the results of their calculations in the original context.	• are beginning to understand mathematical information and statements beyond the level of AS, some of which may describe simple, realistic situations.	• sometimes give decimal answers where the appropriate exact answer would be in fractional or surd form. • sometimes prematurely approximate or truncate numbers during calculations. • may use the permitted resources accurately and efficiently, but not always appropriately.

3B.8 Grading

The AS is awarded on a five-grade scale: A, B, C, D, E and the Advanced GCE in Mathematics awarded on a six-grade scale: A*, A, B, C, D and E. Candidates who fail to reach the minimum standard for a grade E will be recorded as U (unclassified) and will not receive an AS or A level GCE certificate. Where AS certification is not requested, a candidate going on to complete the full A level GCE must nevertheless complete all the modules and take all the assessment units required for the AS award.

Grade descriptions

Grade A

Candidates recall or recognise almost all the mathematical facts, concepts and techniques that are needed, and select appropriate ones to use in a wide variety of contexts.

Candidates manipulate mathematical expressions and use graphs, sketches and diagrams, all with high accuracy and skill. They use mathematical language correctly and proceed logically and rigorously through extended arguments or proofs. When confronted with unstructured problems they can often devise and implement an effective solution strategy. If errors are made in their calculations or logic, these are sometimes noticed and corrected.

Candidates recall or recognise almost all the standard models that are needed, and select appropriate ones to represent a wide variety of situations in the real world. They correctly refer results from calculations using the model to the original situation; they give sensible interpretations of their results in the context of the original realistic situation. They make intelligent comments on the modelling assumptions and possible refinements to the model.

Candidates comprehend or understand the meaning of almost all translations into mathematics of common realistic contexts. They correctly refer the results of calculations

back to the given context and usually make sensible comments or predictions. They can distil the essential mathematical information from extended pieces of prose having mathematical content. They can comment meaningfully on the mathematical information.

Candidates make appropriate and efficient use of contemporary calculator technology and other permitted resources, and are aware of any limitations to their use. They present results to an appropriate degree of accuracy.

An A* is awarded to candidates who have an overall A grade and obtain at least 90% of the uniform marks across C3 and C4 units.

Grade E

Candidates recall or recognise some of the mathematical facts, concepts and techniques that are needed, and sometimes select appropriate ones to use in some contexts.

Candidates manipulate mathematical expressions and use graphs, sketches and diagrams, all with some accuracy and skill. They sometimes use mathematical language correctly and occasionally proceed logically through extended arguments or proofs.

Candidates recall or recognise some of the standard models that are needed and sometimes select appropriate ones to represent a variety of situations in the real world. They sometimes correctly refer results from calculations using the model to the original situation; they try to interpret their results in the context of the original realistic situation.

Candidates sometimes comprehend or understand the meaning of translations in mathematics of common realistic contexts. They sometimes correctly refer the results of calculations back to the given context and attempt to give comments or predictions. They distil some of the essential mathematical information from extended pieces of prose having mathematical content. They attempt to comment on this mathematical information.

Candidates often make appropriate and efficient use of contemporary calculator technology and other permitted resources. They often present results to an appropriate degree of accuracy.

3B.9 Quality assurance systems

All aspects of the examining process are carried out in compliance with the regulatory code of practice and CCEA's own internal quality assurance procedures.

Recruitment, retention and use of examiners

- trawling of examination centres and public advertisements
- job descriptions and applications forms issued on request
- shortlisting process overseen by a member of human resources
- references requested and interviews arranged
- interviews overseen by a member of human resources
- letters of outcomes sent to applicants
- all examiners are appointed on a one year contract

- examiner details updated regularly including details of their home examination centre so that they are not requested to mark scripts from their own centre
- scripts from each centre are allocated to more than one examiner
- all examiners are graded on a four-point scale in relation to the quality of their marking. Those graded C are required to undertake additional training before reappointment and those graded D will not be reappointed
- all examiners are informed of their grading by letter.

Question setting

The senior examining team consists of the Chair of Examiners, Chief Examiner, Principal Examiners, a reviser and a scrutineer. Their roles are as follows:

- Chair of Examiners chairs all examination meetings and makes recommendations regarding grades to the CCEA's Accountable Officer who signs off the award.
- Chief Examiner is responsible to the Chair for ensuring the examination as a whole meets the requirements of the specifications and maintains standards from year to year.
- Principal examiners set questions and are responsible for standardising the marking of the assistant examiners. This is accomplished at standardising meetings arranged within a week of the examination.
- Where there is a very large entry of candidates supervising examiners may also be appointed to work under the Principal Examiner.
- Reviser(s) comment on draft questions and mark schemes to ensure they meet specification requirements and submits a report to CCEA.
- Scrutineer checks final drafts of question papers and submits a report to CCEA.

Standardised examining/marking by assistant examiners

The standardising meeting

The Principal Examiner who has set the paper for the module is overseen by the Chief Examiner or Chair as s/he conducts a standardising meeting. Prior to the meeting the Principal Examiner will have chosen and marked a range of scripts to cover a spectrum of attainment as a basis for ensuring a common understanding of the allocation of marks. Assistant examiners also mark a variety of scripts and bring issues related to the mark scheme to the meeting. A training session is conducted using the Principal Examiner's marked scripts. Issues are discussed and resolutions agreed. A final mark scheme is signed off and distributed at the end of the meeting. Assistant examiners re-mark their initial sample of scripts as necessary. Records of assistant markers' marking is retained by the Principal Examiner.

During the marking process, assistant examiners are required to send a first sample of approximately 25 scripts from across the mark range to the Principal Examiner. Feedback is given in relation to whether the marking is acceptable, lenient or severe. A second selection of scripts is sent approximately half way through the marking period and the principal examiner decides on the quality of the assistant markers' work at that stage. A third sample may also be requested as necessary.

A review of assistant examiners' marking is undertaken by the awarding committee prior to the awarding of grades process. Where necessary (usually in relation to inconsistent marking) a complete remark of the scripts allocated to an examiner may be undertaken.

Awarding grades

The awarding process is undertaken by the senior examining team, chaired by the Chair of Examiners and supported by a CCEA awarding body officer. The process is compliant with the regulatory code of practice as follows.

All grade boundaries are based on examiner judgement supported by archive scripts, performance descriptions, statistics and any other sources of evidence outlined in the code of practice.

The E/U boundary is set first, followed by the A/B boundary. In each case, an upper and lower limiting mark is identified and a proposed boundary mark set. Interim boundaries are arrived at through mathematical computation. Once the boundary marks have been established they are mapped by computer to the Uniform Mark Scale (UMS) which forms the basis for reporting at unit level and also at aggregate level for the qualification award.

Marking review

A grade review may be undertaken if the committee has lingering doubts about a particular examiner. This involves a remark of that examiners' work by a senior examiner to ensure that no candidate receives an inaccurate mark. In such a case, revised mark replaces the original and the outcome will be automatically recalculated.

The Chair of Examiners completes an Accountable Officer's Report which includes information on the candidature, comments on the examination paper, quality of marking and grade boundary proposals. Rationales for decisions made must also be included. The CCEA Accountable Officer then signs off the award or may request a further meeting of the awarding committee if s/he identifies issues to be resolved.

3C AQA GCE A LEVEL CITIZENSHIP STUDIES

3C.1 Aims and purpose of the qualification

AQA's new course specification for Citizenship Studies for AS and A level is a new specification building on AQA's citizenship expertise. it has been designed to enable students to move through the three stages of citizenship development to become:

- an informed citizen
- a participating citizen
- an active citizen.

The specification is designed to encourage students to:

- develop a critical interest in topical citizenship issues and debates, and encourage independent thinking skills
- understand how everyday politics and law work in practice, how inequalities and fairness affect individuals and communities, and how decisions are made in society
- develop political literacy and an understanding of democracy and decision making through both academic study and practical action
- develop the necessary skills, confidence and conviction to contribute to debates, take action on citizenship issues in their communities and play an active role as effective citizens in public life.

AQA GCE Citizenship Studies is part of AQA's suite of citizenship qualifications: from the Unit Award Scheme through GCSE and GCE to the Extended Project and also components within Diplomas. This is a progressive approach to the study of citizenship, enabling schools and colleges to develop a coherent citizenship qualification structure. Building on previous learning at Key Stages 3 and 4, students will address the relationship between the individual, the law and the state, and the nature of identities at AS. At A2, students will study the principles and characteristics of justice systems, the nature of representative democracy, the role of parliament in the UK and contemporary global citizenship issues. Students will be able to use and apply their citizenship knowledge developed throughout the course to:

- communicate and articulate different views, ideas and perspectives
- advocate, negotiate, plan, make decisions and take action on citizenship issues
- select, interpret, analyse and evaluate information to construct reasoned and coherent arguments, make decisions, propose alternative solutions and form conclusions
- work with others, using problem-solving and critical approaches to the issues, problems and events.

Underpinning the course of study is the requirement for students to be actively engaged in a range of citizenship activities.

3C.2 History of the qualification

This qualification is new and will be examined at AS level in 2009 for the first time and 2010 at A2 level. It builds on the successful AS qualification which has been available for a number of years but is different in approach and, to a substantial degree, content. The new version has been guided by the new subject criteria documentation from QCA and forms part of the progressive and coherent citizenship structure, building on previous learning. There is much

more emphasis on the 'active' aspect of citizenship than was required by the earlier qualification.

3C.3 Entry requirements for the qualification

There are no prior learning requirements but students are expected to have studied the Citizenship Key Stage 4 programme of study as part of the National Curriculum. In addition as part of normal school practice for entry to an A level programme, there will usually be locally determined expectation of particular overall performance at GCSE level but not necessarily including GCSE Citizenship Studies.

3C.4 Age of candidates

Typically this course is completed in the sixth form of schools or in further education colleges when students are 16 -18 years old.

3C.5 Guided Learning Hours (GLH)

Nominally 180 in each of the AS and A2 years – total 360 hours in total over two years, plus additional time required for the required 'active' citizenship aspect of the course.

3C.6 Content and structure of the qualification

Table 34: AQA GCE A level Citizenship Studies

Unit 1 - Identity, Rights and Responsibilities	**Unit 2 - Democracy, Active Citizenship and Participation**
• What does it mean to be British? • Are we all equal citizens? • What are my rights and responsibilities? • How are my rights protected?	• Who can make a difference? • How can I make a difference? • What is crime? • What is justice?
Unit 3 - Power and Justice	**Unit 4 - Global Issues and Making a Difference**
• Who speaks on our behalf? • How is the UK governed? • Active citizenship skills and participation	• Universal human rights • Global issues • Active citizenship: making a difference

3C.7 Assessment – procedures, methods and levels

Each of the four units has its own examination with the details of each shown below:

Table 35: AQA GCE Citizenship Studies assessment methods

Unit		**Nature of Assessment**		**Weight**	**Available**
Unit 1, CIST1	AS	Written paper - 1.25 hours.	The question paper consists of two sections: identity rights and responsibilities. Each section contains one compulsory source-based question followed by two mini-essay questions. Candidates must answer the compulsory question followed by one mini-essay question in each section.	20%	Jan, June
Unit 2, CIST2	AS	Written paper, 1.5 hours.	Source-based question and mini-essay plus structured question on active citizenship participation. Candidates bring their active citizenship Profile into the exam. The question paper consists of two sections. • Section A: Making a difference This section contains one compulsory source-based question followed by two mini-essay questions.	30%	Jan, June

			• Section B: Active citizenship Candidates must answer one structured question based on their active citizenship participation.		
Unit 3, CIST3	A2	Written paper 1.5 hours	Structured questions in two sections. • Section A: Crime, justice and punishment • Section B: Politics, power and participation. One two-part question from a choice of three in each section. Candidates answer one question from each section.	25%	Jan, June
Unit 4, CIST 4	A2	Written paper 1.5 hours	The question paper consists of two sections. • Section A: Global citizenship • Candidates answer one two-part question from a choice of three. • Section B: Active citizenship. Candidates answer one source-based question from a choice of two. The topic for each source will be released in advance of the examination to allow candidates to undertake some background research on the topic.	25%	June

Level description

These performance descriptions show the level of attainment characteristic of the grade boundaries at A level. They give a general indication of the required learning outcomes at the A/B and E/U boundaries at AS and A2. The descriptions should be interpreted in relation to the content outlined in the specification; they are not designed to define that content. The grade awarded will depend in practice upon the extent to which the candidate has met the assessment objectives overall. Shortcomings in some aspects of the examination may be balanced by better performances in others.

Table 36: AQA GCE Citizenship Studies performance descriptors

	AO1	AO2	AO3	AO4
Assessment objectives	Demonstrate knowledge and understanding of specific citizenship issues (problems, events, concepts, ideas, processes and opinions). Relate subject knowledge and understanding to citizenship issues using a range of real and topical examples.	Analyse issues, problems and events in relation to the citizenship concepts and topics studied. Evaluate information, views, opinions, ideas and arguments and assess their validity.	Select, organise and present relevant information and arguments clearly and logically, using specialist terminology. Construct and advocate reasoned, coherent arguments with conclusions, drawing on evidence of a candidate's own participation and actions within the study of citizenship.	Synthesize knowledge, ideas and concepts from different areas of the subject in order to generalise, argue a case or propose alternative solutions.

AS level				
	Candidates characteristically:			
A/B boundary performance descriptions	• demonstrate accurate knowledge and understanding of specific citizenship issues (problems, events, concepts, ideas processes and opinions) • relate subject knowledge and understanding of key ideas to citizenship issues using a range of real and topical examples.	• analyse issues, problems and events in relation to the citizenship concepts and topics studied • evaluate information, views, opinions, ideas and arguments and assess their validity. •	• select, organise and present relevant information and arguments, using specialist terminology • construct and advocate arguments with conclusions, making reference to their own participation and actions within the study of citizenship. •	n/a
E/U boundary performance descriptions	• demonstrate some knowledge and understanding of citizenship issues (problems, events, concepts, ideas, processes and opinions) • begin to relate subject knowledge and understanding to citizenship issues using examples.	• demonstrate a limited ability to analyse issues, problems and events identifying the main ideas in relation to the citizenship concepts and topics studied • make a limited evaluation of information, views, opinions, ideas and arguments and begin to assess their validity.	• attempt to select, organise and present information and arguments, using limited citizenship terminology • attempt to construct and advocate arguments with conclusions, with limited reference to basic elements of their own participation and actions within the study of citizenship.	n/a
A level				
	Candidates characteristically:			
A/B boundary performance descriptions	• demonstrate detailed and wide ranging knowledge and understanding of specific and relevant citizenship issues (problems, events, concepts, ideas, processes and opinions) • make perceptive observations that relate subject	• offer a detailed analysis of complex issues, problems and events in relation to the citizenship concepts and topics studied • give a detailed assessment and evaluation of the validity of information, views, opinions, ideas and arguments.	• select, organise and present relevant information to make compelling and persuasive arguments that balance different viewpoints clearly and logically, making accurate use of specialist terminology • construct and advocate coherent	• synthesize wide ranging and complex knowledge, ideas and concepts from different areas of the subject in order to make generalisations, develop sophisticated arguments and explore multiple ideas and alternatives.

	knowledge and understanding to citizenship issues using an extensive range of real and topical examples.		arguments that challenge ideas, are justified with conclusions, and draw on experience and evidence of their own and others' participation and actions within the study of citizenship.	
E/U boundary performance descriptions	• demonstrate a basic knowledge and understanding of citizenship issues (problems, events, concepts, ideas, processes and opinions) • relate subject knowledge and understanding to citizenship issues using examples with variable success.	• demonstrate some ability to analyse issues, problems and events identifying key ideas and making some connections with the citizenship concepts and topics studied • evaluate information, views, opinions, ideas and arguments and begin to assess their validity.	• attempt to select, organise and present information and arguments with some reasons and making accurate use of some specialist terminology • construct and advocate arguments with conclusions in a basic manner, with basic references to their own participation and actions within the study of citizenship.	• begin to synthesize knowledge, ideas and concepts from different areas of the subject in order to generalise, argue a case or propose alternative solutions.

3C.8 Grading

- The AS qualification is graded on a five point scale (A,B,C,D,E) and the A2 on a six point scale (A*,A,B,C,D,E).
- Candidates who fail to reach the minimum standard for grade E are recorded as U (ungraded) and do not receive a qualification certificate.
- A* is reported only for the overall A level qualification and not for individual units.
- For each unit, candidates' marks are reported on a uniform mark scale (UMS) which is related to grades.
- Grades are decided by an awarding committee following well established procedures which are set out in detail in the guide to standard setting available on the AQA website.

3C.9 QA systems and code of practice

GCE Citizenship Studies is covered by the standard QCA code of practice. All procedures conform to the 'QCA code of practice for GCSE, GCE and AEA'. This document specifies the processes and procedures required to ensure high quality, consistency and rigorous standards in assessment and awarding. It aims to promote quality, consistency, accuracy and fairness in the assessment and awarding of GCSE, GCE and AEA qualifications and help to maintain standards across specifications both within and between awarding bodies and from year to year.

Examiner recruitment

Examiners are recruited almost exclusively from practicing or former teachers of GCE Citizenship.

Question setting

A setter (who is almost always the Chief or Principal Examiner) prepares the first drafts of question papers (QPs). The first drafts are then considered by the reviser, who is an experienced examiner. The reviser's comments are incorporated by the setter before the papers are subjected to a formal scrutiny process at a meeting of the Question Paper Evaluation Committee (QPEC). The final draft of the QP is produced after the QPEC meeting and then typeset. After checking and proof-reading by the AQA subject officer and the setter, the QP is sent for further scrutiny by the scrutineer, who has not previously seen the QP. The QP is then sent by the subject officer for a final check to the Principal Examiner, the Chief Examiner and the Chair of Examiners.

Multiple choice papers follow a slightly different pattern. Items are written by item writers who are experienced examiners and/or teachers. Following scrutiny by a panel of examiners, the items are accepted, amended or rejected. The subject officer together with the Principal Examiner responsible for the objective test papers, put papers together which are then pretested in existing AQA centres. The results are collated and the items are put to further scrutiny at another meeting of examiners. In the light of the pre-test results, items are accepted, amended or rejected. They are then typed and stored in an item bank. Question papers are constructed by selecting items from the bank so that the paper complies with the specification relating to topics and skills. After this, the paper is submitted to a Question Paper Evaluation Committee (QPEC) for amendment. The paper is then sent to the scrutineer before being proof read by the subject officer, the principal examiner responsible for multiple choice tests, the Chief Examiner and the Chair of Examiners.

Standardised examining

Question papers are marked by panels of examiners headed by a Principal Examiner or the Chief Examiner.

The Principal or Chief Examiner initially selects a number of scripts to be presented at the standardisation meeting. He or she marks the scripts and presents them to a pre-standardisation meeting where team leaders and the Chair of Examiners are in attendance. The scripts are discussed, mark schemes modified and final marks agreed upon.

There then follows a standardisation meeting attended by all examiners for the paper. Assistant examiners provisionally mark a sample of their allocation of scripts before attending the standardisation meeting. At the standardisation meeting, the examiners finalise the mark scheme, discuss its application to responses observed in provisional marking, and are trained in its interpretation and use. After the standardisation meeting, examiners begin marking.

The quality of their work is monitored at two stages during the marking period: immediately after the coordination meeting when they have to send a sample of 190 scripts to their team leader; and mid-way through the marking period when they have to submit a sample of 50

scripts. Procedures exist for situations where examiners are inconsistent, consistent but inaccurate, or about whom there are lingering doubts.

Grade review

There is a marking review process for candidates who fall on a particular borderline mark related to a grade.

3D OCR GCE A LEVEL BIOLOGY

3D.1 Aims and purpose of the qualification

The aims of this specification are to encourage candidates to:

- develop their interest in and enthusiasm for biology, including developing an interest in further study and careers in biology
- appreciate how society makes decisions about scientific issues and how the sciences contribute to the success of the economy and society
- develop and demonstrate a deeper appreciation of the skills, knowledge and understanding of How Science Works
- develop essential knowledge and understanding of different areas of biology and how they relate to each other.

3D.2 History of the qualification

This new specification has been developed from a successful (legacy) Biology A level and has retained a coherent six unit model of assessment. The new AS units will be examined for the first time in 2009, and the A2 units for the first time in 2010. The content of the new specification is largely governed by the QCA subject criteria but the teaching and learning modules have also incorporated new content, recent developments in the field of biology and the study of scientific enquiry in the area entitled How Science Works. In developing the new specification, changes have been made to the assessment of practical skills and controlled assessment has replaced the legacy coursework model. The combination of synoptic assessment and 'stretch and challenge' at A2 maintains a high level of demand.

3D.3 Entry requirements for the qualification

The qualification has been developed for students of all ages who wish to continue with a study of biology at Level 3 in the National Qualifications Framework (NQF).

The AS specification has been written to provide progression from GCSE Science, GCSE Additional Science, or from GCSE Biology. Achievement at a minimum of grade C in these qualifications should be seen as the normal requisite for entry to AS Biology. However, students who have successfully taken other Level 2 qualifications in science or applied science with appropriate biology content may also have acquired sufficient knowledge and understanding to begin the AS Biology course. Other students without formal qualifications may have acquired sufficient knowledge of biology to enable progression onto the course. Recommended prior learning for the A2 course is successful performance at AS Biology.

3D.4 Age of candidates

Learners starting the Advanced GCE course are normally 16-17 years of age, and those certificating are normally 18-19.

3D.5 Guided Learning Hours (GLH)

AS GCE Biology requires 180 Guided Learning Hours in total, whilst Advanced GCE Biology requires 360 Guided Learning Hours in total.

The specification allows teachers to adopt a flexible approach to the delivery of AS and A level Biology. The course has been designed to enable centres to deliver the designated units (F211–F216) using the framework provided or to design a customised course.

The specification is divided into biological topics, each containing different key concepts of biology. Once the key features of a biological topic have been developed, applications are considered.

The teaching of practical skills may be integrated with the theoretical topics. However, they are assessed separately. This allows skills to be developed in a way suited to each individual centre

3D.6 Content and structure of the qualification

The AS GCE is made up of three mandatory units, of which two are externally assessed, and one is internally assessed and will include the assessment of practical skills. The Advanced Subsidiary GCE is both a 'stand-alone' qualification and also the first half of the corresponding Advanced GCE. The Advanced GCE is made up of three mandatory units at AS and three further mandatory units at A2. Two of the A2 units are externally assessed, and one A2 unit is internally assessed and will include the assessment of practical skills.

Table 37: OCR GCE A level Biology content

AS units		
Unit F211: Cells, Exchange and Transport	**Unit F212: Molecules, Biodiversity, Food and Health**	**Unit F213: Practical Skills In Biology 1**
Module 1: Cells • Cell Structure • Cell Membranes • Cell Division, Cell Diversity and Cellular Organisation Module 2: Exchange and Transport • Exchange Surfaces and Breathing • Transport in Animals • Transport in Plants	Module 1: Biological Molecules • Biological Molecules • Nucleic Acids • Ensymes Module 2: Food and Health • Diet and Food Production • Health and Disease Module 3: Biodiversity and Evolution • Biodiversity • Classification • Evolution • Maintaining Biodiversity	Practical tasks
A2 units		
Unit F214: Communication, Homeostasis and Energy	**Unit F215: Control, Genomes and Environment**	**Unit F216 Practical Skills in Biology 2**

Module 1: Communication and Homeostasis • Communication • Nerves • Hormones Module 2: Excretion Module 3: Photosynthesis Module 4: Respiration	Module 1: Cellular Control and Variation • Cellular Control • Meiosis and Variation Module 2: Biotechnology and Gene Technologies • Cloning in Plants and Animals • Biotechnology • Genomes and Gene Technologies Module 3: Ecosystems and Sustainability • Ecosystems • Populations and Sustainability Module 4: Responding to the Environment • Plant Responses • Animal Responses • Animal Behaviour	Practical tasks

3D.7 Assessment – procedures, methods and levels

Table 38: OCR GCE A level Biology assessment methods

Module	Level	Nature of Assessment	Weight	Availability
Unit F211	AS	External examination 1 hr - candidates answer all questions.	15%	Jan, June
Unit F212	AS	External examination 1.75 hrs - candidates answer all questions.	25%	Jan, June
Unit F213	A2	Coursework. Candidates complete three tasks set by OCR. Tasks are marked by the centre using mark schemes provided by OCR. Work is moderated by OCR.	10%	June
Unit F214	A2	External examination 1 hr - candidates answer all questions. This unit contains some synoptic assessment and Stretch and Challenge questions	15%	Jan, June
Unit F215	A2	External examination 1.75 hrs - candidates answer all questions. This unit contains some synoptic assessment and Stretch and Challenge questions.	25%	Jan, June
Unit F216	A2	Candidates complete three tasks set by OCR. Tasks are marked by the centre using mark schemes provided by OCR. Work is moderated by OCR. This unit is synoptic.	10%	June

Candidates are expected to demonstrate the following in the context of the content described overleaf.

Table 39: OCR GCE A level Biology assessment objectives

AO1 Knowledge and understanding	AO2 Application of knowledge and understanding	AO3 how science works
• recognise, recall and show understanding of scientific knowledge • select, organise and communicate relevant information in a variety of forms.	• analyse and evaluate scientific knowledge and processes • apply scientific knowledge and processes to unfamiliar situations including those related to issues • assess the validity, reliability and credibility of scientific information.	• demonstrate and describe ethical, safe and skilful practical techniques and processes, selecting appropriate qualitative and quantitative methods • make, record and communicate reliable and valid observations and measurements with appropriate precision and accuracy • analyse, interpret, explain and evaluate the methodology, results and impact of their own and others' experimental and investigative activities in a variety of ways.

In addition to the assessment objectives, quality of written communication is assessed in all GCE units and credit may be restricted if communication is unclear. Candidates will need to:

- ensure that text is legible and that spelling, punctuation and grammar are accurate so that meaning is clear
- select and use a form and style of writing appropriate to purpose and to complex subject matter
- organise information clearly and coherently, using specialist vocabulary when appropriate.

The requirement for all AS and A level specifications to assess candidates' quality of written communication will be met through one or more of the assessment objectives.

All A2 units (F214, F215 and F216) contain some synoptic assessment to test the candidates' understanding of the connections between different elements of the subject.

3D.8 Grading

The Advanced Subsidiary GCE is awarded on the scale A to E. The Advanced GCE is awarded on the scale A to E with access to an A*. To be awarded an A*, candidates will need to achieve a grade A on their full A level qualification and an A* on the aggregate of their A2 units.

Grades are reported on certificates. Results for candidates who fail to achieve the minimum grade (E or e) will be recorded as unclassified (U or u) and this is not certificated.

Grade A/B and E/U boundaries will be set using professional judgement. This judgement will reflect the quality of candidates' work, informed by the available technical and statistical evidence. Performance descriptions have been produced by the QCA (Ofqual) in collaboration with the awarding bodies to assist examiners in exercising their professional judgement.

Performance descriptions describe the learning outcomes and levels of attainment likely to be demonstrated by a representative candidate performing at the A/B and E/U boundaries for AS and A2.

OCR converts the candidate's raw mark for each unit to a uniform mark. The maximum uniform mark for any unit depends on that unit's weighting in the specification. A Uniform Mark Scale enables comparison of candidates' performance across units and across series. The three-unit AS GCE has a total of 300 uniform marks and the six-unit Advanced GCE has a total of 600 uniform marks.

3D.9 QA systems and code of practice

The biology specification complies in all respects with current GCSE, GCE and AEA code of practice (QCA), the subject criteria for GCE Biology and The Statutory Regulation of External Qualifications 2004.

Question papers, tasks and mark schemes are produced in accordance with the guidelines set out in the QCA (Ofqual) code of practice to ensure that:

- question papers and tasks assess the required content of the specification
- question papers and tasks use language that is clear and appropriate
- mark schemes are clear and provide instructions and marking guidance
- quality assurance systems are in place to maintain the standard of assessment materials.

OCR complies with the guidelines set out in the QCA (Ofqual) Code of Practice. Candidates' work is marked or moderated by teams of suitably qualified examiners and OCR ensures that examiners receive appropriate training, monitoring and supervision. The standardisation process takes place before the marking or moderation of candidates' work and is guided and supervised by Principal Examiners or Principal Moderators respectively.

The standardisation process is designed to ensure that marking is accurate and that mark schemes are applied consistently. Any work that is marked by examiners about whom there is lingering doubt is identified and remarked.

3E EDEXCEL GCE A LEVEL GEOGRAPHY

3E.1 Aims and purpose of the qualification

The aims of the qualification are to encourage students to:

- develop and apply their understanding of geographical concepts and processes to understand and interpret our changing world
- develop their awareness of the complexity of interactions within and between societies, economies, cultures and environments at scales from local to global
- develop as global citizens who recognise the challenge of sustainability and the implications for their own and others' lives
- improve as critical and reflective learners aware of the importance of attitudes and values, including their own
- become adept in the use and application of skills and new technologies through their geographical studies both in and outside the classroom
- be inspired by the world around them, and gain enjoyment and satisfaction from their geographical studies and understand their relevance.

Knowledge, understanding and skills

This Advanced Subsidiary and Advanced GCE specification requires students to:

- develop knowledge and understanding of selected physical, human and environmental processes that underpin key geographical concepts
- develop a knowledge and understanding of the key concepts of place, space, diversity, interdependence, people–environment interaction, the processes associated with these, and change over time
- study at a range of scales and understand the importance of scale as a geographical idea
- use a range of skills and techniques, including the use of maps and images at different scales necessary for geographical study
- carry out research, and out-of-classroom work including fieldwork, as appropriate to the topics selected
- use modern information technologies, including geographical information systems (GIS), as appropriate to the content
- develop understanding of the application and relevance of geography.

In addition, the Edexcel Advanced GCE specification requires students to:

- undertake individual research/investigative work, including fieldwork
- extend their understanding of geographical ideas, concepts and processes
- identify and analyse the connections between the different aspects of geography
- analyse and synthesize geographical information in a variety of forms and from a range of sources
- consider new ideas and developments about the changing nature of geography in the 21st century
- critically reflect on and evaluate the potential and limitations of approaches and methods used both in and outside the classroom.

3E.2 History of the qualification

Edexcel consulted with schools, colleges, higher education institutions and geography experts to ensure that the new GCE Geography specification is fit for the 21st century.

The specification has been designed to allow geographers the flexibility to build programmes that suit their own particular interests and needs, using a range of approaches. Fieldwork and related research remain an important component of the new A level specification, despite the removal of coursework. Because of this, the design of fieldwork activity is no longer constrained by the need to produce a written report and so new opportunities, topics and approaches are available to students and teachers.

This approach makes better use of different types of information, as well as encouraging the use of new technologies, as part of the investigation process.

Some topics have been designed to attract students to geography as a subject that addresses key ideas and debates in our world today. For example, the technological fix topic in unit 3 looks at our increasing reliance on technology and how this is related to world development.

The specification is designed to engage students and teachers and renew interest in the subject of geography. The following changes have been made from expired geography A level specifications:

- one new specification; not an amalgam of legacy specifications A and B
- four units, rather than six
- no coursework – completely exam tested
- a wide range of fieldwork and research opportunities throughout the units, but key to Unit 2 and Unit 4
- a reduction in the assessment burden on students
- refreshed content focusing on current issues designed to inspire and motivate students to study A level Geography.

3E.3 Entry requirements for the qualification

Whilst there are no strict entry requirements, students who would benefit most from studying a GCE in Geography are likely to have studied Level 2 qualifications which might include GCSE Geography at grades A*–C or related vocational subjects.

3E.4 Age of candidates

Normally 16 to 19 year olds.

3E.5 Guided Learning Hours (GLH)

AS GCE Geography requires 180 Guided Learning Hours in total, whilst Advanced GCE Geography requires 360 Guided Learning Hours in total.

3E.6 Content and structure of the qualification

Edexcel's GCE in Geography comprises four units and contains an Advanced Subsidiary subset of two AS units.

The full Advanced GCE award consists of the two AS units (Units 1 and 2), plus two A2 units (Units 3 and 4) which make up the other 50 per cent of the Advanced GCE. Students wishing to take the full Advanced GCE must, therefore, complete all four units.

The structure of this qualification allows teachers to construct a course of study which can be taught and assessed either as: distinct modules of teaching and learning with related units of assessment taken at appropriate stages during the course; or a linear course which is assessed in its entirety at the end.

The qualification is made up of four compulsory units, as represented in Table 40.

Table 40: Edexcel GCE A level Geography content

Unit 1: Global Challenges (6GE01)	**Unit 2: Geographical Investigations (6GE02)**
The meaning, causes, impacts and management of global challenges. How we can influence global challenges through our own lives. There are two compulsory topics that form this unit: • Topic 1: World at Risk • Topic 2: Going Global.	A closer look at how physical and human issues influence lives and can be managed. Students choose two topics from the four offered in this unit; there must be one physical and one human topic. **Physical topics** • Topic 1: Extreme Weather, with its increasing ferocity and frequency, fascinates some people and threatens many others. • Topic 2: Crowded Coasts reveals how increasing development is testing our ability to manage these valued environments. **Human topics** • Topic 3: Unequal Spaces explores the causes and consequences of rural and urban disparities and how to manage them. • Topic 4: Rebranding Places focuses on how we need to re-image and regenerate rural and urban places, using appropriate strategies.
Unit 3: Contested Planet (6GE03)	**Unit 4: Geographical Research (6GE04)**
The use and management of resources is a key issue for geography in today's world. Consumption patterns highlight stark inequalities between regions, countries and groups of people. Many resources are finite, and rising consumption means that difficult decisions over the use of resources will have to be taken more frequently. There are six compulsory topics: • Topic 1: Energy Security • Topic 2: Water Conflicts • Topic 3: Biodiversity Under Threat • Topic 4: Superpower Geographies • Topic 5: Bridging the Development Gap • Topic 6: The Technological Fix?	Options range from those with a strong physical geography focus, to those concerned more with environmental, social and cultural geographies. Students must select and study one of the following research options: • Option 1: Tectonic Activity and Hazards • Option 2: Cold Environments — Landscapes and Change • Option 3: Life on the Margins — the Food Supply Problem • Option 4: The World of Cultural Diversity • Option 5: Pollution and Human Health at Risk • Option 6: Consuming the Rural Landscape — Leisure and Tourism.

3E.7 Assessment – procedures, methods and levels

Table 41: Edexcel GCE A level Geography assessment objectives

		% of GCE
AO1	Demonstrate knowledge and understanding of the content, concepts and processes .	50%
AO2	Analyse, interpret and evaluate geographical information, issues and viewpoints and apply understanding in unfamiliar contexts.	25%
AO3	Select and use a variety of methods, skills and techniques (including the use of new technologies) to investigate questions and issues, reach conclusions and communicate findings.	25%

Table 42: Edexcel GCE A level Geography assessment objectives by units

Unit number	AO1	AO2	AO3	Total
Unit 1	22%	8%	0%	30%
Unit 2	8%	4%	8%	20%
Unit 3	14%	8%	8%	30%
Unit 4	6%	5%	9%	20%
Total for Advanced GCE	**50%**	**25%**	**25%**	**100%**

Table 43: Edexcel GCE A level Geography assessment methods

Unit	Level	Nature of assessment	Detail	Weight	Available
Unit 1	AS	External examination 1.5 hrs	Section A: objective items, data response and short-answer questions. Section B: choice of Going Global or World at Risk longer/guided essay questions	30%	June
Unit 2	AS	External examination 1 hr	Candidates answer one physical question from Section A and one human question from Section B. The questions require longer responses, each with three parts, designed to include data response, investigation and evaluation skills and related impacts/management issues.	20%	Jan, June
Unit 3	A2	External examination 2.5 hrs	Section A: A choice of two short essay questions from five. Section B (Synoptic Investigation): One question with three parts.	30%	June
Unit 4	A2	External examination 1.5 hrs	Candidates given a list of questions based on the six options. Candidates select and answer one question that relates to the option they have studied.	20%	Jan, June

Synoptic assessment

Synoptic assessment in the context of geography requires students to develop an overview which links different topics from across the Advanced GCE course.

Unit 3 provides obvious synoptic assessment in the form of the synoptic investigation. This synoptic investigation looks at players, actions and futures and is assessed through essay questions totalling 40 marks out of 90 marks in the Unit 3 examination.

Unit 4 involves geographical research that is designed to expose students to a range of geographical information in a variety of forms, namely books, journals, video and the internet. Many of these will be unfamiliar in terms of context and content. Part of this holistic exploration will involve linking content and concepts from Units 1, 2 and 3 into their research.

Stretch and challenge

Students can be stretched and challenged in A2 units through the use of different assessment strategies, for example:

- using a variety of demanding stems in questions - for example, analyse, evaluate, discuss, compare
- a requirement for extended writing in all units
- use of a wider range of question types to address different skills – for example, open-ended essays based on research
- development of synoptic assessment to include a research component.

3E.8 Grading

The Advanced Subsidiary GCE is awarded on the scale A to E. The Advanced GCE is awarded on the scale A to E with access to an A*. To be awarded an A*, candidates will need to achieve a grade A on their full A level qualification and an A* on the aggregate of their A2 units.

Grade A/B and E/U boundaries are set using professional judgement. This judgement will reflect the quality of candidates' work, informed by the available technical and statistical evidence. Performance descriptions have been produced by the QCA (Ofqual) in collaboration with the awarding bodies to assist examiners in exercising their professional judgement.

Performance descriptions describe the learning outcomes and levels of attainment likely to be demonstrated by a representative candidate performing at the A/B and E/U boundaries for AS and A2.

Table 44: Edexcel GCE A level Geography performance descriptions

Assessment objectives	**AO1**	**AO2**	**AO3**
	Demonstrate knowledge and understanding of the content, concepts and processes.	Analyse, interpret and evaluate geographical information, issues and viewpoints and apply understanding in unfamiliar contexts.	Select and use a variety of methods, skills and techniques (including the use of new technologies) to investigate questions and issues, reach conclusions and communicate findings.
	AS level		
A/B boundary performance descriptions	Candidates characteristically: • demonstrate detailed knowledge and understanding of a range of concepts and processes • demonstrate detailed knowledge and understanding of subject specific material.	Candidates characteristically: • analyse and interpret geographical information, issues and viewpoints • offer a valid evaluation of geographical information, issues and viewpoints • demonstrate the ability to apply geographical understanding to unfamiliar contexts at	Candidates characteristically: • select and use appropriately a range of methods, skills and techniques (including new technologies) when investigating questions and issues • reach valid conclusions and communicate findings clearly in a structured manner appropriate to the task.

		different scales.	
E/U boundary performance descriptions	Candidates characteristically: • demonstrate some knowledge and understanding of some concepts and processes • show basic knowledge and understanding of subject-specific material.	Candidates characteristically: • offer limited and inconsistent analysis and interpretation of geographical information, issues and viewpoints • attempt some limited evaluation of geographical information, issues and viewpoints • show some limited ability to apply aspects of geographical understanding to unfamiliar contexts.	Candidates characteristically: • use a limited range of methods, skills and techniques (which may include new technologies) to attempt to investigate questions and issues • draw some limited conclusions • communicate findings which broadly address the tasks.
A level			
A/B boundary performance descriptions	Candidates characteristically: • demonstrate knowledge and understanding of a wide range of concepts and processes • show thorough knowledge and understanding of subject –specific material.	Candidates characteristically: • accurately and competently analyse and interpret geographical information, issues and viewpoints • offer a thorough evaluation of geographical information, issues and viewpoints in relation to specific geographical concepts • demonstrate the ability to apply accurate and appropriate geographical understanding to unfamiliar contexts with precision at a range of scales.	Candidates characteristically: • select and use appropriately and accurately a wide range of methods, skills and techniques (including new technologies) when thoroughly investigating questions and issues • reach substantiated and valid conclusions • communicate findings accurately and appropriately to the task.
E/U boundary performance descriptions	Candidates characteristically: • demonstrate some knowledge and understanding of the main concepts and processes • show some understanding of subject-specific material.	Candidates characteristically: • show some attempts to analyse and interpret geographical information, issues and viewpoints with varying degrees of success • offer some evaluation of geographical information, issues and viewpoints with variable success • show some ability to apply geographical understanding to unfamiliar contexts with some degree of accuracy.	Candidates characteristically: • use a range of methods, skills and techniques (which include new technologies) to investigate questions and issues with varying degrees of success • draw some straightforward conclusions • communicate findings broadly appropriate to the task.

3E.9 QA systems and code of practice

Examiner recruitment

In accordance with JCQ policy.

Question setting

The Principal Examiner sets an initial draft of a whole unit paper. This is then moderated at a QPEC meeting and a final draft agreed.

Standardised examining

Following the sitting of the examination the Principal Examiner will mark some scripts using the latest version of the mark scheme. They will then propose changes to the mark scheme, variations etc in the light of the students' responses. A pre-standardisation meeting is usually held with the team leader where a final mark scheme is agreed. The Chief Examiner would be present to agree any changes or alterations to the scheme. The standardisation meeting will then be held to explain the scheme to the examiners. At Edexcel, this process would be carried out remotely for some units. All these processes are in accordance with the JCQ code of practice.

Grade review

As examinations are marked on-line the team leaders can monitor examiners in real time. Throughout the marking process examiners are monitored and towards the end of the marking process a final check is made to ensure that no examiners are outside board tolerances. No further checks are made after the award has taken place.

The grading meeting (award meeting) is done with a panel consisting of all principal examiners and all chief examiners to ensure consistency across the different options. Awarding decisions are made on a unit by unit basis and a final check is made at the end to ensure that the overall award is in line with previous years and statistical expectations.

SECTION 4: THE WORK OF THE EXPERT GROUPS

4A ENGLISH

4A.1 Prior to the meeting

The Expert Group met for two days on 3 and 4 February 2009. Initial preparatory work had been undertaken by all members; specifically members of the group had been asked to compare aims, content, study hours, relative size and assessment models of the Hong Kong English award with those of the AQA GCE A level English Language.

4A.2 The Expert Group meeting

The Expert Group first received presentations in respect of both the English core component of the Hong Kong Diploma (HKD), and the benchmark A level English Language. The Hong Kong representative explained that English is taught from the first year of primary education onwards, and the Diploma component has been designed so that students build upon and deepen language competencies already developed. Group members were reminded, from the more general presentation made in the initial plenary session, that English is one of nine generic skills which pervade all subjects. The subject consists of themed compulsory elements and an elective component, taking up just under a quarter of the teaching time allocated. Assessment objectives are based on learning outcomes and student achievement, and cover the usual four language skills of reading, writing, speaking and listening. For the majority of students, English is not the mother tongue, and is therefore taken as a second language. In terms of progression to UK HE, English, as taken by Hong Kong students, is not the same as English Language or Literature as taken by UK A level students, but is more akin to the study of a second language. The Diploma therefore does not specifically prepare students for progression to an advanced course of study in English language as an object of study, where a metalevel grasp of linguistic rules and methodologies would be a major focus of any degree level course. The Diploma does provide students with the necessary competences in diverse literacy and study skills, and in the uses of English, to prepare them to successfully undertake a degree course taught in English in the UK. It means that Hong Kong Diploma students will not be acquiring the same HE relevant study skills as A level students, eg referencing, extended essay writing in an academic style, development of an argument, understanding theory and research around a subject and applying it in own writing. It might be that HKD students gain these skills through other subject areas in the Diploma, however.

All students take the same examination papers, although there are options to allow for accessibility by different ability ranges; for example, the choice of certain sections would only allow for the award to be made at a maximum of Level 4. For the writing and speaking papers, all students answer the same questions. The graded approach is only adopted in the listening and reading papers. There is a compulsory section of medium level difficulty which constitutes half of the paper and contains materials aligned with Levels 2-4. The easier section is geared at Levels 1-4, and the harder section Levels 2-5. Students choosing the easier section would have been assessed on materials mostly aligned with Levels 2-4. In practice, students achieving at Level 4 or below would have been assessed on material much of which will be aligned with Level 2 rather than Level 4. UK admissions staff should therefore

be considering students with Hong Kong English at least at Level 3. Students choosing to answer the most demanding questions can still end up with Level 4 or below if they fail to answer them correctly, so it is not the level of the assessment material that matters, but the level of achievement of the students. The level descriptors therefore determine the threshold suitable for progression to HE.

An integrated skills test contains more complicated tasks and is a test of use of English in simulated real-life situations. Assessment includes School Based Assessment (SBA), which is conducted over the period of two years and involves both group and individual tasks. SBA is an integral part of assessment from 2010 onwards.

Even at this early stage, the group recognised the importance of study of English in the Hong Kong Diploma in terms of preparation for other subjects studied, whilst acknowledging that this should not be taken into account in determining an eventual recommended Tariff value for English alone. In practice, HKDSE English serves two roles in the senior secondary curriculum – as a language requirement and as a subject in its own right. It is a service subject and ensures that students have the requisite language and communicative skills to pursue HE in English-medium universities. It also prepares students for further study of English Language/ Literature/ Linguistics at tertiary level.

The Chief Examiner for the A level informed group members that this was one of the new awards delivered from September 2008, although it had been designed to grow out of the previous version. The main differences were the introduction of additional stretch and challenge, and a change from six units to four. Students should become aware of recent developments in the study of the English language, including acquisition of the key principles of research and interpreting current changes, for example, technology, in the light of students' individual and own experience. The assessment had been designed so that students could demonstrate what they know, whilst allowing for creativity and critical appraisal and development of transferable skills. It had been considered that there were aspects of English that could not be assessed under examination conditions, hence a high proportion of internal assessment (or coursework) had been allowed.

Assessment moved from the testing of material covered in individual units to a final synoptic paper where assessment drew on content of all units. This latter paper required extended writing through an essay response, together with the analysis and evaluation of two texts. Students were expected to widen their exploration of language by looking at the construction of discourse and engaging with external popular texts about language.

Group members were reminded of the AS/A2 structure of A level, and informed that although AS would be graded A-E, the full A level would be graded A*-E. A* would be awarded on the basis of achievement of Grade A in AS plus performance in the A2 units at a minimum of 90 Uniform Mark Scale (UMS) points. It was explained that it was not yet completely clear what standard the A* grade would demonstrate; this would emerge from the examination process.

The two presentations were important in providing the context for subsequent discussion, in that it was obvious to the Group that comparison of like with like (or even something

approaching like with like), as is normally the case in the Expert Group process, was not possible in this instance. Essentially the A level offered more in terms of reflection and discourse on language, and as such prepared students for study of, for example, linguistics, in an HE context. On the other hand, the study of English for the Hong Kong Diploma was more akin to the study of French or Spanish at A level, ie, a second language. Therefore the Hong Kong award was about using skills and language, and assessed oral proficiency, whilst the A level was a knowledge-based award and assessed literary and writing skills. Another difference was the requirement in the A level that use of language was raised to a meta level, for example, involving awareness of audiences, and included a requirement for analysis, reflection and criticism. Notwithstanding these quite stark differences, the Group recognised that a different kind of knowledge ie, of the English language and how to use it in practice, or knowledge of the language rather than knowledge about the language, was being developed in the Hong Kong award, and that it contained valuable aspects of relevance for HE study, such as a requirement for collaborative work. As the A level is aimed at native speakers of the language, basic competencies are assumed and the focus of the award is on raising to theoretical and methodological awareness the ways of understanding and using language. As the Diploma is aimed at non-native speakers, the focus of the award was on assimilating these rules and competencies through wide and varied use, rather then knowledge of explicit rules and frameworks. The Diploma is not, however, simply a skill-based award but the theoretical and methodological competencies are more embedded in varieties of practice and there is less emphasis on theoretical debate or competing methodologies. This was not to say at this stage in the proceedings that one award was better or worse than the other in terms of preparation for HE study, merely that the two were substantially different, and that this could render comparison more challenging, and perhaps hinder the process. However, the Hong Kong English award could be said to be more akin to Use of English in a UK context. The implications for progression to HE are that, although the Diploma prepares students in oral and literacy skills in English and provides a broad understanding of appropriate and varied uses of English, it does not equip students with the kind of theoretical knowledge accessed in the English language A level, and which is at the core of degree programmes in English language or linguistics. However, much of this knowledge is implicit in the practice-based orientation of the Diploma, and would provide a foundation on which to build a more theoretical knowledge.

In brief, the essential differences and similarities are shown in **Error! Reference source not found.**.

Table 45: English - comparison of design/structure and overall purpose

Hong Kong English	AQA A level English Language

• Competence-based; focus on use of English but some knowledge of language implicit • Avoidance of meta level although implicit in some instances, eg use of tone in task-based assessments • Opportunities for reflection, but not to same extent as A level • Linear assessment; implied synopticity in integrated tasks • School Based Assessment • More opportunity for flexible delivery • Implicit requirement for grasp of knowledge, eg, use of syntax, awareness of genre	• Knowledge-based; competence required through application of frameworks • Use of language primarily at meta level • Explicit requirement for analysis, reflection and criticism • Modular assessment; synoptic final assessment • Course work • Some (but less) opportunity for flexible delivery (although assessment does not drive delivery as with Curriculum A level structure) • Use of/familiarity with academic texts requiring explicit evidence of understanding

4A.3 Comparison of aims

Group members were requested to consider the respective lists of aims considered prior to the meeting, and to concentrate on drawing out the similarities and differences (more detail on the aims themselves is contained in Sections 2 and 3). Those which emerged from the discussion are shown in Table 46 below. This was a straightforward task in view of the prior preparation and there was consensus amongst Group members about the list which emerged, although the process again highlighted the difference in purpose, ethos, and approach of the two awards.

Table 46: Comparison of aims - English

Hong Kong English	AQA A level English Language
• Development of skills of production of language • Focus on development of communicative skills • Experiential and use-based approach, with opportunity for developing understanding of different cultures • Preparation for study of other subjects • Strong applied focus with emphasis on proficiency	• Development of skills of production of language; also use of language for further study, and hence requirement for different levels of production at a meta language level • Implicit assumption of proficiency at start of study • Emphasis on conceptual interpretation and methodologies together with investigation • A subject in itself • Strong applied focus but development of awareness of culture associated with language as opposed to proficiency development

4A.4 Determining size – comparison of Guided Learning Hours

The Hong Kong representative confirmed the requirement for centres to deliver English with 405 class hours. For the A level, the Chief Examiner reported that the position was not quite as clear, in that AQA indicates a recommended contact time of 360 hours (which aligns with the GLH indicated for A level in the National Database of Accredited Qualifications (NDAQ)), whilst funding is allocated to colleges (this does not include schools which are funded by an alternative body) on the basis of contact hours of 300. It was pointed out that the difference between the use of two separate sets of GLH for A level was that the indication of 300 was purely to do with the amount of money provided to colleges by the Learning and Skills Council (LSC), whilst the AQA indicates the amount of time that should be provided in terms of contact hours. Notwithstanding these conflicting indicators, in practice, centres decide upon contact time and the LSC guidelines do not apply to school sixth forms. On one hand, therefore, it appeared that the hours in which A level is delivered varies from one type of centre to another, whilst there is a specific requirement for delivery of the Hong Kong award.

The use of GLH to determine size is not an absolute determinant, as it needs to be considered relative to the kind of learning involved. The Group considered that proficiency development required more contact hours than development of knowledge. Finally, it was pointed out that English required more class contact than a number of other subjects in the Hong Kong Diploma, 405 compared with 270.

Consideration of GLH alone, and comparing 360 GLH for the A level against 405 for the Hong Kong award, indicated that the Hong Kong English was 12% larger than the A level, whilst use of 300 GLH for the A level indicated that the Hong Kong English was almost 33% larger than the A level.

4A.5 Determining size – breadth and depth of content coverage

In view of the somewhat unsatisfactory outcome of consideration of GLH alone, the Group moved to determine whether a comparison of content could confirm the position in respect of sizes of the respective awards. In the event, the Group found this problematic because of the very different content of each qualification, although it was possible to agree that there was shared content in the form of writing skills. The challenge of consideration of what was explicit and that which was implicit arose once again, but at face value it appeared that whilst the Hong Kong required development and assessment of speaking and listening, reading and writing, skills (ie language acquisition), the A level involved the study of linguistics, and, an important difference, the research element in Unit 4. This potentially had implications for progression to UK HE, which is addressed later in this section.

The group looked at the range and types of texts used in each qualification, and the respective percentages associated with assessment objectives. The essential issues were:

- Variety of texts used in both qualifications but in different ways
- Analysis using meta language in the A level, as against interpretation and understanding and use in the Hong Kong award, ie talking and thinking about language using the technical vocabulary developed in various branches of linguistics.
- Allocation of specific percentage to each of the four skills of reading, writing, speaking and listening (separately assessed) for the Hong Kong award, whereas the A level specification is divided by integrated assessment objectives
- Wider range of skills required for the Hong Kong award connected to a specific language acquisition component, whilst for A level these competencies assumed as being present before study commenced
- Hong Kong award broader than the A level, but not as specific, nor taken to the same depth
- Requirement for more essay writing in the A level
- Hong Kong award more similar to the study of a second language by A level students.

Although the Group was encouraged to consider size of the respective awards alone, this could not be disaggregated from discussion about demand, and perhaps inevitably the debate moved to whether a fairer comparison would be different kinds of depth. On one hand, the A level developed conceptual awareness and recognition of methodology, and on the other, the

Hong Kong award involved a kind of demand which was more labour intensive, ie acquisition of language skills.

It was questioned whether the Hong Kong award provided the grounding for future study at HE level compared with the A level, but the HE representatives confirmed that they would take both qualifications (all were responsible for admission to English degrees). The A level provided more adequate preparation for the study of university English in its greater emphasis on extended essay work and on its theoretical emphasis, but the HE representatives felt that other kinds of competencies, such as sensitivity to language contexts and use, oral presentation skills, and study methods, were strongly represented in the Hong Kong Diploma and would provide an equivalent, though different, starting point for entry to degree level study.

Unfortunately, all this did not further the somewhat basic quest for determination of size normally undertaken. In the circumstances, the difficulty in coming to a decision would have to be the conclusion of the Expert Group. This was on the basis that, despite what was suggested by consideration of GLH alone, the aims and starting points were so fundamentally different that the respective GLH represented quite different entities. Size was therefore left as an open question, with recognition that if utility was broadly the same for both qualifications, in practice, confirmation of exact size was of lesser importance.

It had already been confirmed that the HE representatives would take both qualifications for entry to their courses. The different approaches to the curriculum were mentioned as being relevant, with the Hong Kong award being a compulsory component in the overall Diploma, and the A level a choice from a large number of elective subjects. It was pointed out that the study of a language not one's own would, of necessity, require self-reflection and that the Hong Kong English inevitably had an emphasis on cultural practices. On the other hand, the A level developed awareness in terms of gender, power and other socio-linguistic areas. However, this discussion did not really take the Group forward in respect of a means to confirm the amount of relevant demand for progression to HE, as it was considered that it would be necessary to see candidate scripts and these were not available.

4A.6 Estimating relative demand – comparing assessment models

The Group moved first to consideration of assessment objectives to determine demand and challenge, particularly at the higher grades. Analysis of the respective objectives confirmed similarity between A level AO1 and AO4 and the Hong Kong award descriptors, whilst recognising that testing associated with the objectives was slightly different. There was some overlap in the Hong Kong award with AO2 except for the area covering knowledge of linguistics. AO3 was confirmed as aligning to the Hong Kong objectives.

Overall the objectives for the Hong Kong award were aimed at defining the level of skills associated with proficiency in language, whilst those for the A level reflected the different aims already discussed. There was quite a lot of discussion about whether or not both sets of objectives could confirm the presence of analysis and evaluation, two skills highly relevant for preparation for HE study. It was confirmed that this was the case but that the Hong Kong award required analysis of the spoken language, whilst the focus in the A level was on

understanding of linguistics. Therefore the Hong Kong award did not require use of linguistic terminology, ie, students were not required to use meta language whereas this is needed for assessment in the A level; the latter was particularly apparent in the section on stretch and challenge in the A level specification.

As in previous discussions, the Group continued to be of the view that whilst different, both awards had relevance for progression to HE as the assessment objectives in each case corresponded with the aims and objectives of each programme. The A level places more emphasis on analysis, meta level reflection and critique, and the emphasis on assessment is on skills which can most appropriately be demonstrated through extended essay/written project work involving formal argumentation, extended analysis and theoretical knowledge. The Hong Kong Diploma offers scope for the assessment of such skills through oral presentation, but the emphasis on short written exercises and multiple choice is designed to elicit language user competence across a variety of contexts and forms of use.

The Group then moved to consideration of grade descriptors. The Hong Kong award made these available at five levels (synonymous with grade) for each of the four skills of reading, writing, speaking and listening. The A level information was presented in the form of performance descriptors at the A/B and E/U grade boundaries; these were integrated with the assessment objectives already discussed.

Despite differences (which had already been identified through consideration of aims and content), it was thought that the grade descriptors could be confirmed as being broadly comparable. This was mainly on the basis that the Hong Kong writing descriptor (third in the list) aligned with the A level AO4. The reading descriptors were confirmed as different because of divergences associated with content (eg, linguistics, technical vocabulary), but the levels of proficiency were considered to be similar. Both sets of descriptors were confirmed as using similar value terms, eg 'ability to make inferences'. On the other hand, a key difference was identified as academic understanding associated with the assessment of the ability to plan research, and awareness of academic developments and theories, which were present in the A level, although it was asserted by the Hong Kong representative that the latter were implicit in questions in the examination papers. There was some limited evidence of this in the papers (particularly the integrated skills paper) and the specimen bibliographies, but little evidence of opportunities for candidates to debate and analyse rival or alternative linguistic theories or frameworks.

There was some discussion about whether or not the coursework components, (in the case of the Hong Kong award this would come into place from the start, ie, the 2012 examination) which had very different assessment objective weightings – 15% for the Hong Kong award, and 40% for the A level – would help move the process forward, but all that could be confirmed was that both had aspects which were valued by HE. In the case of the Hong Kong award the collaborative interactive approaches were thought to be of relevance, whilst for the A level, the evidencing of the ability to write extended essays was highlighted.

Despite lengthy discussion, all that could be confirmed was that where the grade or level descriptors focused on writing skills, they were of similar demand, but that the others were

inevitably different. The question was therefore asked if the differences indicated greater, lesser, or equal utility in terms of progression to H. The HE representatives confirmed that students from both awards who had performed well in terms of grade achievement would have the ability to cope well with the demands of HE study.

4A.7 Estimating relative demand - comparison of candidate work

Both the HKDSE and the A level are new qualifications so no candidate evidence was available for either qualification. Due to this lack of candidate evidence, it was made clear that the Tariff values allocated would be provisional and subject to a review once candidate evidence becomes available.

4A.8 Aligning the grades

The Group moved to the final part of the process, that of alignment of grades between the two awards. Two aspects made this task problematic: first, the previously encountered difficulty of not being in a position to compare like with like, and second, the lack of knowledge about standards associated with the A* grade in the A level. In the circumstances, it was agreed that the exercise could only be undertaken on the one area of commonality, the writing components, although all members were troubled about the way in which assumptions would need to be made, and extrapolation undertaken, in connection with areas unique to each award.

It was initially thought that consideration of the grade descriptors which focused on writing skills, ie, AO1 and AO4 for the A level and the third area in the Hong Kong descriptors, revealed alignment between the A/B boundary and Level 5 respectively. The issue of the lack of a requirement for extended writing in the Hong Kong award was raised once again, although on this occasion it was agreed that there was some compensation because of the requirement to retrieve information from source material in the integrated tasks. Attention then turned to the E/U boundary for the A level, and, following considerable debate about what constituted differences between complex and straightforward language, and frequent errors as opposed to those occurring sometimes, the view emerged that the descriptors aligned closely with those of Level 3 for the Hong Kong award.

To corroborate this initial view, the Group then took separately assessment of: first, the subject descriptors for the Hong Kong award against the performance descriptors for the A level, and second, the writing descriptors for the Hong Kong award against the coursework descriptors for the A level. These confirmed the alignment of Level 5 to the A/B boundary, and Level 3 to the E/U boundary, suggesting that the Group should be thinking in terms of 120 and 40 UCAS Tariff points respectively.

The Group then ventured into consideration of historical percentages passing at each of grades A-E in the current Hong Kong A level, and the percentages used at the A/B and E/U borders for the previous version of the A level. These were revealed as follows for the Hong Kong A level:

A – 0.88% (assumed alignment with 5** in the Diploma award)
B – 3.12% (alignment with 5*)
C – 11% (alignment with 5)

D – 26% (alignment with 4)

E – 33.5% (alignment with 3)

In respect of the A level, the target percentages in the mark ranges for awards are: 80% for the A/B boundary, and 40-45% for the E/U boundary in the A level.

This raised questions about whether or not any recommendations could be made in respect of 5* and 5** for the Hong Kong award (and indeed about the process by which a recommendation for 140 Tariff points had been arrived at in respect of A* at A level). It was therefore agreed that in view of the lack of robust information of standards of either A level A* or the 5*/5** grades for the Hong Kong award, no recommendations should be put forward in respect of the latter at this particular point in time.

4A.9 Domain scoring

This part of the proceedings started with discussion about the outcomes of the domain scoring undertaken as part of the preparatory work. A synopsis of the scoring, presented in **Error! Reference source not found.** as the outcomes for the whole group, and in **Error! Reference source not found.** as the outcomes for the HE representatives only, is shown below:

Figure 1: Preparatory domain scoring – English (all Group members)

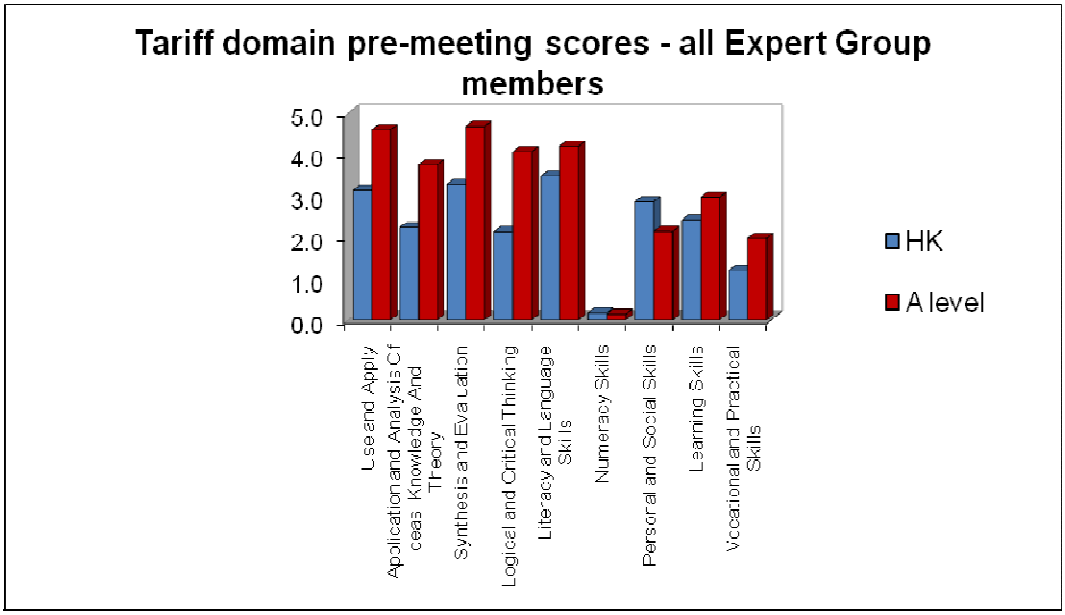
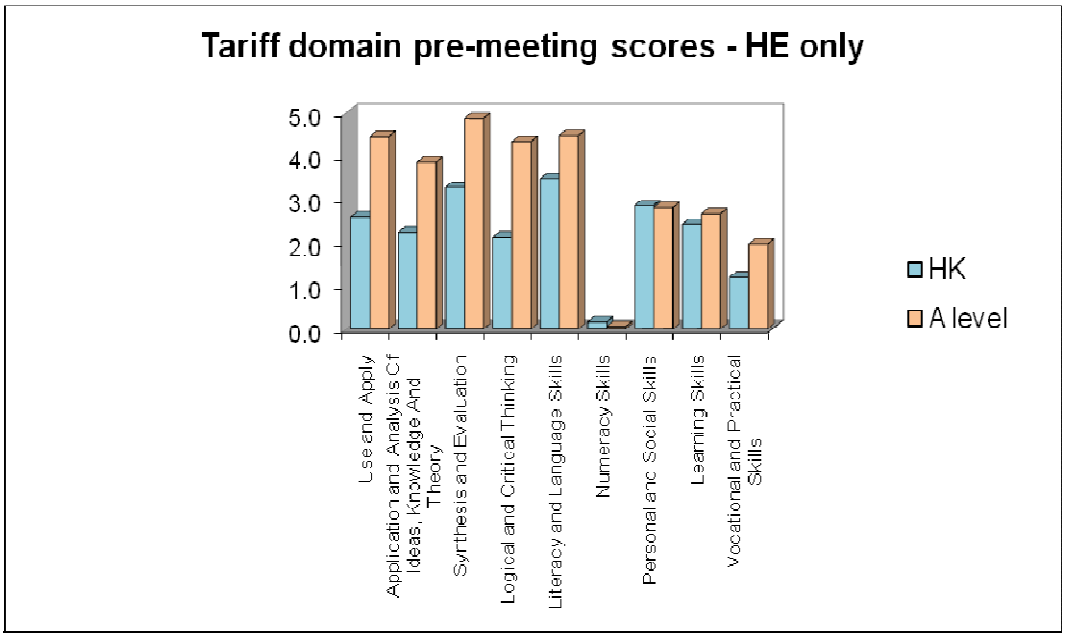


Figure 2: Preparatory domain scoring – English (HE only)



Analysis of the above two charts confirmed three aspects: one, that the 'shape' of the two awards was similar; two, that there was no significant difference between the scoring of the HE representatives and that of the whole Group; and three, both awards were indicating utility for progression to HE. However, in light of reiterated confirmation, that, although very different, both awards had equal relevance for progression to HE it was surprising that the scoring process had revealed different amounts of utility in the charts. The latter surprised Group members, and all HE representatives agreed that although the awards involved two models of learning, with the Hong Kong award being more experiential and the A level more reflective, both were equally appropriate for progression purposes. Despite this, the HE representatives came back to the conceptual nature of the A level and the opportunity it provided to produce extended arguments and carry out a research project. It was felt these aspects would increase certain domain scores, and perhaps confirmed the message provided through analysis of the charts.

One HE representative considered that in terms of progression to English, specifically, at degree level, if the qualification in English is given weighting (as it often is) by admissions tutors then the English A level, because of its more theoretical nature and emphasis on extended coursework, is a better cognate preparation for studying English at degree level. However, the Hong Kong Diploma does provide a strong foundation in practice, which could be built on very easily through a more theoretical approach at degree level, and it would certainly be equivalent to any A level in a foreign language. There is some disadvantage though in the limited scope for extended essay/project writing although some compensation in the emphasis on collaborative and independent study skills, oral presentation etc. Notwithstanding this, it was indicated that the lack of extended essay writing is a small disadvantage in the Diploma.

However, at this stage, and because of the discrepancies between previous conclusions and the outcomes of the domain scoring process, the Expert Group members were invited to reconsider their initial outcomes, particularly in respect of the HE representatives. This was

decided primarily on the basis that, because as a result of the discussion to date, they now had a deeper understanding of the nature of the two awards. However, debate turned again as to whether or not a better comparison would be with an A level Modern Foreign Language, and in the circumstances the group was shown the outcomes of an expert group which had compared the Pre-U Principal Subject in French with A level French. The aggregated outcomes are shown in **Error! Reference source not found.**:

Figure 3: Domain scoring for A level French

Although the scores for A level French were closer to the Hong Kong English award, they did not align that closely, so although it was considered helpful to have taken this approach, it did not resolve the immediate issue in hand. The Expert Group members therefore moved on to a reconsideration of their original domain scores; it was made very clear that scores should only be changed if they could be robustly defended.

John Coyle was invited to put forward the outcomes of his reconsideration. He indicated that he had changed some scores for the Hong Kong award, mainly from four to five, because of his reassessment of the subject principles, and the requirement for specialist vocabulary and concepts, both of which he confirmed as being appropriate for progression to HE and as providing scope for development. On this basis, domain 2, strands 2.1 and 2.2 were changed from four to a score of five. Domain 3, strands 3.2, 3.3 and 3.4 were increased from four to five because, although the A level had plenty of evidence of synthesis and evaluation, none of this referred to the writing tasks (the aspect in common with the Hong Kong award), and in his judgement there was sufficient evidence in the Hong Kong award to justify this because of the way candidates were required to be aware of usage of language in different contexts. Domain 4, strands 4.1, 4.3 , 4.4 and 4.5 were changed from scores of four to scores of five on the basis that such tasks provided an opportunity for analysis and practice of socio-linguistics. In respect of the literacy and language skills domain, in 5.4 the score for the Hong Kong award was increased from three to five because it was recognised that comparable opportunities for giving presentations to those for A level were present. John also increased scores in domain 7 to five for each strand on the basis of information provided by the Hong Kong representative of development of personal and social skills.

Pat Waugh increased scores for the Hong Kong award in domains 1, 2 and 7. Strands 1.1, 1.2 and 1.3 were increased from three, two and zero to four, three and five respectively because of her judgement that there was sufficient evidence across the four areas of writing, reading, listening and speaking to confirm testing of understanding of principles and concepts.

In respect of the A level, Pat increased the score for 1.2 from four to five because Unit 4 containing the research project and the continuous essay writing gave scope for the skills contained within that strand to be tested more robustly. The score for strand 2.1 was changed from one to three as Pat was confident that understanding was present in the Hong Kong award, and that it was tested across the different areas. For 2.2, the emphasis was on specialist vocabulary so scores were changed to five for the A level, and three for the Hong Kong award. Moving now to Domain 7, Pat now recognised that the Hong Kong award scored highly in this area because of the way it encourages the development of personal and social skills; on this basis scores for 7.1 were amended from four to five and three for the A level. For 7.2 and 7.3, as the Hong Kong award involved collaboration and team work, scores were changed from four to five for the Hong Kong award, and two for the A level. Pat indicated that overall she had increased the Hong Kong Diploma scores because, from the work of the previous day, she had become convinced that a grasp of understanding of language skills was present, and because she was very impressed with the way in which the syllabus developed personal and social skills, which demonstrated a commitment to learning, needed for HE.

Moving to Helen McAllister, changes were made for similar reasons cited by John and Pat. For 1.1 Helen had originally given a score of one to the Hong Kong award, which she now wished to increase to four, on the basis that knowledge of language was being used and applied. Similarly, the score for strand 2.5 was increased from zero to three for the Hong Kong award because of the presence of application of principles and concepts of language. For 3.2, the score for the Hong Kong award was raised from three to five, because of increased recognition of the presence of a requirement for evaluation.

Shaun O'Toole, the A level Chief examiner, also made a few changes. In Domain 1, 1.1 was increased from two to five for the Hong Kong Diploma, as the strand had been reinterpreted to include knowledge of grammar principles, now recognised as clearly being present. Strand 2.1 was raised from one to three because Hong Kong students were confirmed as being required to interpret their knowledge of language. Strand 3.2 was raised from two to three because Shaun had been influenced by the presence of evidence of integrated skills. Shaun had omitted to give scores to strands 4.1 and 4.2 for the Hong Kong award in his preparatory work; these were now scored as two and three respectively. In respect of 5.1, the score was changed from three to four in the light of evidence in a sample examination paper where there was a requirement to transform complex information. The score for 5.4 was increased from three to four on the grounds of the weighting within the assessment objectives, and the requirement to undertake three presentations.

Christina Lee, the Hong Kong representative, wished to make changes in domain 1, because of agreement amongst and across Expert Group members that although content was not present in the Hong Kong award in the same way as for the A level, a requirement for knowledge of language could be confirmed. She therefore wished strand 1.1 to be raised from two to four, and 1.2 from two to three on the grounds that although the Hong Kong award does not specifically require specialist vocabulary or subject knowledge, there is the need to use knowledge to organise and present information, particularly in the integrated task. Strand

1.3 was raised from one to five, because of the discussion which accompanied her reassessment in the context of the meaning of knowledge.

Christina's justification for these increases had caused the HE representatives to think about the difference between knowledge of how to do something and knowledge of something. The distinction in the French language between *savoir* and *connaitre* was mentioned, something not present in the English language. Despite the epistemological assumption of propositional knowledge, it was accepted that HE tests on the basis of explicit and justified knowledge, ie, the what, whilst taking for granted the *savoir*, or knowing how, element. During the Expert Group discussions, both types had been acknowledged as being important. This was an essential difference between the two awards, but it had been confirmed that this difference in categories of knowledge should not detract one from the other in terms of what was required for progression to HE, with both having relevance. Surely, like Plato in his discourse on knowledge, the HE representatives truly believed in the explanation and definition of knowledge that had emerged as a result of discussing the Hong Kong award (notwithstanding that Plato's approach had subsequently been called into question)?

Going back to discussion of domain scoring, Christina also wished to raise 8.4 from one to four because the Hong Kong award allows students the opportunity to evidence persistence in the thematic modules (see page 70 of the specification). The HE representatives confirmed they were all comfortable with these increased scores.

The lack of opportunity for extended writing in the Hong Kong award was again touched upon, and the feeling that Unit 4 of the A level which required construction of a research project was one of its really strong features. It was pointed out that the compulsory Liberal Studies provided this opportunity, and whilst acknowledging that this could not be relevant in the context of discussion about the English award, the Expert Group wished this aspect to be dealt with in the final narrative on the overall Diploma.

As a result of the changes to the domain scoring, the group was shown the impact of these through **Error! Reference source not found.** and **Error! Reference source not found.**.

Figure 4: Revised domain scoring (all Group members)

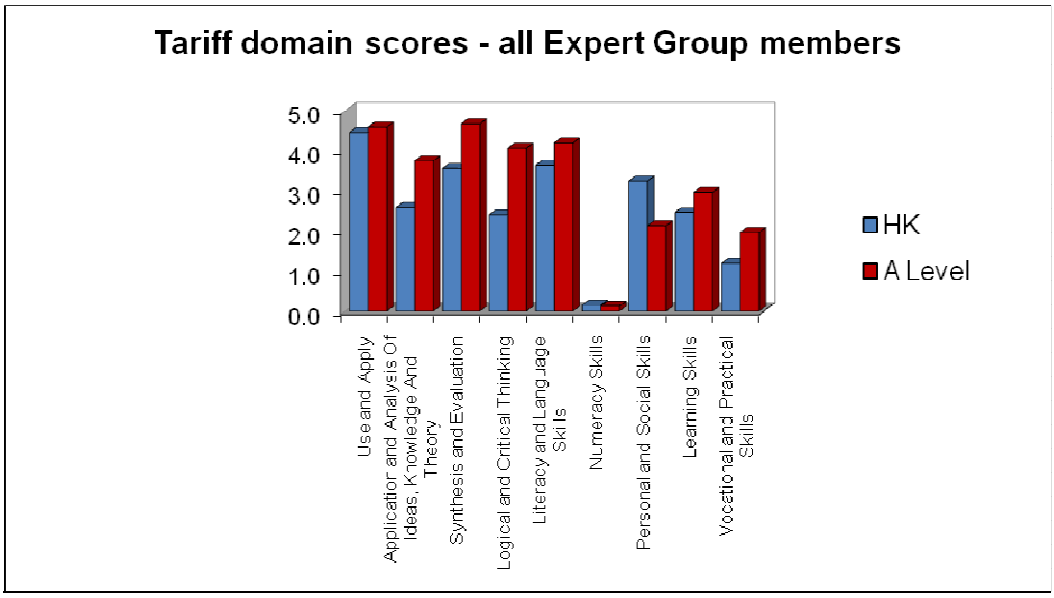
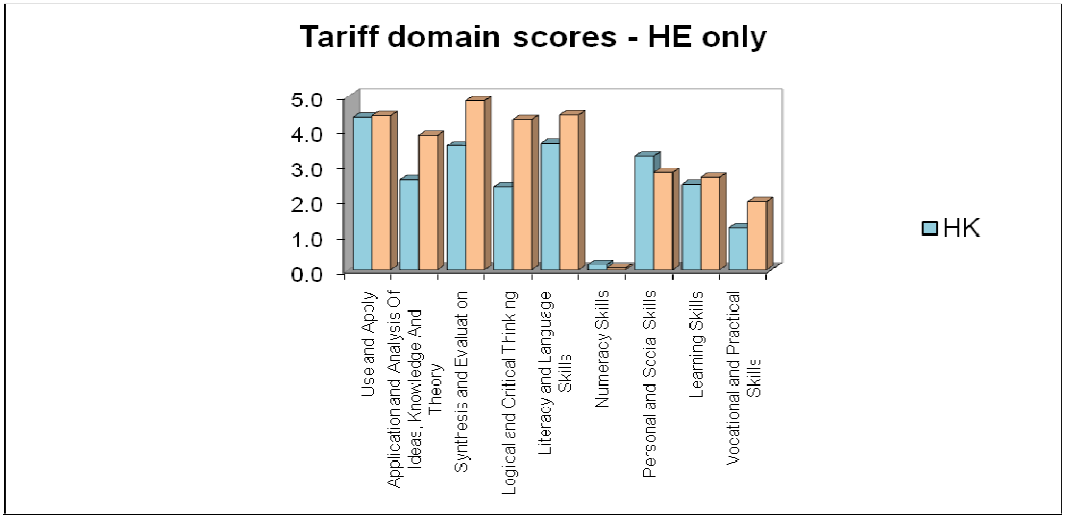

Tariff domain scores - all Expert Group members
5.0
4.0
3.0
2.0
1.0
0.0
Use and Apply Application and Analysis Of Ideas, Knowledge And Theory
Synthesis and Evaluation
Logical and Critical Thinking
Literacy and Language Skills
Numeracy Skills
Personal and Social Skills
Learning Skills
Vocational and Practical Skills
HK
A Level

Figure 5: Revised domain scoring (HE only)



A composite presentation of the above is available in **Error! Reference source not found.** and **Error! Reference source not found.** respectively:

Figure 6: Hong Kong award and A level scores (all Group members)

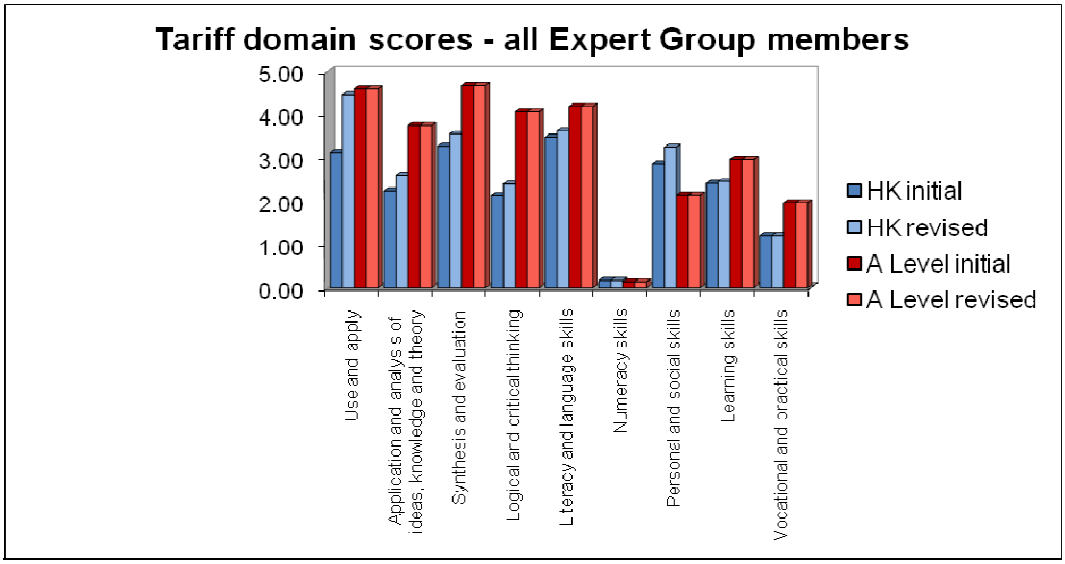
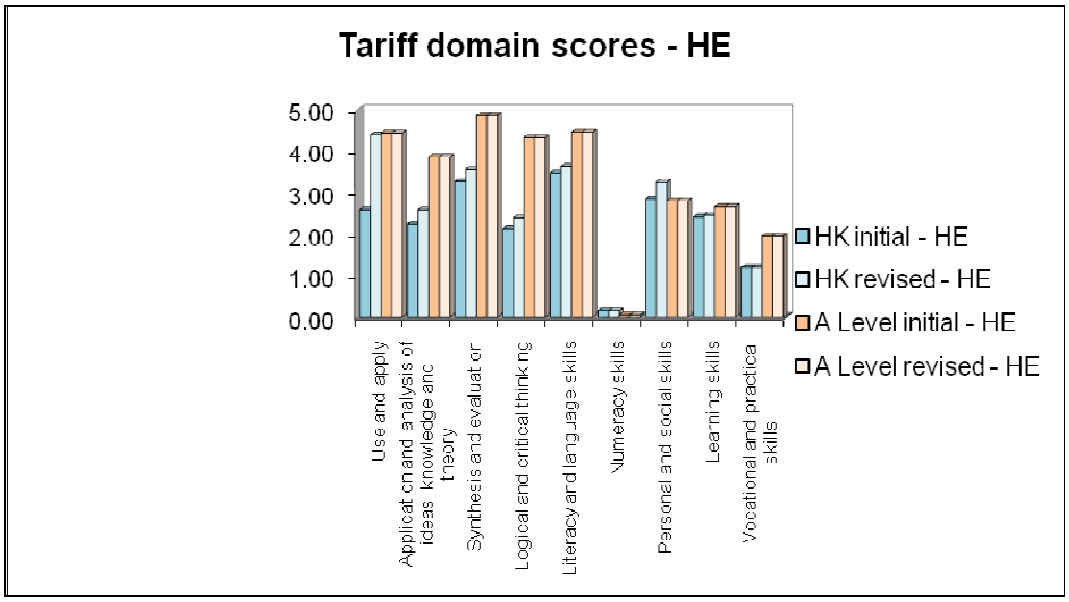


Figure 7: Hong Kong award and A level scores (HE only)



Despite the increases, it was noted that sharp differences were still present. It could be argued that the Hong Kong award was closer to the scoring outcomes for A level French previously undertaken, but differences remained which could not be explained even when taking into account philosophical discussions about the meaning of knowledge. The Group was left with a situation where all members had agreed equivalent utility across the two awards, whilst the outcomes of the domain scoring process, despite revision, indicated a lower utility for the Hong Kong award. In the absence of any confirmed position on size of the respective awards, it was not possible to discuss in terms of actual Tariff points.

4A.10 Recommended allocation of UCAS Tariff points

In reviewing the work of the Expert Group, the difficulties connected with the process re-emerged. The essential differences between the two awards had been recognised at the outset, and these led to barriers in determining size in respect of content. In respect of GLH, the indication was that the Hong Kong award was bigger (405 compared to 360) than the A level, but this did not have the confidence of the Expert Group. Equivalence of relevance for progression to HE was also somewhat problematic. On one hand, Group members agreed that despite differences in types of knowledge and hence the agreement that each award was acceptable for progression to UK HE, on the other, the outcomes of even the revised domain scoring process suggested a lower utility for the Hong Kong award. Finally, any alignment with grades could only be undertaken on about one quarter of the overall evidence available, ie that which matched in terms of respective writing components.

Despite an apparent negative outcome, the Group wished to report that positive outcomes had emerged. It had been possible to work comfortably with two different sets of knowledge, both experiential and conceptual, and on this basis, it had been possible to justify the raising of the Hong Kong award domain scores. It had also been possible to recognise that a proficiency-based approach to language development required more contact time, and

although this did not, in the view of the HE representatives, constitute a weightier entity in terms of size or amount of knowledge however acquired, it might compensate for the differences in the domain scoring exercise.

4B MATHEMATICS

4B.1 Prior to the meeting

Prior to this meeting some preliminary work was carried out. This included a detailed mapping of the Hong Kong Diploma of Secondary Education in Mathematics against the CCEA GCE A level in Mathematics, reports from three HE representatives highlighting similarities and differences between the two qualifications, and comparative studies from a representative from each awarding body. Pre-meeting papers were distributed, requiring members of the group to compare aims, content, study hours, relative size and assessment models of the Hong Kong Diploma of Secondary Education in Mathematics and that of the CCEA GCE A level in Mathematics.

4B.2 The Expert Group meeting

The Expert Group then met on one occasion for two days to examine and discuss the evidence listed in Appendix 2 and the preparatory work completed by Group members. This section contains an account of the deliberations of this meeting.

The opening session provided an opportunity for the Assistant General Manager (Assessment Development) of the Hong Kong Examinations and Assessment Authority and the CCEA Examiner to present their qualifications and for Expert Group members to seek clarification about general issues in relation to the awards.

Following these presentations, the following main characteristics of the awards were agreed as shown in Table 47.

Table 47: Mathematics - main characteristics of the awards

Characteristic	Hong Kong Diploma	CCEA A level
Duration in years	Three	Two
Modular or linear structure	Linear	Modular
Number of compulsory modules	One (consisting of 19 units)	Four
Number of optional modules	One to be chosen from two	Two to be chosen from two Mechanics and two Statistics modules
External Assessment?	Yes	Yes
Internal Assessment?	No – until the introduction of school-based assessment for which the timetable has not been decided in the case of Mathematics.	No
Multiple choice in assessment?	Some	No
Resits allowed?	No	Yes
Synoptic assessment opportunities?	Yes – provided by the further learning units	Yes – provided by later modules building on previous ones in assessment
Unit grades available to higher education institutions?	No	Yes

4B.3 Comparison of aims

The Group discussed the previously tabulated aims of the two awards. While minor differences were identified by the Group, as indicated in the table, these were not perceived as significant in terms of progression to higher education (Table 48).

Table 48: Mathematics – aims of the awards and their differences

	Hong Kong Diploma	CCEA A level
Aims	The mathematics curriculum is based on seven principles: • building on knowledge developed at the basic education level • providing a balanced, flexible and diversified curriculum • catering for learner diversity • achieving a balance between breadth and depth • achieving a balance between theoretical and applied learning • fostering lifelong learning skills • promoting positive values and attitudes to learning **Overall aims** The overall curriculum aims of the Mathematics Education Key Learning Area are to develop in students: • the ability to think critically and creatively, to conceptualise, inquire and reason mathematically, and to use mathematics to formulate and solve problems in daily life as well as in mathematical contexts and other disciplines • the ability to communicate with others and express their views clearly and logically in mathematical language • the ability to manipulate numbers, symbols and other mathematical objects • number sense, symbol sense, spatial sense, measurement sense and the capacity to appreciate structures and patterns • a positive attitude towards mathematics learning and an appreciation of the aesthetic nature and cultural aspects of mathematics.	Courses based on this specification should encourage students to: • develop their understanding of mathematics and mathematical processes in a way that promotes confidence and fosters enjoyment • develop abilities to reason logically and recognise incorrect reasoning, to generalise and to construct mathematical proofs • extend their range of mathematical skills and techniques and use them in more difficult, unstructured problems • develop an understanding of coherence and progression in mathematics and of how different areas of mathematics can be connected • recognise how a situation may be represented mathematically and understand the relationship between 'real world' problems and standard and other mathematical models and how these can be refined and improved • use mathematics as an effective means of communication • read and comprehend mathematical arguments and articles concerning applications of mathematics • acquire the skills needed to use technology such as calculators and computers effectively, recognise when such use may be inappropriate and be aware of limitations • develop an awareness of the relevance of mathematics to other fields of study, to the world of work and to society in general • take increasing responsibility for their own learning and the evaluation of their own mathematical development.
Differences	• Reference is made to 'develop in students' a range of abilities – more focused on what is delivered. • No explicit reference is made to the construction of mathematical proofs, although this is implicit in some examination questions and the level descriptors. • Explicit reference is made to the ability to communicate with others. • Explicit reference is made to a positive attitude towards mathematics.	• Reference is made to 'encourage students' to develop abilities – possibly placing more responsibility upon students – more student-centred learning. • Explicit reference is made to generalisation and the construction of mathematical proofs. • No explicit reference is made to the ability to communicate with others, though reference is made in assessment objectives to presentation of results and discussion of assumptions.

	Hong Kong Diploma	CCEA A level
		• Promotes confidence and fosters enjoyment – end of first objective.

Qualification structure

A previously tabulated comparison of structure was circulated to the Group, which is summarised in Table 3 below. In the Hong Kong Diploma, each module is divided into a number of 'units', each on a particular topic. A level modules are similarly divided into 'Topics', indicating the subject matter of each. A detailed comparison of subject content was made by the Group and is shown in Section 4B.5. The difference structures of the awards impinged upon the work of the Group mainly in two ways:

1. In comparing the detailed content of the two awards, a choice had to be made of the combinations of A level modules which it was appropriate and realistic to compare with the Hong Kong Diploma, since it would have been unrealistic to include all possible A level modules, only a proportion of which are studied.

2. Each A level module is individually assessed, so there are more stages to the assessment compared with the Hong Kong Diploma (including the possibility of resits). Assessment is covered in more detail in Section 4B.6 to 4B.9.

The primary comparator was taken to be the CCEA Mathematics award, with only some references to the Further Mathematics award when relevant.

Table 49: Mathematics - comparison of structure

	Hong Kong Diploma Mathematics	CCEA GCE A level in Mathematics
Mandatory Units/ modules	Single 19-unit module	• C1 AS Core Mathematics • C2 AS Core Mathematics • C3 A2 Core Mathematics • C4 A2 Core Mathematics (C1-4 compulsory for A level Mathematics)
Optional units	One chosen from: • Module 1 (Calculus & Statistics) • Module 2 (Algebra & Calculus)	(For A level Mathematics) two chosen from: • M1 AS Mechanics • M2 A2 Mechanics • S1 AS Statistics • S2 A2 Statistics (For A level Further Mathematics) three chosen from: • M1 AS Mechanics • M2 A2 Mechanics • M3 A2 Mechanics • M4 A2 Mechanics • S1 AS Statistics • S2 A2 Statistics

4B.4 Determining size – comparison of Guided Learning Hours

In determination of Guided Learning Hours, the Group took account of the difference in the meaning of this concept in different education systems and curricula did not seek to ascribe an unrealistic precision to relative values. An equal consideration, however, was the fact that study for the Hong Kong Diploma as a whole begins in year 10 and is completed by year 12;

and, in the case of mathematics as a core subject, covers the whole range of abilities across the cohort. The Group agreed that the consequence of this was that some of the material studied and assessed, particularly in the compulsory part, was at UK National Qualifications Framework (NQF) Level 2, rather than at the Level 3 represented by the GCE A level. It was not possible to accurately reflect this in adjusting Guided Learning Hours without more detailed information than was available at the meeting, on time spent on different areas of the curriculum.

In order to make a rough comparison of size, the following were taken into account:

- all or most of the learning objectives for the Hong Kong Diploma were potentially at level 3.
- performance in the compulsory part could be at a lower level depending on the questions chosen and the grade achieved.

Assuming some proportionality between learning hours and examination time on a topic, an evaluation of examination questions suggested that all of the 135 Module 1 and 2 lesson hours contributed to Level 3 Guided Learning Hours, as did around 70% of the time spent on the compulsory part. This 70% equates to 190-240 lesson hours, giving an estimated total of 325 to 375 Level 3 lesson hours for the Hong Kong Diploma as a whole. Given the assumptions involved, this is close to the 360 Guided Learning Hours of the A level.

There was no reason, based on the above discussion, to regard the sizes of the comparison awards as significantly different. Candidate evidence would be required to determine what grade could be achieved by Level 2 learning alone. However, as a result of the lower level of the compulsory part compared with Module 1 and Module 2, it was felt appropriate to compare the compulsory part with the AS level for the purpose of aligning grades, and the compulsory part plus Module 1 or 2, with the full A level Mathematics.

4B.5 Determining size – breadth and depth of content coverage

There was a considerable overlap in content and similarity of depth between the two awards, but with some exceptions as shown. In making these comparisons, the Group bore in mind the following:

- the CCEA A level student chooses six from eight modules, whereas the Hong Kong Diploma student chooses two from three. However, the A level options allow a student to study Mechanics only, Statistics only or one module of each. In this sense the choice is wider in the case of the A level
- little Mechanics is available in the Hong Kong Diploma, but as a result of the above, might not be studied in the A level either
- calculus is not part of the compulsory part of the Hong Kong Diploma and in the view of one higher education representative this would significantly reduce the utility for HE progression of this part on its own. (However, in practice it must always be combined with a module, each of which covers calculus to some extent.)
- initial examination of the Hong Kong Diploma Module 1 suggested that it was comparable to Mathematics at A level, so the A level Mathematics options were used for content and depth comparisons

- initial examination of the Hong Kong Diploma Module 2 examination paper suggested that it was of a difficulty similar to Further Mathematics at A level, so Further Mathematics options were used for content and depth comparisons.

Taking these considerations into account, the Group felt that overall there were no generally significant content or depth differences between the two awards.

Table 50: Comparison of content between Hong Kong Diploma (compulsory part plus M1) with CCEA A level Mathematics

Module/section	Topic	Comments
Content appearing in Hong Kong Diploma but not CCEA A level		
Compulsory part	• Geometry • Complex numbers (elementary) • Linear programming	Geometry content substantial compared to A level
Module 1	• Concept of limit of function • Geometric distribution • Point estimate and confidence interval proportion	
Content appearing in CCEA A level but not in Hong Kong Diploma		
C1-C4 plus S1, S2	• Derivatives of trigonometric functions • Units and dimensions: non-statistical applied maths • Differential equations • Binomial expansion for non-integer values • Hypothesis testing • Integration by parts • Correlation and linear regression	

Table 51: Comparison of content between Hong Kong Diploma (compulsory part plus M2) with CCEA A level Further Mathematics

Module/section	Topic	Comments
Content appearing in Hong Kong Diploma but not CCEA A level		
Compulsory part	• Geometry • Linear programming	Geometry content substantial compared to A level
Module 2	• Differentiation from first principles • Concept of limit of function • Matrices – beyond A level in depth • Determinants – beyond A level in depth	
Content appearing in CCEA A level but not in Hong Kong Diploma		
F1 – F3 plus M1, S1	• Differential Equations • Eigenvalues and Eigenvectors • Polar form of complex numbers • McLauren's theorem	**Module 2 was roughly equivalent to half of C1, C4 and half of F1, F3**

4B.6 Estimating relative demand - comparing assessment models

Assessment structure

Table 52 summarises the assessment structures for the two qualifications.

Table 52: Mathematics assessment structure

Hong Kong Diploma Mathematics	CCEA GCE A level in Mathematics
Compulsory part Examination paper 1, conventional questions (not multiple choice) , 65%, 2.25 hrs examination paper 2, multiple-choice questions,	All modules are assessed through external examination lasting 1.5 hours each. Each module is equally weighted and contributes 16.67% of the total A level score.

35%, 1.25hrs school-based assessment (SBA (one mathematical investigation or problem-solving task; one data handling task)), 15%* **Module 1 (Calculus and Statistics)** Public examination, conventional questions, 100%, 2.5 hours **Module 2 (Algebra and Calculus)** Public examination, conventional questions, 100%, 2.5 hours	

Note: The school-based assessment is not relevant to the current Tariff exercise for mathematics, as it will not be available in the subject until 2012 at the earliest and the timetable for its inclusion has not been finalised.

Use of assessment objectives

In comparing assessment objectives, a difficulty was encountered because of the different styles in which these were expressed in the two qualifications. In the case of the Hong Kong Diploma, especially for the Module 1 and 2 objectives, much less detail was provided than for the A level objectives, and considerable reliance was placed on reference to concepts and principles elsewhere within the Hong Kong Curriculum and Assessment guide for mathematics. Table 53 shows the comparison circulated to the Group, with the conclusions reached on objectives which could be compared.

Table 53: Mathematics assessment objectives

	Hong Kong Diploma Mathematics	Comparable A level Obj.	CCEA GCE A level in Mathematics
Assessment Objectives	**Compulsory part** To test candidates': • knowledge of the mathematical facts, concepts, skills and principles presented in the Curriculum and Assessment Guide • familiarity with and use of mathematical symbols • ability to use appropriate mathematical techniques for solving a variety of problems • ability to communicate ideas and to present arguments mathematically.	A01 A02 A02 & A01 A02 (partly) & A03	**AO1** Recall, select and use their knowledge of mathematical facts, concepts and techniques in a variety of contexts. **AO2** Construct rigorous mathematical arguments and proofs through use of precise statements, logical deduction and inference, and by the manipulation of mathematical expressions, including the construction of extended arguments for handling substantial problems presented in unstructured form. **AO3** Recall, select and use their knowledge of standard mathematical models to represent situations in the real world; recognise and understand given representations involving standard models; present and interpret results from such models in terms of the original situation, including discussion of the assumptions made and refinement of such models. **AO4** Comprehend translations of common realistic contexts into mathematics; use the results of calculations to make predictions or comment on the context; and, where appropriate, read critically and comprehend longer mathematical arguments or examples of applications. **AO5** Use contemporary calculator technology and other permitted resources such as formulae booklets or statistical tables accurately and efficiently; understand when not to use such technology and its limitations; and give answers to appropriate accuracy.
	Module 1 (Calculus and Statistics) To test candidates': • understanding of the concepts, principles and methods in Calculus and Statistics presented in the Curriculum and Assessment Guide • ability to apply appropriate techniques in Calculus and Statistics for solving a variety of problems.	* *	
	Module 2 (Algebra and Calculus) To test candidates': • understanding of the concepts, principles and methods in Algebra and Calculus presented in the Curriculum and Assessment Guide • ability to apply appropriate techniques in Algebra and Calculus for solving a variety of problems	* *	

** Direct comparison not possible because of different styles and level of detail*

Synoptic assessment

It was agreed that The Hong Kong Diploma and the CCEA A level provided similar opportunities for synoptic assessment. In the case of the Hong Kong Diploma, this was through the medium of the Further Learning Unit (Unit 18 of the compulsory part), which includes the objective '…to integrate various parts of mathematics which they have learnt in different areas.' In the case of the A level, this was expressed in the Scheme of Assessment, which specifies that synoptic assessment must form 20% of total assessment, and '…will

address candidates' understanding of the connections between different elements of the subject'. The connections to be made are, for example, between the A2 and AS core content or between optional and core module content.

In comparing the structure, length and amount of candidate support in the examination papers and marking schemes, the Group noted that:

- the total length of the assessment period varied significantly between the awards: 6 hours for the Hong Kong Diploma, compared with 9 hours for the A level
- the Hong Kong Diploma assessments were taken at the end of the compulsory part and the module (i.e. at the end of the course), and covered more material at one sitting that the A level modular assessments, which, moreover, could be re-taken
- the amount of material in the Hong Kong Diploma assessments meant that candidates generally had less time than in A level assessments to answer a question of equivalent difficulty
- 35% of the Hong Kong Diploma compulsory part assessment (or 21% of the whole award assessment) was by multiple choice questions, which were absent from the A level
- more mathematical formulae were provided to A level candidates compared with Hong Kong Diploma candidates.

In terms of the overall assessment burden of the awards, the above factors tended to cancel each other out; the Group concluded that on this basis there was no significant difference between the awards. For example, at the higher-attainment levels for the Hong Kong specification, which would require strong performances on both the compulsory and optional parts, the demands of the Hong Kong examination (wider range of coverage, less time per question, fewer formula provided, no resits) compensated for having fewer examination hours. At the lower-attainment levels there was some concern that some (though not all) multiple choice questions were easy and/or at a lower level than A level. It was suggested that a passing grade could be obtained by answering easy (sub-A level) questions and guessing at the harder multiple choice questions. However, it was felt that, even if this were possible, such students were not likely to progress to the optional modules, and therefore would not be presenting qualifications equivalent to A level.

In order to better determine the relative demand of the two examinations, the Group examined in detail the following sample question papers:

Hong Kong Diploma

- Compulsory part paper 1 (19 questions)
- Compulsory part paper 2 (45 multiple choice questions)
- Module 1 (14 questions)
- Module 2 (14 questions)

CCEA A level

- Module C1 (8 questions)
- Module C2 (8 questions)
- Module C3 (8 questions)

- Module FP1 (6 questions)
- Module FP2 (7 questions)
- Module FP3 (7 questions)
- Module M1 (8 questions)
- Module M2 (7 questions)
- Module M3 (6 questions)
- Module M4 (6 questions)
- Module S1 (7 questions)
- Module S2 (8 questions)

In addition, six example scripts of the Extended Modules were examined for the Hong Kong Diploma, which had been completed by a trial group of Hong Kong A level students (as no Diploma students have yet completed assessments). Although there were no A level scripts available for direct comparison, the experience of the HE representatives enabled them to draw some conclusions about the level of performance demonstrated by Hong Kong students in relation to the requirements of HE. A quick review of the example scripts illustrated a good standard of performance, particularly for the high achievers.

4B.7 Estimating relative demand - comparison of candidate work

No candidate evidence was available for either qualification. Due to this lack of candidate evidence, it was made clear that the Tariff values allocated would be provisional and subject to a review once candidate evidence becomes available.

4B.8 Aligning the grades

Following the evaluation of sample examination questions and scripts as described in Section 4B.6, the Group came to the following conclusions:

- It was appropriate to compare the compulsory part of the Hong Kong Diploma to the AS part of the A level for grading purposes.
- It was appropriate to compare Module 1 and 2 of the Hong Kong Diploma to the A level as a whole for grading purposes.
- Assessment in Module 2 of the Hong Kong Diploma was more demanding than in Module 1 of the same award than in the A level, particularly for the highest grades.

This took into account the standards of the sample examination questions and level of performance shown in the sample scripts for Levels 5** and 3 of the Hong Kong Diploma. As a result of these considerations, grade alignments were made according to the values shown in Table 54.

Table 54: Mathematics grade alignment

Comparable CCEA AS Level grade for the listed component		**Comparable CCEA A level grade for the listed component**	
Grade	Compulsory part	Compulsory part plus module 1	Compulsory part plus module 2
5**	A	A*	
5*	A	A	A*
5	C	B	A
4	D	C	B
3	E	D	C

4B.9 Domain scores

Domain scores allocated by group members prior to the meeting were discussed and minor amendments made. However, Niall MacKay (University of York) was not sufficiently confident in the value of the current process to allocate scores. The resulting scores, shown in Table 55, Figure 8, and

Figure 9 represent all participants (two awarding body representatives and two HE representatives), or two HE representatives alone.

Table 55: Mathematics domain scores (0-5 scale where 0=low; 5=high)

Domain element	Mean score - All		Mean score - HE	
	HK	A level	HK	A level
Use and apply	3.6	3.4	2.5	2.5
Application and analysis of ideas, knowledge and theory	3.6	3.6	3.3	3.4
Synthesis and evaluation	2.6	2.7	1.9	2.1
Logical and critical thinking	2.8	2.8	2.3	2.5
Literacy and language skills	1.1	1.1	0.3	0.3
Numeracy skills	4.1	4.3	3.9	4.1
Personal and social skills	0.5	0.5	0.0	0.0
Learning skills	1.8	1.7	1.2	1.3
Vocational and practical skills	0.7	0.7	0.1	0.2

Figure 8: Mathematics Tariff domain scores (all participants)

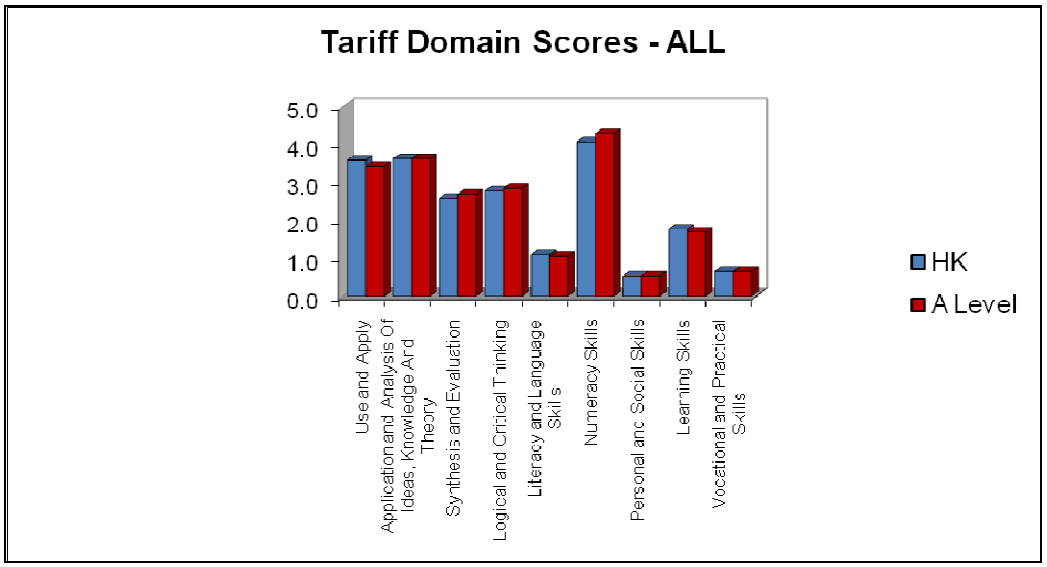
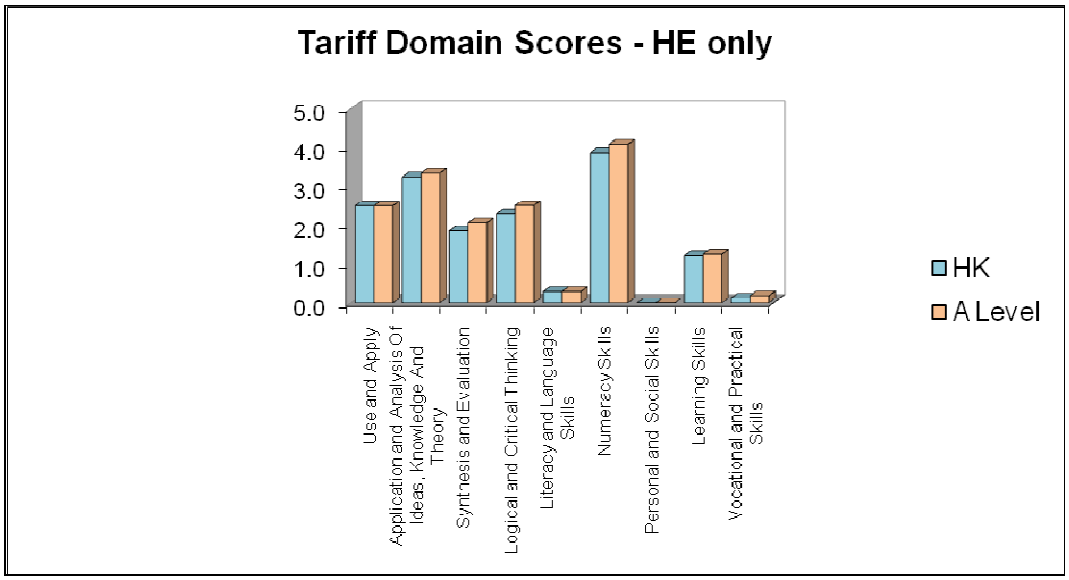


Figure 9: Mathematics Tariff domain scores (HE participants)



As the table and figures indicate, there were very small overall differences between the awards, with a very slight advantage to the A level in five out of nine elements. However this represents a maximum difference in any element of 0.2 points (out of 5) and this was not regarded as sufficient by the Group to suggest a difference in utility for progress to higher education.

4B.10 Recommended allocation of UCAS Tariff points

Having produced the above grade alignment, the Group agreed the following recommended allocation of Tariff points, based on the following factors:

- Differences in aims were not perceived as significant in terms of progression to higher education (section 4B.3)
- There was no reason to regard the sizes of the comparison awards as significantly different. (section 4B.5)
- However, as result of the lower level of the compulsory part compared with module 1 and module 2, it was felt appropriate to compare the compulsory part with the as level for the purpose of grade mapping, and the compulsory part plus module one or two, with the full a level. (section 4B.5)
- With this proviso, the group felt that overall there were no generally significant content or depth differences between the two awards. (section 4B.6)
- It was agreed that the Hong Kong diploma and the CCEA A level provided similar opportunities for synoptic assessment. (section 4B.7)
- The group found no significant difference between the awards in overall utility of the assessment results for progression to higher education. (section 4B.8)
- Domain scores did not suggest a difference in utility for progress to higher education.
- Grade alignment was as indicated in Table 54.

The resulting allocation of Tariff Points is shown in Table 56. The rationale for this is as follows:

The compulsory part is compared with the AS level. Grade 5 of the compulsory part aligns to C at AS level (Table 54), giving 40 points.

Grade 5** of the compulsory part aligns to A at AS level (Table 54), giving 60 points.
Grade 5* of the compulsory part also aligned to A at AS level, but was allocated 50 points to distinguish it from 5**.

In allocating points to the Modules, the group considered that because of the ease of some of the questions of the compulsory part, candidates obtaining a given grade in one of the modules would have achieved one grade higher than this in the compulsory part. This is a crucial consideration and may need to be reconsidered by the group.

For example, Grade 5* in the compulsory part plus Module 1 is considered to be equivalent to an A at A level, equivalent to 120 Tariff points. The Group argued that someone achieving 5* in Module 1 would be likely to achieve 5** in the compulsory part, so the Tariff score for Module 1 itself should be 60, to give a total of 120.

By the same token, Grade 5* in Module 2 was assessed as equivalent to A* at A level (140 points), but the Group argued that someone achieving 5* in Module 1 would be likely to achieve 5** in the compulsory part, so the Tariff score for Module 2 itself should be 80, to give a total of 140.

5** in Module 1 was originally given a Tariff value of 80, to give a total of 140, as suggested as in Table 54, but this was reduced to 70 to give a linear scale. This could be revised.

5** in Module 2 was given a Tariff value of 90, to give a total of 150 with the compulsory part. This was close to the maximum available from an Advanced Extension Award plus an A at A level (160), but was reduced slightly as a separate exam was not involved

Table 56: Mathematics Group recommended allocation of Tariff points

Grade	**Tariff Points**		
	compulsory part	**Module 1 only**	**Module 2 only**
5**	60	70	90
5*	50	60	80
5	40	50	70
4	30	40	60
3	20	30	50

4C LIBERAL STUDIES

4C.1 Prior to the meeting

Prior to this meeting some preliminary work was carried out. Pre-meeting papers were distributed. These required members of the Group to compare aims, content, study hours, relative size and assessment models of the Hong Kong Diploma core subject Liberal Studies with the AQA GCE A level Citizenship, and align the grading systems. In addition, Group members were asked to undertake a preliminary scoring of the qualifications against the UCAS Tariff domains.

4C.2 The Expert Group meeting

The Expert Group then met on one occasion over two days to examine and discuss the evidence listed in Appendix 2 and the preparatory work completed by Group members. This section contains an account of the deliberations of this meeting.

The Liberal Studies group received a presentation from the delegate representing the HKDSE Liberal Studies. The presentation provided an overview of the current structure of the qualification; curriculum aims which mapped to three areas of study expanded on through the use of a module framework.

Table 57: Liberal Studies areas of study

Areas of study	Module
Self and personal development	• Personal development and interpersonal relationships
Society and culture	• Hong Kong today • Modern China • Globalisation
Science, technology and the environment	• Public health • Energy technology and the environment

A major component of the Liberal Studies curriculum area is an independent enquiry study (IES), a school-based assessment which is being introduced to the whole curriculum over time. The IES is a piece of research that can be assessed in one of two ways, a) in a report of no more than 4,000 words, or b) through a 20 minute presentation presenting the findings of the investigation. Candidates opting to deliver a presentation are still required to present a paper (maximum of 1000 words) to support the presentation.

It was explained that it was originally planned for IES to carry a greater percentage, but it required a mind-shift amongst parents who favoured public assessment. The Group acknowledged that this percentage could increase as the qualification develops, and acceptance for this type of assessment is found amongst parents and students.

It was also confirmed that while the IES was likened to the Extended Project, the IES could not be an artefact or performance, as found in the Extended Project, as this was not considered appropriate for the subject.

The examiner for the benchmark award, GCE A level Citizenship, then summarised the main components of the A level programme. The first key element was that the Citizenship A level

was also a new qualification. It was available for first teaching from September 2008. During its development it had built upon the AS in Citizenship but had developed into something quite different. The A level now included active citizen participation and an active citizen case study component.

The active citizen participation element is not included within 'taught time' and is not explicitly assessed. Rather, candidates are required to draw upon their experiences to answer assessment questions within the assessment of Unit 2. Candidates are required to keep a Citizenship Profile which they can take into the examination to remind them of what they have done. The source-based questions in section B of Unit 4 assessment relate to the topic titles in the pre-released material, which allows candidates to undertake some background research. Again, students are expected to draw upon their active citizenship participation. It was reported that this protocol was very different from the proposals for Liberal Studies. There was a concern that if students knew what they would be assessed on they would memorise vast amounts of information. The IES was considered to be a way around this problem.

When discussing the two qualifications, the Group identified another major difference – the weighting of assessment objectives. A level assessment objectives are weighted with an emphasis of knowledge and understanding within the AS component. Assessment objectives are integrated across the assessment within the HKDSE. It was suggested that it was not easy to place a percentage against objectives and for this reason a checklist was used to ensure all objectives were covered within the assessment. It was agreed that this point would be explored deeper later in the proceedings.

After the presentations and questions were completed, the group identified the key features of the two qualifications as tabled.

Table 58: Key features of Liberal Studies and A level Citizenship

Hong Kong Liberal Studies	**GCE A level Citizenship**
• 15 assessment objectives • 3 themes • 270 GLH • IES • 3 year programme • No unit resits • 3 year programme (although academic periods difference to UK education system) • No interim assessments. One assessment point in summer of Senior Secondary 3 • IES	• 4 assessment objectives • 4 units • 360 GLH • Citizenship case study • 2 year programme • Unit resits possible • 2 year programme • Two assessment points at AS level with a further two at A2. Assessments available in January and June • No coursework

The Group considered the similarities and differences as provided within the presentation from the A level examiner and agreed that they were correct and should appear in the report.

Table 59: Similarities and differences – Liberal Studies/Citizenship

Similarities
• The aims of the two specifications are almost identical. • Assessment objectives also have many similarities although couched in different terminology and style. • Both are student-centred in their approach. • Each has a considerable degree of flexibility in approach. • There is a great deal of support material available and being developed.
Differences
• The content is mostly different although there are a few common themes –for example identity, political literacy • Assessment is quite different. More examination for GCE. The IES in HKLS in not repeated in GCE. • Time scale is different – 3 years for Hong Kong Liberal Studies, 2 years for GCE A level. • Teaching time is 270 hours for HKLS, 360 for GCE. 270 includes 90 for IES. • Body of knowledge less for HKLS but the emphasis is put on the application of related concepts and knowledge on the enquiry of issues. • HKLS utilises knowledge from other subjects and is part of an integrated curriculum. GCE Citizenship is stand alone although building on previous work at Key Stage 4.

First teaching of the A level started in September 2008 with first assessment in summer 2010. First teaching of the HKDSE will start in September 2009 with the first assessment in 2012. The Expert Group therefore had no access to candidate evidence, and indeed there was currently no experience of delivery or assessment for either qualification.

From the considerations given at this point and acknowledgement of the preparatory work, it was agreed that both qualifications had some strengths and weaknesses but on the whole were considered broadly comparable and suitable for entry to higher education.

4C.3 Comparison of aims

The similarity in the aims of the qualifications was apparent through the presentations and highlighted within preparatory work. The HKDSE has six aims and the A level has four, as illustrated in Table 60.

Table 60: Liberal Studies/Citizenship comparison of aims

	HKDSE Liberal Studies	**GCE A level Citizenship**
Aims	The aims of Senior Secondary Liberal Studies are: • to enhance students' understanding of themselves, their society, their nation, the human world and the physical environment • to enable students to develop multiple perspectives on perennial and contemporary issues in different contexts (e.g. cultural, social, economic, political and technological contexts) • to help students become independent thinkers so that they can construct knowledge appropriate to changing personal and social circumstances • to develop students in a range of skills for life-long learning, including critical thinking skills and information technology skills • to helps students appreciate and respect diversity in cultures and views in pluralistic society and handle conflicting values • to help students develop positive values	The specification is designed to encourage students to: • develop a critical interest in topical citizenship issues and debates, and encourage independent thinking skills • understand how everyday politics and law work in practice, how inequalities and fairness affect individuals and communities, and how decisions are made in society • develop political literacy and an understanding of democracy and decision making through both academic study and practical action • develop the necessary skills, confidence and conviction to contribute to debates, take action on citizenship issues in their communities and play an active role as effective citizens in public life.

	and attitude towards life, so that they can become informed and responsible citizens of society, the country and the world.	

At this interim stage it appeared that, overall, the HKDSE had a higher number of aims but it was agreed that although the wording and number of aims was different, the intention was the same. Both qualifications developed actively engaged citizens who could identify how political and social actions and decisions affected localities, nationally and globally. It was agreed that the aims of both qualifications was to create well-rounded independent learners, which was seen as a very positive attribute and consequently demonstrated relevance for progression to HE.

The Group very quickly agreed that it was appropriate to ignore the actual number of aims and focus on the content. The HE representatives agreed that the aims were highly relevant, and both qualifications developed the skills and attitudes that aligned with what was being developed in HE. The aims of the two qualifications overlap in many areas, both qualifications seek to develop independent critical thinkers and focus on helping the candidate to become informed, reflective and responsible citizens through appreciation of diversity in terms of views and cultures.

The IES component was seen as a key strength of the HKDSE. It was said that current HE students lack the independent research skills being developed within this module. The group was informed that, to support the independent research element, candidates did receive instruction about methodology and analysis. As such, it was seen to be akin to a mini dissertation and for that reason looked upon very favourably.

Another strength of the HKDSE Liberal Studies, from the opinion of the HE representatives, was that it was a core subject within the large overarching Hong Kong Diploma of Secondary Education and is taken over a period of three years with linear assessment at the end of the course. The HE representatives agreed that this approach was useful to assess an individual's synoptic understanding of the syllabus rather than the modular approach (said to be 'test and forget') as found in GCE A level assessment. In counter arguing this thought the GCE Examiner confirmed that within the new A level structure it was allowed for a substantial synoptic element as evidenced by the following extract from the specification:

> 'Synoptic assessment is included within the A2 units for GCE Citizenship Studies, requiring candidates to demonstrate that they have developed an understanding of the subject which is holistic.
> In order to be able to demonstrate the level of expertise required, candidates are expected to be able to interrelate areas of content and address the requirements at A2 using appropriate concepts, knowledge and skills developed throughout the course.
> Unit 3 builds on the knowledge gained in Units 1 and 2, and Section A of Unit 4 requires candidates to take a global perspective and apply the knowledge they have learnt throughout the course.
> Section B of Unit 4 is particularly synoptic, requiring candidates to apply their learning to the study of a pre-released topic in order to answer questions related

> to that topic. Candidates are expected to draw on and synthesize the knowledge, understanding and skills gained throughout the course. Candidates are required to apply their knowledge and understanding of active citizenship principles learnt at AS to a variety of contexts offered in the A2 question paper.
> At A2, the questions have been designed to test understanding and connectivity through synoptic questions; and to require significantly more extended writing. This will provide greater stretch and challenge for all candidates and will enable the performance of the most able candidates to be identified through the Grade A*.'

It was suggested that a key difference between the qualifications identified at this stage was in the approaches of the qualifications. The HKDSE Liberal Studies programme started from developing self awareness and progressed onto developing a learner's understanding of society and the wider world. The A level syllabus did not have this self awareness and personal development starting point, instead it encouraged learners to become 'active' citizens. These points were merely observations at this stage.

4C.4 Determining size – comparison of Guided Learning Hours

The HKDSE allocates a total of 270 guided teaching hours to the Liberal Studies subject (180 to be given to the modules and 90 to IES project work). The allocation of time is expected to span three Hong Kong academic years of study. The GCE A level is allocated 360 Guided Learning Hours. This allocation of time is expected to span two UK academic years of study.

It was acknowledged that the A level could be delivered in less hours than was specified, and the Liberal Studies qualification expected candidates to spend about double the amount of allocated time to IES (through private study) based on GLH.

The QCA definition of a Guided Learning Hour was presented as:

> 'A notional measure of the substance of a qualification. It includes an estimate of the time that might be allocated to direct teaching or instruction together with the other structured learning time such as directed assignments, assessments on the job or supported individual study and practice. It excludes self-initiated private study.'

It was felt that this definition did not help clarify the situation, so the group considered the structure of the HKDSE and likely timetabling allocation across the three years. It was explained that schools in Hong Kong normally operated a cycle system rather than week system, and the most popular is a six-day cycle with five lessons in one cycle. Each lesson lasts 40 minutes. There are usually 28 cycles for a school year. The six Liberal Studies modules, (180 taught hours) would be split across the three years, while the IES hours (90 taught hours) would only be taught across secondary senior years two and three. It was expected that candidates would receive a minimum of two hours a week teaching on the subject material and a minimum of one hour a week on the IES. This approach would allow for the four core subjects plus electives to be delivered within the stipulated timeframe.

This information was found to be useful and it was suggested that the three hours a week suggested timetabling was similar to the proposed time spent per week on the A level subject. It was expected that about four hours might be spent per week on Citizenship, although as neither qualification had been completed at this stage it was felt that there was no strong evidence to confirm that these supposed hours were correct in every school.

The issue of additional directed time required for the IES component was discussed. It was felt that it was difficult to quantify how much time an individual might spend on the research project, and this was comparable to GCE Citizenship where students are expected to engage in active citizenship activity in addition to the identified GLH. The time spend on this can vary between students.

The Group was then reminded about the GLH proposed for each qualification. It was agreed that using the hard evidence detailed within the documentation a crude percentage, based on guided learning hours, indicated that the Liberal Studies qualification was 75% the size of the Citizenship A level. It was felt that a reliance on GLH to determine size should be treated with caution.

4C.5 Determining size – breadth and depth of content coverage

In order to undertake this task the group summarised the structure of the two qualifications. The HKDSE Liberal Studies programme consists of six modules which cover 12 themes, and GCE Citizenship is a four unit award as shown in Table 61. The table shows the topics and modules of each qualification, not their relationship to one another.

Table 61: Liberal Studies/Citizenship content

Hong Kong Liberal Studies	GCE A level Citizenship
Module 1: Personal Development and Interpersonal Relationships	**Unit 1: Identity, Rights and Responsibilities**
• Understanding oneself • Interpersonal relationships	• What does it mean to be British? • Are we all equal citizens? • What are my rights and responsibilities? • How are my rights protected?
Module 2: Hong Kong Today	**Unit 2: Democracy, Active Citizenship and Participation**
• Quality of life • Rule of law and socio-political participation • Identity	• Who can make a difference? • How can I make a difference? • What is crime? • What is justice?
Module 3: Modern China	**Unit 3: Power and Justice**
• China's reform and opening-up • Chinese culture and modern life	• Who speaks on our behalf? • How is the UK governed? • Active citizenship skills and participation
Module 4: Globalisation	**Unit 4: Global Issues and Making a Difference**
• Impact of globalisation and related responses	• Universal human rights • Global issues • Active citizenship: making a difference
Module 5: Public Health	
• Understanding of public health • Science, technology and public health	

Module 6: Energy Technology and the Environment
• The influences of energy technology • The environment and sustainable development

The Group conducted substantial content mapping, as evidenced in Table 62, to ensure that appropriate comparisons of content could be made. It was felt by the Group that the aims of the qualifications were not content specific, thus, the focus of the content differed greatly.

To understand the constituent parts of the qualifications better, it was considered important to identify the similarities and differences of the content. The HE representatives were also asked to comment on the usefulness (utility) of the identified themes to support progression to HE.

The HE representatives identified the topics utility in terms of how 'useful' and 'essential' they were in developing skills and knowledge for progression to HE. The first three themes were deemed both useful and essential because they required students to be self-reflective and relate experience to learning. Given that this is becoming more widespread it is moving towards 'essential' to illustrate it is more than just 'useful' within HE.

Table 62: Liberal Studies/Citizenship curriculum mapping

A level themes	Appears in Liberal Studies	Where – Module and Theme	Utility
Unit 1: Identity, Rights and Responsibilities			
What is a citizen	Y	M2T3	Useful and essential
What citizenship means	Y	M2T3	Useful and essential
Define identities	Y	M2T3, M2T1	Useful and essential
Migration	Y	M3T1, M3T2, M4,	Useful
Multiculturalism	Y	M3T2, M4, M5T1	Useful
Stereotyping	Y	M2T3, M1T2, M5T1	Useful
Prejudice/discrimination	Y	M2T3, M4, M5T1	Useful
Disadvantage	Y	M2T1, M3T1, M3T2	Useful
Poverty	Y	M2T1	Useful
Government Steps	Y	M2T2, M4T1, M3T1	Useful
Policy	N		Useful
What are rights	Y	M2T2, M1T1, M3T1	Useful
What rights do I have?	Y	M3T1, M1T1, M2T2 M3T2 Appropriate behaviours and traditions.	Useful
Legal framework	Y	M2T2, M3T1 (limited)	Useful
Courts	Y	M3T1,M2T2, M6T2	Useful
Unit 2: Democracy, Active Citizenship and Participation			
Concept and nature of power	Y	M2T2, M3T1	Useful
Economic power	Y	M3T1,	Useful
Influence of media	Y	M2T2	Useful
Citizen and political power	Y	M2T1, M3T1, M2T2, M4	Useful
Taking part	Y	M2T2	Useful
Electoral Process	Y	M2T2	Useful
Pressure group	Y	M2T1,M2T2,M2T3,M6T2	Useful
Citizens bringing about change	Y	M2T2, M2T3 M6T2	Useful

Successful campaigning	Y – limited	M2T2 (limited)	Useful
Impact on politics	Y – limited	M2T2 (limited)	Useful
Active citizenship	N	The key word is active although it is the active citizen participation and active citizen case study components of the A level programme. What they choose to do in this unit 2 could be picked up in IES.	(increasingly essential)
Unit 3: Power and Justice			
Power and justice	N		Useful
Who speaks	Y	M2T2, M3T1	Limited usefulness
How governed	Y	M2T2, M3T1	Limited usefulness
Unit 4 - Global Issues and Making a Difference			
Universal rights	Y	M3T1, M4, M2T1	Useful
Human rights abuse	N	Not explicit	Useful
Conflict and resolution	Y	M3T1, M4	Useful
Trade and environmental issues	Y	M6T2, M4, M6T1	Useful

The Group was mindful that the table above only mapped the HKDSE Liberal Studies content onto the GCE A level Citizenship framework and we had not identified whether there were any topics in the Liberal Studies qualification that were not covered in the A level. This meant that potentially it was not possible to identify all of the similarities and differences between the content of the qualifications. Due to time constraints, it was agreed that it was an adequate comparison. It allowed for a Group summary that of the six HKDSE modules, Module 2 Theme 2 (Rule of law and socio-political participation) mapped to a large percentage of the GCE Citizenship curriculum. The Group was not surprised by this and felt that this was a key element of the purpose of both qualifications.

By contrast, the HKDSE Liberal Studies Module 5 Themes 1 and 2 (Understanding of public health and science, technology and public health) was only identified in the mapping process once. The module was considered unique to the Hong Kong qualification, and was seen to be a useful but not essential area of study in terms of supporting progression to HE as determined by the HE representatives.

Pragmatically it was hard to specifically identify the content that was unique to the individual programmes because the structure and assessment approaches were different. However, it was agreed that the gist of the content within each qualification mapped, that is that the concepts (of politics, sociology and judicial systems), values (of citizenship), and skills (analytical and critical thinking) developed were comparable but in different contexts. For example, the issue of crime is not an explicit theme or module within the HKDSE.

The exercise did highlight that the A level component did not have a comparable independent study. The active participation case study whilst interesting did not develop the same set of skills of independent learning.

The Group summarised the exercise by agreeing that all of the mapped content was useful and essential for completion of the qualification, but that it was not all essential for

progression. It was felt that it would depend upon what the candidate wanted to study further at HE.

The judgement of the Group was that, overall, there was no significant difference in terms of volume of content. This supported the idea in the previous section that the sizes of the qualifications were comparable, but the issue was muddied by GLH.

A considerable core of content was similar with variations of subject focus. The GCE A level content is more global, whereas the Hong Kong Diploma is more regional, reflecting the origin of the qualification.

4C.6 Estimating relative demand – comparing assessment models

It was quickly appreciated that, through the preparatory work, all Group members had noted the difference between the HKDSE Liberal Studies and the GCE Citizenship was their respective assessment objectives (Table 63).

The most obvious difference again came down to the number of objectives and the presentation and terminology used. However the greatest difference was actually seen to be that A level objectives were weighted but that was not the case with the assessment objectives within the HKDSE Liberal Studies qualification.

Table 63: Liberal Studies/Citizenship assessment objectives

HKDSE Liberal Studies	**A level Citizenship**
1. Demonstrate a sound understanding of the key ideas, concepts and terminologies of the subject. 2. Make conceptual observations from information resulting from enquiry into issues. 3. Apply relevant knowledge and concepts to contemporary issues. 4. Identify and analyse the interconnectedness and interdependence amongst personal, local, national, global and environmental contexts. 5. Recognise the influence of personal and social values in analysing contemporary issues of human concern. 6. Draw critically upon their own experience and their encounters within the community, and with the environment and technology. 7. Discern views, attitudes and values stated or implied in any given factual information. 8. Analyse issues (including their moral and social implications), solve problems, make sound judgements and conclusions and provide suggestions, using multiple perspectives, creativity and appropriate thinking skills. 9. Interpret information from different perspectives. 10. Consider and comment on different viewpoints in their handling of different issues. 11. Self manage and reflect upon the implementation of successive stages of the enquiry learning process in terms of time, resources and attainment of the objectives of the enquiry.	**AO1 Knowledge and Understanding (25%)** Demonstrate knowledge and understanding of specific citizenship issues (problems, events, concepts, ideas, processes and opinions). Relate subject knowledge and understanding to citizenship issues using a range of real and topical examples. **AO2 Analysis and Evaluation (25%)** Analyse issues, problems and events in relation to the citizenship concepts and topics studied. Evaluate information, views, opinions, ideas and arguments and assess their validity. **AO3 Communication and Action (35%)** Select, organise and present relevant information and arguments clearly and logically, using specialist terminology. Construct and advocate reasoned, coherent arguments with conclusions, drawing on evidence of a candidate's own participation and actions within the study of citizenship. **AO4 Synthesis (15%)** Synthesize knowledge, ideas and concepts from different areas of the subject in order to generalise, argue a case or propose alternative solutions.

12. Communicate clearly and accurately in concise, logical, systematic and relevant way. 13. Gather, handle and analyse data and draw conclusions in ways that facilitate the attainment of the objectives of the enquiry. 14. Demonstrate an understanding and appreciation of different cultures and universal values. 15. Demonstrate empathy in the handling of different issues.	

The Group felt it was possible to identify a correlation between the majority of the objectives as most of the fifteen objectives within Liberal Studies were contained with the four objectives within Citizenship, even though the different terminology did not allow for direct mapping. There was a difference in enquiry element as found within the HKDSE Liberal Studies. The HKDSE Liberal Studies objectives 11, 14 and 15 related to IES which were not apparent in GCE Citizenship. The Group agreed that, taking the IES as a separate component, the assessment objectives between the two programmes were comparable to each other.

Assessment model

Discussion next turned to arrangements for and features of the examinations. Again much of the conversation was centred on what was identified from the preparatory work. Straight comparison showed that there was more assessment time in the GCE A level (Table 64).

Table 64: Liberal Studies/Citizenship assessment models

HKDSE		
Paper 1: Data-response questions	50% of the overall grade	2 hrs
Paper 2: Extended-response questions	30% of the overall grade	1.25 hrs
Independent enquiry study Max 4,000 words or 20 minute presentation with submission of 1,000 words	20% of the overall grade	90 GLH
Total		**3.25 hrs + 4,000 words (max) or** **3.25 + 20 minute presentation + 1,000 words (max)**
A level		
Unit 1 Written paper.	20% of the overall grade	1.25 hrs
Unit 2 Source-based question and mini-essay plus structured question on active citizenship participation. Candidates bring their active citizenship profile into the exam.	30% of the overall grade	1.5 hrs
Unit 3 Structured questions in two sections.	25% of the overall grade	1.5 hrs
Unit 4 Structured questions plus source-based question on active citizenship. Source topic released in advance to allow research. Available in June only.	25% of the overall grade	1.5 hrs

Total	**5.75 hrs**

The A level assessment approach relied upon external assessment. For the assessment in Unit 2, students are required to answers questions that draw specifically on their citizenship activities. Each student has to complete an active citizenship profile (as detailed within the qualification overview), bring it to the examination and use this information to analyse and evaluate his/her own evidence and reflection in response to the questions set. The assessment in Unit 4 requires students to study some pre-released topic information and draw on some research.

The Liberal Studies assessment consists of two externally moderated examinations and an internal assessment through the IES. The external assessment consists of two papers covering the content of the whole specification. Paper 1 lasts for two hours and includes three data-response questions. The data presented defines the scope of the question and subject matter, and reflects the nature of the issues involved.

The paper aims to assess abilities such as identification, application and analysis of given data. This examination paper counts for 50% of the overall score. The second examination paper (Paper 2) is 1.25 hours long and contains three essay type questions. Candidates are expected to answer one of the questions; this is a substantial writing task. Each question provides a wider context for students to demonstrate various skills, such as drawing critically on relevant experience, creative thinking, and communicating in a systematic manner. The second paper counts for 30% of the overall grade. The school-based assessment (IES) counts for 20% of the overall grade.

The IES is an individual research project undertaken by a candidate on a topic of their choice throughout the last two years of the course. The IES has its own assessment framework and was likened to the Extended Project. At each stage, students are required to perform different tasks and are assessed on both task and process components. The Group agreed that the demand of IES more than compensated for the shortfall in the examination assessment time.

Table 65: Assessment framework of the IES

Stage	Assessment items ('task' & 'process')	Weighting
1	Project proposal	25%
	Process	
2	Data collection	25%
	Process	
3	Product	50%
	Process	

The Group noted that both specifications provided a range of assessments, including data response, short questions, and longer guided essay response. Both specifications required candidates to evidence investigation skills and identify the impacts of these issues, but in difference ways. The GCE A level assessed this through the pre-released topic research conducted in Unit 4 while the HKDSE took this a stage further with the IES component.

As a summary it was noted that HKDSE Liberal Studies was an issue-based study course which means that the modules are designed to be studied and assessed in an interconnected way. The examination questions are not therefore set by topic. By contrast, the Citizenship A level examination papers are divided into the four units, reflecting the structure of the specification. At A2, the questions are designed to test understanding and connectivity through synoptic questions and so require extended writing. Though the assessment modes of the two assessments are not completely the same in terms of format, the effectiveness of assessing knowledge and understanding that the assessments achieve is comparable.

From the opinion of the HE representatives, the strength of the HKDSE Liberal Studies lies within its linear structure. The Hong Kong Diploma students do not know what will be in the examinations so they are expected to pull together all that they have learnt.

4C.7 Estimating relative demand - comparison of candidate work

Both the HKDSE and the A level are new qualifications so no candidate evidence was available for either. Due to this lack of candidate evidence, it was made clear that the Tariff values allocated would be provisional and subject to a review once candidate evidence becomes available.

4C.8 Aligning the grades

The HKDSE Liberal Studies grades are based on numerical values, and have five levels of performance (1 – 5), with 5 being the highest, to illustrate what level of attainment a candidate obtains. The HKDSE Level 5 has two further grades; 5* and 5** although there are no level descriptors for these levels.

It was indicated that Levels 4 and 5 in the HKDSE would be set with reference to grades A-D in the Hong Kong A level. However, it was understood that the current Hong Kong Liberal Studies is an AS subject and does not have an A level equivalent. Grading standards for Liberal Studies HKDSE, will be conducted with reference to:

- level descriptors which were derived by considering the academic rigour of the Liberal Studies scripts used in the current HKALE
- overall grading statistics for HKALE.

The Group asked for further clarification about the statistical moderation of grades. It was explained that grade moderation will be based on public examination performance. A whole centre's moderation could move up and down accordingly.

It was reported that within the A level grading structure similar referencing exercises are conducted. Statistical information from previous years is used to inform and assist with the boundary setting process. It is then used to identify a likely range of marks within which the boundaries are likely to fall. Examiner judgements are then made within the awarding committee using well established procedures. This is further detailed in the AQA document *A basic guide to standard setting* available online at www.aqa.org.uk.

The Group noted that within the A level E/U boundary judgements are made using actual marked candidate scripts. A group of examiners then make judgments about where the boundary will fall. This process is then applied to the A/B boundary, and the distribution of grade boundaries between these two extreme values is then done arithmetically.

Some time was spent considering the specifications to align the level/grades during which time the HKEAA representative referred to his preparatory work as a useful guide. The Group received copies of the preparatory work and agreed that the comparisons were appropriate and should be detailed within the report.

Table 66: Comparison of lower performance descriptors

Liberal Studies **(Level 2/3 performance descriptors)**	**Citizenship Studies** **(Grade E/U boundary performance descriptors)**
• Show basic knowledge and understanding of the key ideas and concepts of the subject by applying relevant knowledge and concepts to simple issues in particular contexts (L3). • Identify evidence, demonstrate tolerance towards particular views (L2). • Consider and interpret briefly the interdependence among personal, local, national and global issues from some perspectives (L2). • Describe viewpoints and give own opinions and suggestions supported by a few examples (L2).	• Demonstrate a basic knowledge and understanding of citizenship issues. • Relate subject knowledge and understanding to citizenship issues using examples with variable success. • Attempt to select, organise and present information and arguments with some reasons and making accurate use of some specialist terminology. • Begin to synthesize knowledge, ideas and concepts from different areas of the subject in order to generalise, argue a case or propose alternative solutions.

The main issue with the alignment of grades was that the comparison chart provided (Table 63) crossed two HKDSE level boundaries (Levels 2 and 3). Using the lowest common denominator it was agreed that based upon the evidence presented, and the fact that more Level 2 descriptors mapped to the E/U boundary, the HKDSE Level 2 aligned with the boundary between GCE grades E and U.

Turning to the GCE A level A/B boundary, comparability was also found at the top level of the two assessment systems. Again using the tabled information from the HKEAA representative the Group found that the A/B boundary aligned to the Level 5 of the Hong Kong Diploma (

Table 67).

Table 67: Comparison of higher performance descriptors

Liberal Studies **(Level 5 performance descriptors)**	**Citizenship Studies** **(Grade A/B boundary performance descriptors)**
• Show comprehensive knowledge and understanding of the key ideas and concepts of the subject by applying relevant knowledge and concepts to a diverse range of complex issues in particular contexts. • Solicit and conceptualise evidence and show respect for evidence, demonstrating open-mindedness and tolerance towards a wide range of views and values. • Interpret and analyse coherently the interdependence among personal, local, national and global issues from different perspectives. • Communicate ideas in a concise, logical, well-balanced and systematic way. • Evaluate various viewpoints and synthesize own opinions and suggestions supported by logical arguments and sufficient examples.	• Demonstrate detailed and wide ranging knowledge and understanding of specific and relevant citizenship. • Make perceptive observations that relate subject knowledge and understanding to citizenship issues, using an extensive range of real and topical examples. • Offer a detailed analysis of complex issues, problems and events in relation to the citizenship concepts and topics studied. • Select, organise and present relevant information to make compelling and persuasive arguments that balance different viewpoints clearly and logically, making accurate use of specialist terminology. • Synthesise wide ranging and complex knowledge, ideas and concepts from different areas of the subject in order to make generalisations, develop sophisticated arguments and explore multiple ideas and alternatives.

It was noted that there are currently no descriptors or established standards for Level 5* and 5**. When considering the alignment of Levels 5* and 5** it was said that if Level 5 is a boundary between A and B, then 5* could be aligned with the A grade and 5 could be aligned with a grade B. Without actual scripts the Group were unable to confirm this and this issue would need to be substantiated once candidate evidence became available.

It was also confirmed, by the quality assurance representative, that as the group had aligned the A/B boundary to Level 5 and the E/U boundary to Level 2, then logically the other levels could be determined arithmetically.

4C.9 Domain scoring

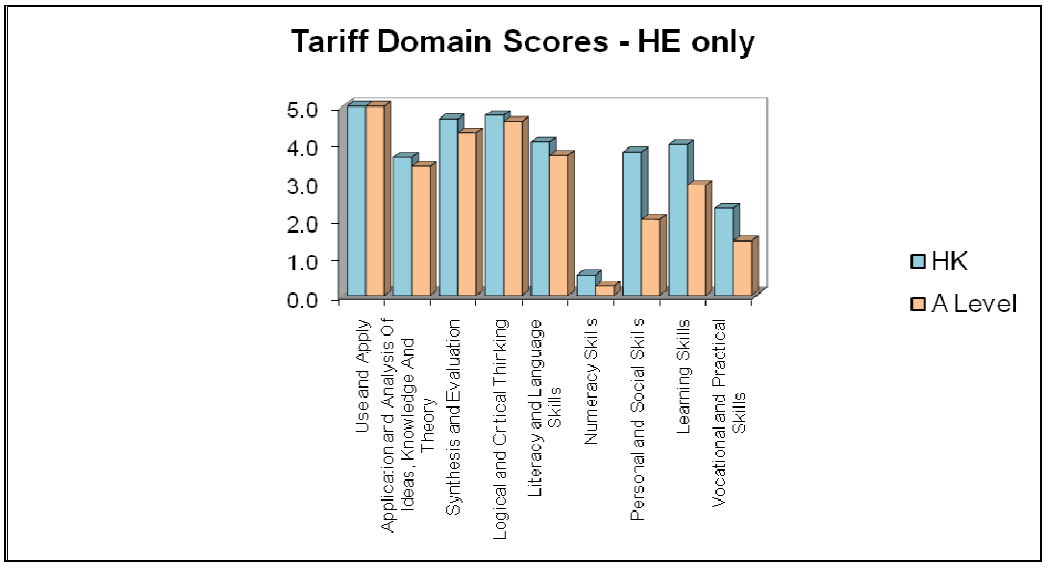
Members of the Group had undertaken preliminary scoring against each domain, and the process consisted of assessing the original scores, on the basis of the greater understanding from the previous tasks, and obtaining rationales to justify the final decision.

The scores previously collated were viewed and it was agreed that the two qualifications showed the same pattern or shape, confirming that each was providing evidence of knowledge, understanding and skills associated with successful transition into HE. In the instances where Liberal Studies scored higher than Citizenship, the difference between the scores was only marginal. It was agreed that the differences, however marginal, appropriately reflected the increased opportunity for candidates to develop their skills within the Liberal Studies qualification through the IES component.

The scores initially presented to the Group were those of the HE representatives. While the group was curious to view the graph using the responses of all participants, it was acknowledged that the graphs were almost identical and agreed that the graph below reflected the ‘shape and feel’ of skills development. The two qualifications showed the same

shape and provided the Group with additional evidence about the knowledge, understanding and skills being developed.

Figure 10: Tariff domain scores – Liberal Studies/Citizenship



The Group discussed the differences noted within the domains of personal and social skills and learning skills and agreed that it was appropriate for the HKDSE Liberal Studies to score higher, because some of the skills needed within the IES research component are not assessed in GCE Citizenship.

It was agreed that the two qualifications broadly showed the same shape. The high scores confirmed that each provided appropriate opportunities to develop and evidence the knowledge, understanding and skills associated with successful transition into HE.

Overall, the qualification scores were similar, with a total of the mean scores of 32.7 for the Hong Kong Diploma and 27.6 for GCE A level (out of a possible 45). The Group concluded that the difference between the qualifications in terms of domain scores was due to the IES component; notwithstanding this difference both qualifications had real utility for progression to higher education.

4C.10 Recommended allocation of UCAS Tariff points

In order make a Tariff point recommendation it was necessary to summarise what had been previously determined in respect of aims, size, assessment and grade alignment. It was agreed that there were certain similarities between the two qualifications, such as the intention of aims, some subject content and the mode of assessment, although it was recognised that there were some differences in the length of the qualifications and the duration and frequency of the assessment.

Another major difference was that the IES research project develops different skills than A level Citizenship, as recognised within the domain scoring process. It was agreed that due to

this IES component, the Liberal Studies qualification warranted an 'uplift' in the weighting assigned when comparing GLH from 75% to being the same size as the A level.

Drawing upon the rationale used to align grades the Group concluded that the HKDSE Liberal Studies should be awarded UCAS Tariff points as follows:

Grade 5	120
Grade 4	
Grade 3	
Grade 2	40

The Group did not allocate values to the 5* and 5** as it was confirmed that this would need to be discussed within the final plenary session.

Due to the lack of candidate evidence, it was made clear that the Tariff values allocated to the HKDSE Liberal Studies qualification would be provisional and subject to a review once candidate evidence became available.

4D BIOLOGY

4D.1 Prior to the meeting

Prior to this meeting some preliminary work was carried out. This included a mapping of the Hong Kong Diploma in Secondary Education Biology against the OCR GCE A level in Biology; reports from three HE representatives highlighting similarities and differences between the two qualifications; and comparative studies from a representative from each awarding body. Pre-meeting papers were distributed, requiring members of the group to compare aims, content, study hours, relative size and assessment models of the Hong Kong Diploma in Secondary Education (HKDSE) Biology and that of the OCR GCE A level in Biology.

4D.2 The Expert Group meeting

The Expert Group met over two days on the 3 and 4 February 2009 to examine and discuss the preparatory work completed by Group members. This section contains an account of the deliberations of this meeting.

The opening session provided an opportunity for the Assistant General Manager – Assessment Development, Hong Kong Examinations and Assessment Authority (HKEAA), and the Chair of Examiners for GCE Biology to present their qualifications, and for Expert Group members to seek clarification about general issues in relation to the awards.

It was noted that both qualifications are new and that therefore no candidate evidence is currently available. In terms of setting standards, both qualifications have predecessor qualifications which provide standards which will be carried forward. In 2012, the methodology for setting the initial standards for the Hong Kong Diploma will involve the use of level descriptors, where “level” means the equivalent of “grade” in A level.

The GCE A level in Biology is a new specification reflecting a number of changes, including the removal of coursework and a new approach to content to ensure comparability across all A level qualifications. The GCE A level Biology also includes the study of the nature of scientific knowledge and enquiry an area entitled ‘How Science Works’ and aims to develop particular skills, including the collection of evidence, theorising, modelling, validation, interpretation of data and peer reviewing.

4D.3 Comparison of aims

The Expert Group considered the aims and purpose of the qualifications and discussed the relative strengths and weakness of these aims in terms of their utility for progression to HE. The Group concluded that the aims of the two qualifications are very similar, particularly with the introduction of the ‘How Science Works’ element of the A level which maps closely to the extended investigations area of the Biology component of the HKSDE.

The Group felt that both qualifications aim to produce students with skills which will enable them to communicate their knowledge and that both qualifications have a strong emphasis on ‘how science works.’ Both qualifications have pure and applied elements, which aim to produce students with the ability to communicate their knowledge as well as develop an

understanding of biological principles. It was felt that the HKDSE was more explicit in its aims relating to citizenship, whereas this was more embedded in the A level curriculum within the ethical learning outcomes rather than as an over-arching aim. This was balanced by a feeling that the A level was more explicit in its assessment of reliability, validity and credibility of evidence than the HKDSE.

The HE representatives felt that there was little natural history taught in either qualification, and it was confirmed that whilst this had been an intrinsic part of the old Hong Kong A level, the emphasis on natural history had diminished with the revised curriculum for the new HKDSE. The OCR Chair of Examiners for GCE Biology highlighted to the Group that the natural history element within the new A level was deemed to be intrinsic within the biodiversity of life unit of the AS but was not explicitly referred to as an aim.

There was a consensus that the aims of the two qualifications are sufficiently similar to be regarded as equivalent for the purposes of the benchmarking process.

The Group noted significant differences in the context, structure and delivery of the two qualifications. Biology in the Hong Kong Diploma is an elective within the large overarching Hong Kong Diploma of Secondary Education and is taken over a period of three years with linear assessment. The biology specification in the HK Diploma consists of a compulsory part with four sections and an elective part with a choice of two out of four electives. The structure is outlined in Section 2 above.

The GCE A level is a freestanding two-year programme structured into AS and A2 components, each with three units. AS is assessed at a lower level than A2 and forms a standalone qualification as well as being the first half of the A level. The assessment is modular and there are opportunities for candidates to resit one or more units to improve their overall performance. In practice, there is flexibility in delivery and some centres might choose to adopt a linear approach to assessment. The Qualifications and Curriculum Authority (QCA) requires both A2 units to be synoptic. The structure is outlined in Section 3 above.

4D.4 Determining size – comparison of Guided Learning Hours (GLH)

The Group were asked to consider two key issues in relation to the Guided Learning Hours: the actual difference in the number of hours and whether this difference was comparable in the coverage and breadth.

At first sight, the qualifications appeared to be imbalanced in terms of learning hours:

- HKDSE: 270 guided teaching hours (GTH)
- GCE A level: 360 GLH

Theoretically, this suggests that the HKDSE is three quarters of the size of the GCE A level and some extensive deliberations ensued as to the definitions of ‘Guided Learning Hours’ and ‘guided teaching hours’. The Group were informed that the QCA definition of a Guided Learning Hour’ is a notional measure of the substance of a qualification, and the general opinion was that the extended definition still remained fussy. However, when the hours were broken down into what constituted time spent in the classroom and homework, the two

qualifications were found to have very similar learning hours. In the HKDSE, the 270 GTH includes contact time and classroom-based activities. Field trips, homework and research are not included in the total number of hours. When homework was excluded from the total number of GCE A level hours, actual taught hours in the classroom amounted to 280. Therefore, the opinion of the Group was that students of both qualifications would undergo similar learning experiences, and therefore the two qualifications were judged to be similar in size in terms of learning hours.

4D.5 Determining size - breadth and depth of content coverage

The content of the two qualifications was comparable, with a large amount of commonality in the core concepts despite some of the individual topics being different. The HE members felt that the largest differences existed in the following topic areas:

Present in HKDSE but not in A level:

- sexual reproduction for humans
- sexual reproduction for flowers and plants
- growth and development in plants and animals
- eye and ear physiology
- gastro-intestinal structure and function.

The OCR representative explained that some aspects of the above areas were incorporated into the Human Biology A level. The growth and development of plants and animals were deemed to be implicit within the syllabus.

Present in A level but not in HKDSE:

- animal behaviour
- statistical analysis of data.

In terms of depth, the HE representatives were very impressed with the breadth of the HKDSE. It was felt that the GCE A level specification lists the assessable learning outcomes very specifically and explicitly, so that the depth of treatment is very clear. The HKDSE curriculum adopts a more open and flexible approach which is intended to avoid restriction of teaching and learning. The HE members liked the layout of the HKDSE in terms of prescribed topic areas, and the appropriate skills to be achieved listed as learning outcomes. The HE representatives felt that the topic areas in the HKDSE were taught according to the biological subject itself rather than its application, so while the GCE would take an issue and explore areas of biology within that issue, the HKDSE taught the biology topics for their own sake, and this was felt to be closely aligned with how the subject is treated in HE. Students doing the HKDSE might more easily recognise the topics they have covered in an HE syllabus, than someone who has done the new GCE A level. It was also felt that the HKDSE provides more breadth in that it seemed to reach further than the OCR, covering some aspects missing from the latter (see above). In discussion it was felt that because of this breadth, some topics were covered in less depth. It was not however suggested that one qualification was better than the other because of this; just somewhat different.

In making comparisons, differences in structure had to be taken into account where the HKDSE curriculum is divided into a compulsory part and an elective part in contrast to the mandatory six units in the GCE A level specification. The compulsory part of the HKDSE contains the majority of the biology content (200 hours).

In considering the above and the balance between breadth and depth, the Group's judgment was that overall there was no significant difference in terms of content, and the HE members deemed the acquisition of skills as being more important than content. It was therefore decided that it would be helpful for the Group to discuss what the HE representatives deemed as being important and useful skills for progression to HE, ahead of the domain-scoring exercise, and to look at the extent to which these identified skills would be developed by the two qualifications.

Table 68: Biology – comparison of opportunity for skills preferred by HE

Skills	HKDSE		GCE A level	
	Opportunity	Assessment	Opportunity	Assessment
Critical evaluation	xx	xx	x	xx
Facts	x	xx	xx	xx
Independent learning	xx	x	x	-
Scientific language	xx	x	xx	xx
Teamwork	xx	-	xx	-
Oral communication	xx	x	xx	-
Reading & interpretation	xx	xx	xx	x
Constructive criticism	xx	xx	xx	xx
Desire/enthusiasm	xx	-	xx	-
Numeracy	xx	x	xx	xx
Extended writing	x	x	x	x
Synopticity	xx	x	xx	x

Note: x = present to an extent, xx = fully present

The HE members felt that critical evaluation skills would be more developed in the HKDSE as that the longer (and therefore less intensive) time span of the HKDSE would allow greater opportunity for reflection and analysis. The HKDSE presents more opportunities for individual reading, investigations and projects, which should allow students to think and critically evaluate, whereas the acquirement of facts would be more focused in the GCE A level due to the greater depth of study necessary.

In terms of independent learning, this was considered to be more present in the HKDSE's non-practical assessment task whereas over-prescription, it was felt, would restrict the acquirement of this particular skill in the GCE A level. The HE members were very positive about the extent to which numeracy skills were tested in the GCE A level, but felt that neither qualification provides much opportunity for extended writing.

There had been some discussion regarding the boundaries between S3 and S4 and assurance was required from HE members that students applying to HE would be at the same level as a UK student. The HKDSE representative stated that the situation would mirror that of the past, whereby students studying the HK A level would have to make up the 'missing' knowledge between that of the HK A level and the GCE A level. The Group felt that the extent to which both qualifications were synoptic was not affected by the fact that one qualification was taken over two years and one over three years, although there was some

concern that this may mean some of the earlier modules could potentially be forgotten, especially in an all or nothing final exam.

4D.6 Estimating relative demand – comparison of assessment models

Assessment objectives

Although the assessment objectives for the two qualifications are structured differently, the Group felt that the three assessment objectives in the GCE A level are all reflected in the HKDSE and are closely aligned with the aims of the subject as set out in the HK Diploma specification. In both, candidates are assessed on their ability to:

- recall and show understanding of facts and concepts in biology
- apply knowledge to unfamiliar situations – to explain phenomena and observations, to solve problems, to make choices and judgments and to understand the applications of biology to daily life
- analyse and evaluate issues, evidence and processes
- plan and conduct scientific investigations, using the appropriate methods
- show proper practical skills and techniques
- record and present data or observations with appropriate accuracy and precision
- interpret and analyse data and results, make deductions and draw appropriate conclusions, and evaluate the methodology used
- select, organise and communicate ideas and information clearly and logically using appropriate formats.

Assessment models

Table 69: Comparing assessment models for the HKDSE and GCE A level

Assessment method	HKDSE	GCE A level
Essays/extended writing	8-10% Essay-style (1.5 sides) 30 mins	Depends on unit Essay-style (1.5 sides)
Multiple choice	18% 30 mins 36 questions	-
Practical & non-practical	SBA First 2 yrs: 20% (practical task) 3rd yr: 14% (practical tasks) and 6% (non-practical tasks which would include essays & extended writing)	AS – 20% A2 – 10%
Length of exams	3.5 hrs (30 mins allocated to MCQ – 14%) Paper includes an essay question	AS - 2hrs 45mins A2 – 2hrs 45mins
Structured questions	32-34%	Depends on unit
Internally/externally assessed	80% external 20% internal	80% external 20% internal
Compulsory elective	20% (paper 2) elective	100% compulsory

In the HKDSE, two papers are externally assessed. There is a school-based assessment (SBA) component in HKDSE which includes the practical related tasks and non-practical related tasks. It should be noted that in the 2012 HKDSE examination, only the practical related tasks are counted in the SBA and the assessment of non-practical related tasks is deferred to the 2014 exam. In GCE A level, four papers are externally assessed, each covering a particular unit of the specification and two other units are coursework. There was extensive discussion around comparisons with the 2014 exam and the Group felt that the

difference wasn't so great as to warrant any deviation from the conclusion that the two qualifications were comparable.

There was some discussion regarding the use of multiple choice as a form of assessment, but overall there was general agreement that both qualifications' assessment models balanced one another. The HE members also liked the elective part of the HKDSE whereby students study in their own time and this therefore reflected positively on the qualification's utility to support progression to HE.

4D.7 Estimating relative demand - comparison of candidate work

Both the HKDSE and the A level are new qualifications so no candidate evidence was available for either qualification. Due to this lack of candidate evidence, it was made clear that the Tariff values allocated would be provisional and subject to a review once candidate evidence becomes available.

4D.8 Aligning the grades

The Group reviewed the grade descriptors for the two qualifications in order to try and align grades. Level descriptors for the Hong Kong Diploma exist for Levels 3, 4 and 5, but not for 5* or 5**. Published grade descriptors for the A level are based on QCA guidance and describe performance at the A/B and E/U boundaries for each of the assessment objectives.

The Group also took note of the fact that grade descriptors for the A level are for AS and A2 and that there are no overall A level descriptors. Despite the fact that not all A level units are assessed against the A2 performance criteria, these were used as the basis of this comparability exercise. The Group agreed this to be a suitable comparability measure because university admissions are more concerned with full A level performance, with AS performance of less importance.

In undertaking this task, the Group started by mapping the five indicators of typical candidate performance for Level 3 of the Hong Kong Diploma against the wording of E/U grade descriptors in the A level. Notwithstanding different terminology used, the Group agreed that there were many similarities. Table 70 summarises the alignment of performance criteria:

Table 70: Biology grade descriptors – Level 3

HKDSE – Level 3 descriptor	A level – E/U descriptor
Demonstrate adequate knowledge and understanding of facts, concepts and principles in biology.	AO1a: Demonstrate knowledge and understanding of some principles, concepts and facts from the A2 specification. AO2f: Select some facts, principles and concepts from both AS and A2 specifications.
Apply the concepts of biology to unfamiliar situations with guidance.	AO2a: Apply given principles or concepts in familiar and new contexts involving a few steps in the argument.
Construct relationships and analyse information.	AO2b: Describe, and provide a limited explanation of, trends or patterns shown by complex data presented in tabular or graphical form. AO2c: Identify, when directed, inconsistencies in conclusions or data. AO2g: Put together some facts, principles and

	concepts from different areas of the specification.
Communicate ideas in a clear, structured manner using scientific terminology and appropriate formats.	AO1b: Select some relevant information from the A2 specification. AO1c: Present information using basic terminology from the A2 specification. AO2e: Translate data successfully from one form to another, in some contexts. AO3a: Devise and plan some aspects of experimental and investigative activities. AO3c: Make observations and measurements and record them. AO3d: Interpret, explain and communicate some of the results of their own and others' experimental and investigative activities, in appropriate contexts.
Design and conduct scientific investigations, handle and interpret data collected, and draw conclusions with guidance.	AO2c: Identify, when directed, inconsistencies in conclusions or data. AO2d: Carry out some steps within calculations. AO2e: Translate data successfully from one form to another, in some contexts. AO3a: Devise and plan some aspects of experimental and investigative activities. AO3b: Demonstrate safe practical techniques and comment on ethical issues. AO3c: Make observations and measurements and record them. AO3d: interpret, explain and communicate some of the results of their own and others' experimental and investigative activities, in appropriate contexts. AO3e: Use a given statistical technique.

The Group briefly reviewed the Level 4 descriptors and agreed that this was higher than A level E/U, but fell short of the performance expected at A level grade A. With regard to the Hong Kong Diploma Level 5, the Group mapped this against the GCE A level A/B boundary, with the following similarities noted:

Table 71: Biology grade descriptors – Level 5

HKDSE – Level 5 descriptor	**A level – A/B descriptor**
Demonstrate comprehensive knowledge and understanding of facts, concepts and principles in biology.	AO1a: Demonstrate detailed knowledge and understanding of most principles, concepts and facts from the A2 specification. AO1b: select relevant information from the A2 specification. AO2f: Select a wide range of facts, principles and concepts from both AS and A2 specifications. AO2g: Link together appropriate facts principles and concepts from different areas of the specification.
Apply the concepts of biology to a wide range of unfamiliar situations.	AO2a: Apply principles and concepts in familiar and new contexts involving several steps in the argument.
Analyse, synthesize and critically evaluate information from multiple perspectives and in an in-depth manner.	AO2b: Describe significant trends and patterns shown by complex data presented in tabular or graphical form interpret phenomena with few errors and present arguments and evaluations clearly. AO2c: Evaluate critically any statements, conclusions or data. AO2e: Translate successfully data that is presented as prose, diagrams, drawings, tables or graphs from one form to another. AO2g: Link together appropriate facts principles

	and concepts from different areas of the specification. AO3d: Interpret, explain, evaluate and communicate the results of their own and others' experimental and investigative activities, in appropriate contexts.
Effectively communicate ideas in a succinct, logical and coherent manner with accurate use of scientific terminology and appropriate formats.	AO1c: Organise and present information clearly in appropriate forms using scientific terminology. AO2a: Apply principles and concepts in familiar and new contexts involving several steps in the argument. AO2g: Link together appropriate facts principles and concepts from different areas of the specification. AO3d: Interpret, explain, evaluate and communicate the results of their own and others' experimental and investigative activities, in appropriate contexts.
Design and conduct scientific investigations, evaluate procedures, handle and analyse data collected, and draw valid conclusions.	AO2d: Carry out accurately most of the calculations specified for A2 and apply the principles of statistical analysis when directed. AO2e: Translate successfully data that is presented as prose, diagrams, drawings, tables or graphs from one form to another. AO3a: Devise and plan experimental and investigative activities, selecting appropriate techniques. AO3b: Demonstrate safe and skilful practical techniques and comment effectively on ethical issues. AO3c: Make observations and measurements with appropriate precision and record these methodically. AO3d: Interpret, explain, evaluate and communicate the results of their own and others' experimental and investigative activities, in appropriate contexts. AO3e: Use an appropriate statistical technique to assess the validity of a hypothesis.

In comparing performance descriptors for each qualification it was clear that, whilst there is more exemplification in the A level grade descriptors, the detail is covered within the broader statements of the Hong Kong Diploma level descriptors.

Following this mapping exercise, it was recognised that Level 3 of the Hong Kong Diploma encompasses all the learning outcomes and levels of attainment demonstrated by a candidate performing at the E/U boundary in the GCE A level, whilst Level 5 was comparable to the A/B boundary.

The Group therefore agreed to align Level 3 of the Hong Kong Diploma against E/U boundary at GCE A level, and Level 5 against the A/B boundary.

There are no performance indicators for 5* and 5** performance, so the Group felt unable to consider alignment of these levels.

4D.9 Domain scoring

Prior to the meeting, the Group members completed Tariff domain scoring for each qualification. After becoming more familiar with each qualification during the course of the

meeting, these scores were reconsidered during this session and minor alterations made. Figure 11 and Table 72 show the results of this exercise:

Figure 11: Tariff domain scores - Biology

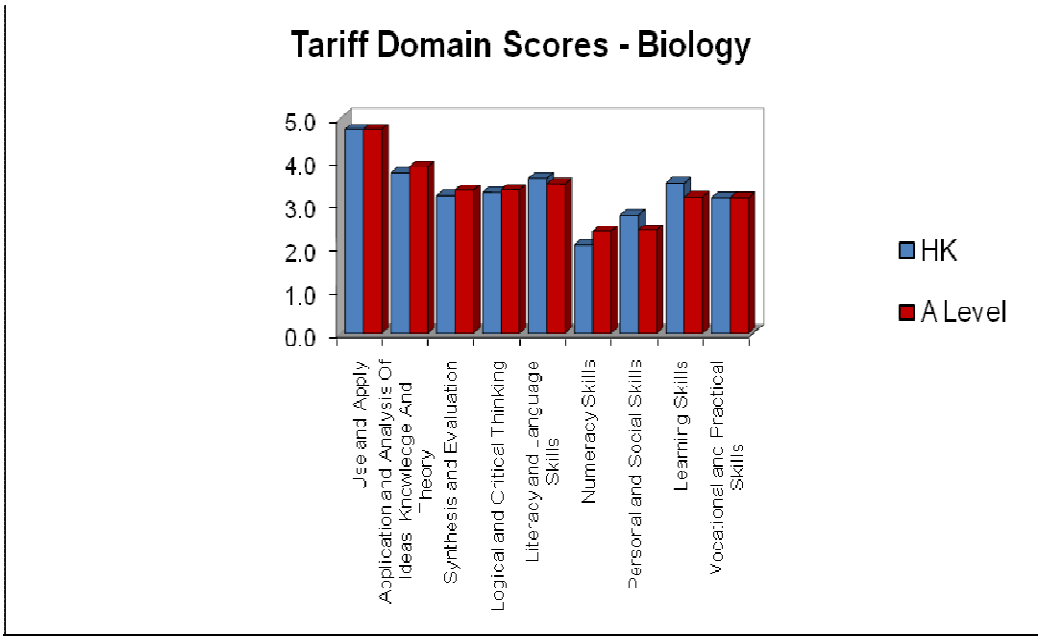


Table 72: Tariff domain scores - Biology

Domain element	Mean score	
	Hong Kong	A level
Use and apply	4.7	4.7
Application and analysis of ideas, knowledge and theory	3.7	3.9
Synthesis and evaluation	3.2	3.3
Logical and critical thinking	3.3	3.3
Literacy and language skills	3.6	3.5
Numeracy skills	2.1	2.4
Personal and social skills	2.7	2.4
Learning skills	3.5	3.2
Vocational and practical skills	3.2	3.2

It is clear that there were only minor differences between the two qualifications in terms of domain scores. Both scored highest on section 1: use and apply and were strong on most of the other domains. The lowest scores were for section 6: numeracy skills and personal and social skills; not surprising given their absence from each qualification's aims and objectives.

4D.10 Recommended allocation of UCAS Tariff points

After considering the aims, learning hours, content, assessment demand, grading and domain scores for each qualification it was clear that the Group could not identify any substantial differences between the qualifications. Consequently the qualifications were deemed to offer the same level of utility for progression to HE.

It was unanimously agreed that the UCAS Tariff points for the Hong Kong Diploma of Secondary Education Biology should align Level 5 with A level grade A, and Level 3 with A level grade E. Level 4 should sit at the mid-point.

Therefore the Group's recommendations are:

Grade 5	120
Grade 4	80
Grade 3	40.

The Group did not allocate values to the 5* and 5** as the standards for these grades were not yet established.

The allocation of UCAS Tariff points for the Hong Kong Diploma would be provisional and reviewed once sufficient candidate evidence is made available.

4E GEOGRAPHY

4E.1 Prior to the meeting

Prior to this meeting some preliminary work was carried out. This included a detailed mapping of the Hong Kong Diploma in Secondary Education Geography against the Edexcel GCE A level in Geography, reports from three HE representatives highlighting similarities and differences between the two qualifications and comparative studies from a representative from each Awarding Body. Pre-meeting papers were distributed, requiring members of the group to compare aims, content, study hours, relative size and assessment models of the Hong Kong Diploma in Secondary Education Geography and that of the Edexcel GCE A level in Geography.

4E.2 The Expert Group meeting

The Expert Group then met on one occasion for two days to examine and discuss the evidence listed in Appendix 2 and the preparatory work completed by Group members. This section contains an account of the deliberations of this meeting.

The opening session provided an opportunity for the Manager – Assessment Development of the Hong Kong Examinations and Assessment Authority (HKEAA), and the Chair of Examiners for Edexcel Advanced GCE in Geography to present their qualifications, and for Expert Group members to seek clarification about general issues in relation to the awards.

The key features of the two qualifications are set out in Section 2 and 3 above.

The Group noted that school-based assessment (course work) has been removed from the GCE A level. In the Hong Kong Geography Diploma school-based assessment (SBA) will contribute 15% to the assessment from 2014, but this will not apply in 2012 and 2013. The Group considered that it could therefore not take SBA into account in the current benchmarking exercise, and that its recommendations should be of an interim nature pending a review when sufficient overall candidate evidence is available. This would provide the opportunity to take SBA into account. It was clear that this factor would affect the Group's

judgments throughout the process, given its perception of the value of assessed fieldwork in Geography. It was, however, noted that the HKEAA regards the introduction of formally assessed fieldwork as effectively giving formal status to fieldwork activities which are currently taking place. The Group was informed of the opportunities to assess candidates' fieldwork skills in the written papers. A question from a past Hong Kong A level paper, the format of which will form the basis of the assessment in the Hong Kong Geography Diploma, was employed for illustration.

It was noted that both qualifications are new and that therefore no candidate evidence is currently available. In terms of setting standards, both qualifications have predecessor qualifications which provide standards which will be carried forward. In 2012 the methodology for setting the initial standards for the Hong Kong Diploma will involve the use of level descriptors (where "level" means the equivalent of "grade" in A level), scripts from the pilot, Hong Kong A level results and guidance from Cambridge International Examinations (CIE). Professional judgment will be used based on all these sources of information. HKEAA indicated that the Level 5 in the Diploma of Secondary Education will be equivalent to grade C or above in the Hong Kong A level, and that the higher grades of 5* and 5** will be determined by the exercise of professional judgment by examiners in the first year. Secure monitoring tests will be used to ensure equivalence of standards over time. In this context the Group decided that it was not appropriate to address 5* and 5** at this meeting, and that this should be a matter for later review when candidate evidence is available.

The Edexcel GCE A level in Geography is a new specification replacing Geography A and B, and reflecting a number of changes including the removal of course work, the reduction in the burden of assessment, the change from six to four units, and a fresh approach to content following consultation with geographical bodies and teacher focus groups. There is nevertheless continuity of standards within GCE A levels across subjects, over time and across awarding bodies. Module 2 represents an attempt to record personal geographical investigations in place of course work.

4E.3 Comparison of aims

The Expert Group compared the aims of the two qualifications and concluded that, although they are worded differently, they are in practice very similar. It was noted that there is a small difference under the category of values. The Hong Kong Diploma emphasizes the "appreciation of the wonder of the local and global environment" whereas the GCE A level refers to "gaining enjoyment and satisfaction from geographical studies". There is possibly slightly more emphasis in the GCE A level on resources and the fragility of the environment, but these do feature in both qualifications. Both qualifications require a critical and reflective approach.

It was suggested that the aims of the Hong Kong Diploma are a little more related to different geographical scales and distinct sub-disciplinary areas, whereas there is a little more emphasis on socio-spatial complexity in the GCE A level's aims. It was suggested that there would be greater commonality between the Hong Kong Diploma and the former GCE A level Geography specifications.

There was a consensus that the aims of the two qualifications are sufficiently similar to be regarded as equivalent for the purposes of the benchmarking process.

Structure

The Group noted significant differences in the context, structure and delivery of the two qualifications. The Geography Hong Kong Diploma is an elective within the large overarching Hong Kong Diploma of Secondary Education and is taken over a period of three years with linear assessment at the end of the course. It consists of a compulsory part with three sections – Living with our physical environment, Facing Challenges in the human environment and Confronting global challenges – and an elective part, with a choice of two out of four electives. The structure is charted in Section 2 above.

The GCE A level is a freestanding two-year programme structured into AS and A2, each with two units, AS being assessed at a lower level than A2 and forming a standalone qualification as well as the first half of A level. The assessment is modular and there are opportunities for candidates to resit one or more units to improve their overall performance. Information about resits is not made available to higher education institutions for admissions purposes. In practice there is flexibility in delivery and some centres might choose to adopt a linear approach to assessment. Both A2 units are synoptic. The structure is charted in Section 3 above.

The Group noted these differences, but felt it appropriate to base its judgments on the evidence from the specifications and documentation rather than on aspects of delivery. In respect of the Hong Kong Diploma, the Group did not feel that it was its remit to consider the impact of the Diploma as a whole. The AS/A2 structure might have an effect when moving to look at assessment demand, and was felt to be one of the reasons for the significantly larger number of hours of assessment. The differential duration of the courses was regarded more as a matter of delivery and did not affect the outcomes of the qualifications or their utility for progression to higher education. The delivery arrangements are tautly prescribed by the Hong Kong Government, whereas there is a high degree of flexibility in the delivery and assessment of GCE A level. The Group did not debate the merits of linear and modular assessment at this juncture, and noted that the flexibility in GCE A level, eg, to deliver either on a modular or a linear basis, makes judgments more difficult.

The Group concluded that the qualifications are equivalent, although different, from the point of view of structure.

4E.4 Determining size – comparison of Guided Learning Hours (GLH)

At first sight the qualifications appeared to be imbalanced in terms of learning hours. The stated total lesson time for the Hong Kong Geography Diploma is 270 hours as follows:

- compulsory part – 170 hours
- elective part – 50 hours
- fieldwork + spatial data enquiry – 50 hours (from 2012).

This does not include out-of-class activity such as homework.

By comparison the Guided Learning Hours for GCE A level are given as 360, theoretically suggesting that the Hong Kong Diploma is three quarters of the size of GCE A level. However, the QCA definition of a "guided learning hour" is:

> 'A notional measure of the substance of a qualification. It includes an estimate of the time that might be allocated to direct teaching or instruction together with the other structured learning time such as directed assignments, assessments on the job or supported individual study and practice. It excludes learner-initiated private study.'

The Group was informed by the GCE A level Principal Examiner that, if homework is excluded for GCE A level, the learning hours reduce to 150 for AS and 130 for A2, ie, 280 hours.

This means that in real terms the two qualifications have very similar learning hours, even though the definitions are different. The Group did not regard the discrepancy between 270 hours for the Hong Kong Geography Diploma and 280 for the GCE A level as significant, and noted that there might be some variability in delivery. It therefore judged the two qualifications to be equal in size in terms of learning hours.

4E.5 Determining size – breadth and depth of content coverage

The members had carried out a preparatory exercise on the comparability of content for the Hong Kong Geography Diploma and the Geography GCE A level. A comparability chart is attached as Appendix 3.

The content of the two qualifications mapped well in both physical and human geography, with a large measure of commonality. While the topics are different, the core concepts are in common. It was suggested that there might be a closer similarity between the Hong Kong Diploma and the former GCE A level specification.

The HE members felt that the Edexcel GCE A level has a significantly greater emphasis on international topics and globalisation, resource management and the cultural and political aspects of geography, whereas the Hong Kong Diploma has a focus on transport, industrialisation and the study of urban cities, and strong regional content reflecting the interests of learners in Hong Kong. However, the Group was informed that international topics and globalisation will be incorporated in the curriculum of Liberal Studies, which will be a core subject in the Hong Kong Diploma. Some optional units within the elective part have a strong local flavour, eg, dynamic earth: the building of Hong Kong and the regional study of Shujiang (Pearl River) Delta. The Group learned that this entails study of the agricultural landscape, economic processes, industry, city environment and other environmental issues. It is in effect an in-depth case study, but is only treated as an elective in the Hong Kong Diploma.

The most major difference is the lack of a cultural geography dimension in the Hong Kong Diploma. There was discussion as to the extent to which the cultural dimension exists in the Hong Kong Diploma and it was noted that, if it does, it is not signposted.

In making comparisons, account had to be taken of the element of choice within the elective part of the Hong Kong Diploma and within the geographical investigations in the GCE A level. While most of the content can be mapped across both qualifications, this was a reflection of the existence of the opportunities to take optional study rather than an indication of what an individual learner would take. The Hong Kong Diploma has two electives from four, with only 60 learning hours for both. This therefore gives breadth rather than depth. The A level has only one option chosen from six for geographical research, providing depth rather than breadth.

The Group proceeded to review whether the content mapping had any implications for progression to HE. The Group's judgment was that overall there was no significant difference in terms of volume of content. A considerable core of content is similar with variations around the periphery. The GCE A level content is more global, whereas the Hong Kong Diploma is more regional, reflecting the provenance of the qualification.

4E.6 Estimating relative demand - comparing assessment models

Assessment objectives

The assessment objectives for the two qualifications are expressed differently. Those for the Hong Kong Diploma are much more detailed and expanded than the three assessment objectives for GCE A level, deriving from QCA standard practice. However, the Hong Kong Diploma knowledge/concepts objectives map against assessment objective 1 (AO1) of GCE A level, Skills against AO2 and AO3 and values/attitudes against AO2.

It was suggested that the Hong Kong Diploma objectives are more like learning objectives and are more aligned to knowledge, understanding and skills. By comparison, the GCE A level assessment objectives are standardised and not contextualised. For AS and A2 the relationship of the assessment objectives to units is clearly charted - see Section 3 above.

It was the Group's judgment that the differences between the assessment objectives are presentational, and that the mapping across of objectives confirms the equivalence of the qualifications.

Assessment models

For 2012 and 2013 the Hong Kong Geography Diploma assessment will consist of Paper 1 – 70% and Paper 2 – 30%. The Group noted that for 2014 this will change to Paper 1 – 60%, Paper 2 – 25% and school-based assessment – 15%, but felt that it should base its initial judgment on the current situation. The total assessment time is 3.5 hours, made up of 2.5 hours for Paper 1 (compulsory part) and one hour for Paper 2 (elective part).

This contrasts with a total of 6.5 assessment hours for the GCE A level made up as follows:

Core

Unit 1 – Global Challenges (AS) – 1.5 hours

Unit 2 – Geographical Investigations (AS) - 1 hour.

Options

Unit 3 – Contested Planet (A2) – 2.5 hours

Unit 4 – Geographical Research (A2) – 1.5 hours.

At first sight this would seem to constitute a major difference, with GCE A level having nearly twice as much assessment time. The HE representatives considered this carefully and concluded that GCE A level does provide significantly more opportunity to demonstrate knowledge, understanding and geographical skills on an extended basis. However, they also felt that the sub-division of GCE A level into AS and A2, and the need to treat the former as standalone qualification, results in a heavier assessment load than would otherwise be the case and possibly some double assessment. It was nevertheless noted that the assessment burden of A level has been reduced from the original specification.

The Group noted that one hour of the Paper 1 of the Hong Kong Diploma consists of 40 multiple choice questions, contributing to 22% of the total marks in 2012. The remaining time consisting of two out of four data/skill-based questions (30 minutes each), and one out of three short-essay questions (30 minutes). The HE representatives expressed their concern, on educational grounds, about the use of multiple choice questions and the extent of this in paper 1. The HKEEA representative asserted that this provides a broader coverage of knowledge assessed, and that some of the multiple choice questions involve skills such as map reading and analytical skills. HE representatives nevertheless felt that the traditional style of multiple choice questions has its limitations. A student may select the correct answer by knowing that answer is correct or by eliminating all of the other options. While deemed desirable, it does not necessarily test the students' full knowledge of the subject - knowing one option is correct does not guarantee they know that the others are incorrect. Similarly, working out the correct answer by a process of elimination does not demonstrate that the student necessarily knows the solution – after Woodford & Bancroft, 2005.

The Group noted that the GCE A level provides a range of assessments, including data response, short questions, objective items and longer/guided essay questions in Unit 1; data response, investigation skills and impacts/management issues in Unit 2; two extended essay questions and three synoptic short essay style questions in Unit 3; and one long report question in Unit 4. There is more opportunity for extended writing in GCE A level, eg, in the A2 assessments. The geographical research investigation involves in-depth writing based on pre-released materials which provide a research steer.

However, the Group considered that the essay question in Paper 1 and Section E of Paper 2 of the Hong Kong Diploma does provide an opportunity for extended writing and should not really be described as "short". The Group was provided with some sample scripts representing possible standards for Grades 5* and 5**. These were seen to provide an opportunity to look at datasets and respond on an extended basis. It was pointed out that a Hong Kong Diploma candidate would be taking six subjects simultaneously, whereas the typical GCE A level candidate would only be taking three. While this was noted, the Group did not feel it to be appropriate to take this into account when looking at the geography qualification in its own right.

The Group concluded that the structure of the two qualifications is similar but that the GCE A level provides a greater volume of opportunity to demonstrate knowledge, understanding and

skills, eg, through longer questions and extended writing. The HE members considered that the GCE A level assesses students more fully and more broadly, and thought that this was important for progression to HE. They felt that until the SBA assessment is introduced in 2014, the Hong Kong qualification has less rigour than the GCE A level, although the opinion was expressed that from 2014 it might be judged to have more. This would be a matter for the later review. The HKEEA representatives did not concur with this judgement and suggested that the assessment of the Hong Kong Diploma could be considered as more demanding because of its linear nature. The representatives indicated that much of the SBA can be done in the current qualification and that 2014 represents a move from formative to summative assessment. The view of the HE representatives was, however, that the formal assessment of SBA would make a significant difference to the qualification. They were of the opinion that the Hong Kong Diploma would ultimately benefit considerably from the inclusion of SBA.

The HE representatives therefore sought to apply a differential between the qualifications. While the difference was qualitative, it was necessary to identify a quantitative differentiator; it was proposed to reduce the score for the Hong Kong Diploma by 15%, representing the proportion of the assessment attributed to SBA from 2014. The HKEAA representatives did not concur with the score reduction determined by the deferred introduction of the SBA. It was suggested that field studies will still be part of the curriculum and that the related skills, eg, hypothesis formulation and evaluation of research methods can also be assessed in the written examinations. Furthermore, they considered that 15% differential of the assessment format should not account for 15% reduction in the overall score.

The members debated the issues of linearity and modularity. It was suggested that HE tends to favour a linear approach as used by the Hong Kong Diploma, providing summative assessment at the end of the course. It was noted that this is to some extent counterbalanced by the fact that Unit 3 of GCE A level is synoptic, assessing aspects of the entire programme. However, it was suggested that integration is demonstrated in all the Hong Kong Diploma assessment, including multiple choice. It was thought that from 2014 the SBA element of the Hong Kong Diploma would be likely to assess synopticity.

GCE A level is modular in structure and allows for the possibility of one or more resits of each unit in order to improve performance, and this feature causes some concern to higher education institutions which have no knowledge of whether a resit has taken place.

It was noted that the quality of written English is specifically included in the assessment of GCE A level, but is not a requirement for the Hong Kong Diploma, although poor communication skills would in practice be penalised. The Diploma is taken either all in English or all in Chinese, and English forms part of the core.

Overall, the HE members were prepared to regard the assessments of the two qualifications as equivalent in terms of what is actually assessed, while acknowledging the greater volume of opportunities offered by A level and noting reservations about multiple choice. The Group provisionally agreed to a differential of 15% in favour of GCE A level, subject to further consideration later in the meeting.

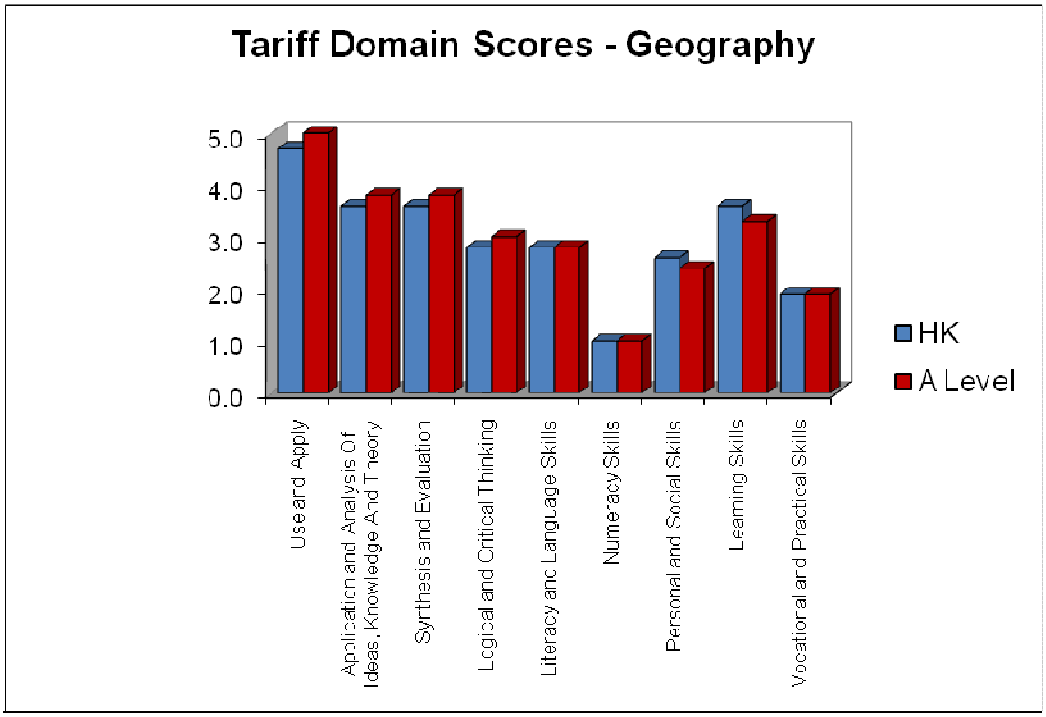
4E.7 Estimating relative demand - comparison of candidate work

Both the HKDSE and the A level are new qualifications so no candidate evidence was available for either qualification. Due to this lack of candidate evidence, it was made clear that the Tariff values allocated would be provisional and subject to a review once candidate evidence becomes available.

4E.8 Domain scores

The Group proceeded to carry out the exercise of determining the domain scores for each qualification.

Figure 12: Tariff domain scores – Geography



Both qualifications scored highly on section 1: use and apply and were strong on section 2: application and analysis of idea, knowledge and theory and section 3: synthesis and evaluation. The lowest scores were for section 6: numeracy skills and section 9: vocational and practical skills, reflecting the absence of these skills from the aims of the qualifications.

Overall, the qualification scores were almost identical, with a total of the mean scores of 26.6 for the Hong Kong Diploma and 27.0 for GCE A level (out of a possible 45). The Group concluded that there was no material difference between the qualifications in terms of domain scores and both had equal utility for progression to higher education on this measure.

4E.9 Aligning the grades

The Group considered the grade descriptors for the two qualifications, noting that the HKEEA's terminology is "level" rather than "grade". There are level descriptions for Levels 3, 4 and 5 for the Hong Kong Diploma, but not for 5* or 5**.

The published grade descriptors for the GCE A level are based on QCA guidance and give clear descriptions of the A/B and E/U boundaries for each of the assessment objectives.

The Group started by looking at the GCE A level E/U boundary and compared it with the level description for Level 3 of the Hong Kong Diploma. While the terminology was found to be different, there were many similarities and the descriptors mapped across well. It was suggested that the GCE A level expectation at grade E was slightly lower than Level 3 of the Diploma as evidenced by forms of word such as “varying degrees of success”. The Group judged that Level 3 was probably closer to grade D, but noted that the Hong Kong level descriptions describe the performance of a typical candidate rather than describing a threshold.

Turning to the GCE A level A/B boundary, the Group mapped this against Level 5 of the Hong Kong Diploma. There was slightly greater specificity in the Hong Kong description but the demand was similar. It was noted that there are currently no descriptors for Level 5* and 5** and these were left out of the discussions, to be considered once candidate evidence is available and the standards of 5* and 5** have been established.

The Group agreed to align Level 3 of the Hong Kong Diploma against the mid-point of grade D at GCE A level, and Level 5 against the A/B boundary.

4E.10 Recommended allocation of UCAS Tariff points

The Group concluded by determining recommendations for the allocation of UCAS Tariff points to the Hong Kong Geography Diploma. It was clear that there was no differential between the qualifications in terms of size, learning hours, content and domain scores. In respect of assessment demand, it had earlier been provisionally agreed that there should be a 15% differential in favour of GCE A level. It was noted that there is a differential in respect of assessment volume and the opportunity to express knowledge, understanding and skills. It was judged that there would be at least parity between the qualifications once SBA provides a coherent learning experience, with formal assessment in 2014. This would be more than just a difference in assessment and would help to prepare learners better for progression to HE.

Given the equivalence of the two qualifications from all other respects, the Group did not feel minded to apply such a large differential as 15%. In order to determine the differential the Group re-visited the related questions of linearity and synopticity to see whether they affected its judgment. It concluded that the merits of the Hong Kong Diploma’s linear examinations at the end of three years are offset by the synoptic elements of Units 3 and 4 of GCE A level, although the HKEAA representatives did not concur, believing that a linear examination can be more demanding.

It was noted that the GCE A level offers a wider range of assessment approaches and greater opportunities to candidates to demonstrate their knowledge, understanding and skills The Hong Kong Diploma will also do so once the SBA forms part of the assessment from 2014, but it was felt that at this stage a differential is justified. The issues over the substantial use of multiple choice questions in the Diploma Paper 1 could also potentially justify a differential.

The Group concluded that here should be a temporary small-scale adjustment for 2012 and 2013 but felt that a 15% adjustment would not be justified. Taking into account the opportunities for field work prior to the introduction of SBA, it was recommended that the adjustment factor should be smaller. The Group recommended that Level 5 should receive 110 Tariff points, slightly short of grade A at A level. Level 3, provisionally pegged at the mid-point of grade D, ie, 50 Tariff points should be revised down to 45. Level 4 has a broader range than the other grades and it was therefore recommended that this should be pegged at 80 points equating to a grade C at A level rather than at the mathematical mid-point, ie, 75.

The Group therefore made the following recommendations:

UCAS Tariff points should provisionally be awarded to the Hong Kong Diploma of Secondary Education Geography for 2012 and 2013 as follows:

Level 5 110
Level 4 80
Level 3 45.

The allocation of points should be reviewed in the light of the availability of sufficient candidate evidence and to take into account:

- the standard of levels 5* and 5**
- the introduction of the assessed SBA for 2014.

SECTION 5: RESOLUTION OF ISSUES AND CHALLENGES

5.1 Overview

Following the Tariff Expert Group meetings, discussions between UCAS and HKEAA ensued to resolve general challenges and issues about the Hong Kong Diploma of Secondary Education (HKDSE) in relation to study time and allocation of UCAS Tariff points to grades in the HKDSE.

In this section of the report, specific issues arising from each Expert Group report are then addressed to ensure the validity and reliability of the judgements being made, the extent to which they are objectively grounded in evidence and the management of any risks for either UCAS or the Hong Kong Examinations and Assessment Authority (HKEAA).

It is important to recognise that UCAS received assurances from the HKEAA that the old A level standards will be maintained in the new qualification. The exact mechanism for achieving this is described in 5.3 below as it is germane to a number of decisions about the allocation of UCAS Tariff points, especially to the mathematics qualification.

5.2 Study time

There is a wide variation in study time allocated to different subjects. For example Liberal Studies is allocated 270 hours of lesson time while English and mathematics have potentially up to 405 hours allocated to them. Electives also have a recommended 270 hours of lesson time. The extra hours allocated to English and mathematics are intended to enable flexibility in teaching to manage the learning of young people with a wide range of abilities and aptitudes.

5.3 Grading and the allocation of UCAS Tariff points

Historically the Hong Kong A level (HKALE) grade C has been aligned by NARIC to GCE grade A. This decision seems to have been based upon the portion of candidates passing the HKALE at different grades – just under 25% achieved a grade C or higher in Hong Kong A levels overall in 2008[1]. This compares to just under 26% achieving a GCE grade A in 2008[2].

HKEAA have clearly established robust procedures for the awarding of their A level grades, with the current Hong Kong A level (HKALE) system not working on a purely norm-referenced approach. UCAS cannot know that the principle of grade alignment has been met until the first awarding of the new HKDSE takes place in 2012 when the qualification will be reviewed. However, it is another principle that has operated when accommodating as yet unexamined qualifications into the UCAS Tariff that the assurances on such matters from a properly constituted regulator, such as HKEAA, will be accepted.

---

1 Data on HKALE examination performance are available from www.hkeaa.edu.hk/en/hkale/Exam_Report/Examination_Statistics last accessed April 6 2009.The data used here are from 2008 but the variation between years, as seen in a longer-term analysis of performance available from the website is small.

2 Data from the Joint Council for General Qualifications www.jcgq.org.uk. Last accessed April 6 2009.

The HKEAA provided further information since the meeting of the Expert Groups, explaining how the grade alignment will take place:

> 'In the future HKDSE, secure research tests will be used to monitor the standards of performance of candidates. The secure research tests will be administered to samples of HKALE candidates and to samples of HKDSE candidates. As the same test instruments are administered to both groups of candidates, they can be used as anchor tests to compare the grading standards in both examinations in 2012. Such statistical methods are well documented in the research literature. Test equating methods based on the use of common test items will be used to analyse the data. In deciding the cut scores for the various levels, examiners will make reference to the following:
>
> - the level descriptors and exemplar materials
> - the performance of candidates in the HKALE, as revealed in the examination scripts
> - the performance of candidates in the HKDSE, as revealed in the examination scripts
> - the statistical information from the research tests.'

On the basis of this information, UCAS and the Expert Group members were reassured that the current standards of the HKALE will be maintained into the new era of the HKDSE. However, this will need reviewing when examination scripts become available and we would wish to compare HKALE, HKDSE and GCE A level scripts in 2012.

5.4 English

It became apparent during the Expert Group meeting that the HKDSE English Language was more akin to a Use of English qualification than a GCE A level in English Language.

HKDSE English Language provides provide students with the necessary competence in diverse literacy and study skills and in the uses of English to prepare them to successfully undertake a degree course taught in English, but does not specifically prepare them for a degree level course in English that required a meta-level grasp of linguistic rules and methodologies.

This difference in the conceptual emphasis of the two qualifications provides a possible explanation for the sharp difference in the revised tariff domain scores for the two qualifications particularly in the areas of application and analysis of ideas, knowledge and theory, synthesis and evaluation, and logical and critical thinking.

The wide variations in Tariff domain scores between each qualification do not accord with the conclusions reached by the Group which implies equivalency between the HKDSE English and a GCE A level. The absence of candidate evidence does not help to resolve the issue.

Throughout the Group's discussions, it was argued that while the two qualifications provided different starting points for supporting progression to higher education in the UK, they were

both relevant to supporting such progression. This argument suggests that in terms of general admission to UK HE the HKDSE English Language qualification does have utility.

5.5 Mathematics

The Expert Group's recommended allocation of UCAS Tariff points is complex because of perceived differences in the demand of the various components parts of HKDSE mathematics qualification.

The separation of a compulsory part from a choice of one out of two extension modules (Module 1: Calculus and Statistics) or (Module 2: Algebra and Calculus) enables teachers to provide a range of courses within the curriculum to meet the needs of the wider range of students taking the new HKDSE compared to the older HKALE. A range of choices can be presented to learners, for example to take just the compulsory component or to take the compulsory component with one of the two extension modules (only one extension module can be taken). Whilst this is an educationally sound practice, it provides three complications in allocating UCAS Tariff points:

- There is no overarching mathematics qualification in the HKDSE. The compulsory component is not subsumed (as AS is into an A level) for candidates taking an extension module. A candidate's transcript will record their attainment in both the compulsory component and the extension component (where taken). Consequently, it is necessary to allocate UCAS Tariff points separately to the compulsory component and to the extension component.
- The inclusion of a significant amount of level 2 material in the compulsory mathematics curriculum (approximately 30% of the marks in the examination), and the lack of calculus, for example, meant that comparison to the GCE A level in mathematics was not possible. The lack of calculus reduces the utility of the compulsory part alone for supporting progression to UK HE. Whilst the extensive overlap between the content of the HKDSE compulsory mathematics and GCE AS mathematics was noted, it was felt that candidates could achieve at the lower grades in the compulsory element by answering questions which assessed primarily level 2 materials. These issues resulted in a lower proposal of Tariff points than might have been expected.
- The Expert Group felt that there was a clear difference in demand between the two extension modules so proposed allocating different UCAS Tariff points to each module.

THE HE auditor decreed that the Expert Group had been scrupulous in reaching their conclusions, yet the outcome clearly does not align with the results from the other Expert Groups and reflected a considerable risk to HKEAA for two reasons:

- Hong Kong has an established reputation for having students who perform exceptionally well on international surveys of mathematics ability such as TIMMS and PISA.
- Historically the C grade of the Hong Kong A level has been aligned with GCE grade A. Thus an outcome whereby a candidate achieving grade 5 (which will be benchmarked at the old Grade C of the HKALE examinations) in both the compulsory part and module 2 (the extended part judged more difficult of the two by the Expert Group) can

only achieve 110 UCAS Tariff points, ie less than the 120 allocated to a grade A at GCE A level, seems to question this historic alignment.

Whilst the Expert Group were impressed by the demand of the hardest questions on the HKDSE examination papers, they were clearly of the opinion that the conceptual demand of achieving a Grade 5 in both components of the new HKDSE qualification was not comparable to the demand of achieving a Grade A at GCE A level. However, given HKEAA's commitment to maintaining standards between HKALE and the HKDSE, it should be comparable given the historical alignment of HK grades with GCE A level and the HKEAA's.

The Group's recommendations for mathematics have been questioned by the HKEAA who put forward a counterargument based on total teaching time and the benefit of level 2 content adding to, rather than diluting, the qualification content.

HKEAA's argument was rejected by two (of three) HE representatives of the Expert Group who strenuously and coherently defended their original position. In particular they pointed to the lack of calculus in the compulsory mathematics unit. Thus, while the core mathematics curriculum represents a sound educational solution to the need to meet the needs of a range of learners to study mathematics to age 18, the corollary is a qualification which, in the view of the HE Experts, has lower than expected utility for supporting progression to UK HE.

With regards to the differences in the allocation of UCAS Tariff points to the two extension modules, the HE auditor did not find sufficient evidence to confirm that the material in the calculus and statistics module is not matched to comparable material in the mathematics GCE A level. In the case of module 2 some material matches to GCE A level further mathematics which could explain why it is viewed as being more demanding and a better preparation for progression to UK HE.

One of the principles of the Tariff is not to allocate different numbers of UCAS Tariff points across individual subjects in a suite of qualifications. Thus, if no distinction is made between GCE A level mathematics and further mathematics, then the same principle should be applied here.

The HE auditor therefore recommended using the midpoint of the two suggested Tariff ratings for the HKDSE extension mathematics modules. This would give the following Tariff scores:

Grade	Compulsory	Extension
5**	70	80
5*	60	70
5	45	60
4	35	50
3	25	40

5.6 Liberal Studies

HKDSE Liberal Studies is largely a skills based curriculum model with the added value of a project. The HE Auditor felt that the decision reached by the Expert Group is based upon a reasoned argument; despite difficulties in comparing the HKDSE Liberal Studies to the GCE A level in citizenship.

The suggested alignment of level 2 performance being equated with a GCE A level grade E was questioned. The Expert Group were not asked to consider level 2 performance and, following the meeting, HE representatives recommended setting the Grade 3 at 40 UCAS Tariff points, with the proviso that this will be reviewed when candidate evidence becomes available.

5.7 Biology

There is little, if any, fundamental difference in the knowledge and skills developed by the two qualifications – as reflected in the very close alignment of the two sets of Tariff domain scores.

The only query unresolved following the meeting was the issue of whether not having SBA as an 'active' component of the examination components until 2014 should be reflected in a reduced Tariff score at this stage. The biologists took an essentially pragmatic view that for the purposes of entry to higher education this made little difference.

5.8 Geography

Whilst differences in the content of the two qualifications were recognised by the Expert Group, both qualifications were considered to be appropriate for supporting progression to higher education. The Group expressed concerns about the use of multiple choice questions and the timing of the introduction of the SBA. While the concerns raised about objective testing may be legitimate it is a recognised assessment practice which has also been used in some GCE A level examinations.

The observation that the outcomes of the SBA would not be included in the overall grading until 2014 led to the Group's proposal to reduce the recommended Tariff score by 15% in order to take account of this developmental introduction of SBA. However, recognition that fieldwork studies, which will largely be assessed through SBA in the future, are a feature of the current specification and are to be assessed through the written examinations led to a proposed reduction of 8 per cent for grade 5 – giving it 110 rather than 120 UCAS Tariff points.

The HE auditor considered this to be an unwarranted complication to agree a different allocation of UCAS Tarff points for Grade 5 in this elective subject.

5.9 Conclusion

The HE auditor considered the outcomes of the exercise to be robust for four out of the five subjects, with the exception of English. However, he agreed to support the recommendation of the Expert Group whilst recognising the risk that Tariff points could be reduced when candidate evidence is reviewed for this subject.

Mathematics in the Hong Kong Diploma proved to be more problematic. All students taking the Diploma have to study, as a minimum requirement, a compulsory mathematics unit. In addition, there is the option to study one out of two optional units – Calculus and Statistics or Calculus and Algebra. The core unit is a stand-alone qualification, ie it is not subsumed into an overarching mathematics qualification consisting of the compulsory and optional unit in the way that AS mathematics is subsumed into GCE A level. Consequently, unlike other subjects in the Hong Kong Diploma, Tariff points need to be allocated separately to the compulsory and optional mathematics units. The higher education members of the mathematics expert group were unanimous that the compulsory unit, largely because it contained a significant proportion of level 2 (ie GCSE standard) material and lacked calculus (unlike AS mathematics), had reduced utility on its own for supporting progression to UK Higher Education. Thus, while the core mathematics curriculum represents a sound educational solution to the need to meet the needs of a range of learners to study mathematics to age 18, the corollary is a qualification which, in the view of our HE Experts, has lower than expected utility for supporting progression to UK HE.

In the case of the optional units, the mathematics Expert Group recommended a higher allocation of UCAS Tariff points to the Calculus and Algebra option than the Calculus and Statistics course. In part this was due to the former having components of what would be considered Further Mathematics in the UK context. However, a supervening principle of the Tariff is that we should not allocate differential numbers of UCAS Tariff points to qualifications at the same level in a suite. For example, the same grade in GCE A level mathematics and further mathematics GCE A level attracts the same number of UCAS Tariff points, as do the same levels of attainment in GCE physics and English. Applying this principle, and notwithstanding the arguments put forward by the HE experts, suggests that we should allocate a similar quantum of UCAS Tariff points to the same level of attainment in the optional components.

Detailed discussions regarding the proposed allocations took place at the Tariff Reference and Advisory Groups in September 2009, followed by additional further communications with HKEEA, with the following Tariff points recommended to the UCAS Board later that month.

Grade	All subjects except Mathematics	Mathematics compulsory component	Mathematics optional components
5**	No value pending receipt of candidate evidence (post 2010)		
5*	130	60	70
5	120	45	60
4	80	35	50
3	40	25	40

APPENDIX 1 BIOGRAPHIES OF THE EXPERT GROUP MEMBERS

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **David Armitage**

Current position: Retired (but currently reviser with CCEA)

Organisation: formerly Queen's University Belfast

Qualifications: BSc (Mathematics) PhD (Pure Mathematics)

Brief biography

1991-2007 Professor of Pure Mathematics, QUB
1981-1991 Reader in Pure Mathematics, QUB
1971-1981 Lecturer in Pure Mathematics, QUB
1970-1971 Demonstrator in Pure Mathematics, Liverpool University

Research: Author or co-author of 100+ research papers in classical analysis; author jointly with S. J. Gardiner of "Classical Potential Theory", Springer Verlag, London (2001), xiv+333pp.

Teaching: 1970-2007 design and delivery of a wide range of courses at all undergraduate levels; c. 2003-2007 design and delivery of "access" courses for inappropriately qualified science and engineering students. Supervision of Ph.D, MSc, and M.Sci students.

External Examining:
1996-1998 Extern Examiner in Mathematics, National University of Ireland
2007-2009 Extern Examiner in Mathematics, NUI Galway
1979-2009 various posts associated with GCE Mathematics (N. Ireland)
External examiner for numerous Ph.D theses

Responsibilities at QUB:
Head of Pure Mathematics Research Division (c.1988-1991 & 1994-1997)
Adviser of Studies (Mathematics) (1979-87 & c. 2001-2006)
Secretary to School Board (Math & Phys) (c. 1997-2001)
Examinations Liaison Officer, Pure Mathematics (c.1995-2007)

Responsibilities outside QUB:
President, Irish Math. Soc. (1999-2000); Vice-President (1997-1998)
Member of Editorial Board of Math. Proc. Royal Irish Acad. (c.1995-2009)
Secretary to British Math. Coll. (2003-2004); committee member (2001-04)
Member of Mathematics Commission of Royal Irish Acad. (c.1994-2001)

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Michaela Artingstall**

Current position: Deputy Registrar

Organisation: Newman University College

Qualifications: BSc, HND, CiM

Brief biography

Education

2005 - 2005	Coventry University & Chartered Institute of Management Certificate in Management
2001 – 2004	Coventry University – Lifelong Learning Centre HEDip in Lifelong Learning
2000 – 2001	Solihull College HEDip in Administrative Procedures
1996 – 2000	Solihull College GNVQ Advanced in Business – Overall grade: Distinction English for Business Communication (Pitman) – Level 3
1991 – 1993	World English Institute (USA) Diploma in English language
1972 – 1975	Polytechnic University of Galati – Romania BSc in Organic Chemistry
1968 – 1972	Lyceum 'Mircea cel Batran' Constanta – Romania International Baccalaureate

My educational and working background, training and qualifications are mainly within administrative and managerial operations. Currently I am employed by Newman University College as a Deputy Registrar (ft) whose main responsibilities are to lead, develop, implement and manage the University College's strategies and processes for Admissions. Also, I am involved in Romanian language and culture consultancy work with different language centres, interpreting/translation agencies, Home Office, Social Services, Courts and Police (casual). During the period 2000 - 2006 I worked at Coventry University in different departments from School Offices to Registry (Research). Since March 2006 I have joined Newman University College and I am a leading player in the reorganisation and restructuring of the admissions policy and procedures. I am an active member of the Delivery Partnership / Timing and Adjustment Working Group and AQA Access courses Validation Panel. The first phase of the UK-wide Delivery Partnership focused on the implementation of 20 recommended reforms to the current applications process. Recently I applied for UCAS Continuous Professional Development programme and I attend regularly UCAS, TDA, QAA conferences, seminars and workshops.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Gavin Brown**

Current position: Lecturer in Human Geography

Organisation: University of Leicester

Qualifications: BA (Hons); MA; PhD (Geography, King's College London)

Brief biography

In 2007 I obtained my PhD and undertook a change of career, securing a position as a Lecturer in Human Geography at the University of Leicester. Prior to that, I had worked as a professional administrator within the higher education sector in London, initiallyprimarily working within undergraduate student admissions and largethen widening participation

1992 - 1997 Admissions Assistant, Queen Mary University of London
1997 - 1999 Head of Admissions, University of East London
2000 - 2001 RAE Coordinator, King's College London School of Medicine
2001 - 2007 Project Manager, Access to Medicine Project, King's College London School of Medicine

I appointedam currently BA Admissions Tutor and Schools Liaison Officer for the Department of Geography at the University of Leicester. Within the last year I have written and implemented a new admissions and recruitment strategy for this department, and am currently engaged with local school geography teachers to develop a series of CPD activities for teachers to support them through the introduction of the new A level Geography specifications.

My research interests are wide-ranging, but broadly fit within the scope of urban social and cultural geography. I am curently completing a research project funded by the Royal Geographical Society (with IBG) called 'the place of aspiration: emotional geographies of young people's ambitions for adult life', this has involved carrying out research interviews with widening participation practitioners and young people from widening participation backgrounds in London and the East Midlands.

My teaching at the University of Leicester primarily focuses on urban geography, but encompasses aspects of social, political, economic and environmental geography as they have been applied to historic and contemporary cities in both the developed and developing worlds.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Siu-kwan CHOY**

Current position: Assistant General Manager - Assessment Development

Organisation: Hong Kong Examinations and Assessment Authority

Qualifications: B.Sc. (Hons), M.Ed.

Brief biography

Siu-kwan has been working in Hong Kong Examinations and Assessment Authority (HKEAA) for 15 years. She started as Subject Officer (Science), and her duties mainly include the development of Biology and Human Biology syllabuses and examination papers at Certificate Education level (equivalent to GCSE level in UK), and the coordination of the marking process of the two examinations. In 2002, she was promoted to Senior Subject Officer (which later renamed as Senior Manager). In addition to the duties in the two Biology examinations, she needed to take up some administrative duties within the Assessment Development Division. These include coordinating the work of the Mathematics & Science Team and School-based Assessment Administration Team. That year, the development work of the Hong Kong Diploma of Secondary Education Examination also started with the development of the Curriculum and Assessment Guides of individual subjects, and she was in charge of HKDSE Biology. In 2004, she took over the A level Biology Examination in addition to the CE Biology and Human Biology Examinations. In 2008, she was re-deployed to the post of Assistant General Manager (AGM), assisting the General Manager of the division alongside two other AGMs. Her main areas of work include (i) coordination of HKDSE benchmarking exercise within the division, (ii) coordination of the production of HKDSE Standards-referenced Reporting Information Packages, (iii) overseeing the English Subject Team and the Math. & Science Subject Team.

Before joining the HKEAA, she taught Biology at A level and CE level in a secondary school for 9 years.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Dianne Francombe**

Current position: Director, Admissions and International Development

Organisation: University of the West of England, Bristol

Qualifications: MA Management Learning

Brief biography

Dianne is the Director of the University of the West of England's highly integrated Enquiry, Admissions and External Liaison Service. The activities of the Service include responsibility for policy, pre-university curriculum and qualification developments, education liaison activities in the UK; student recruitment and partnership building overseas; management of enquiries and admissions functions for both UK and international applicants for undergraduate and postgraduate programmes and links with external bodies.

Dianne has many years' experience in this specialised field as a manager, business systems innovator and presenter. She has been invited to serve on a number of national and international committees and is a regular contributor at conferences. She is currently Chair of the UCAS Tariff Advisory Group and member of the UCAS Tariff Reference Group.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Preston Hoggan**

Current position: Chair of Subject Advisory Committee for Social Science

Organisation: AQA

Qualifications: BA Social Science, Teaching Certificate

Brief biography

I have been involved with various examination boards for 35 years. I have had a variety of roles including chair of examiners, moderator, examiner, various advisory and specification development and subject panels. I sit on stage 2 appeal panels for AQA, principally dealing with any cases of malpractice. I have worked with the current GCE Citizenship Studies throughout its development and also review support material as it is produced by publishers and examiners.
Until recently I worked in education in secondary schools as head of department and Deputy Head (Community) and finally a large Tertiary College. I have been Head of School, Head of Faculty and Senior Head of Department. In all of these I have had responsibility for Humanities and Social Science subjects but have at times also included Science and Mathematics as well as a range of vocational subjects. I have also been Learning manager where my role was related to academic audit across all Faculties and was primarily concerned with achievement.

Name: **Harriet Jones**

Current position: Lecturer

Organisation: University of East Anglia

Qualifications: PhD

Brief biography

I am a lecturer in Biology, specialising in first year teaching, specifically biodiversity and general skills for biologists, including maths and literacy. I organise several first year modules and within them assist the students in the transition from school to University. I have been researching the transition to university, in relation to biology undergraduates, since 2004. Education and career to date:
1989 BSc hons Botany, University of Bristol
1994 PhD in Biology, University of Birmingham
1994-9 Postdoctoral Research positions:University of Birmingham, Kairos Scientific / California and Imperial College.
1999 Assistant Commercial Manager, John Innes Centre
1999-2006 Senior Demonstrator/Teaching Fellow, Department of Biology, UEA
2006-date Lecturer, School of Biology, UEA, Transitions Officer 2008-date.
2005-date Consultant to post-graduate training programmes, World Land Trust
Relevant Research Awards:

2004: I researched school practical classes and looked at ways in which we could demonstrate to undergraduates how specific skills learnt at school could be used when writing in a scientific style at degree level.
2006: I investigated school pupils' perceptions of the way coursework would be handled at university and related this to their experiences from school and their evaluations of coursework feedback at university. I also looked at the teaching of maths in school, and created a course for undergraduates that helped to increase confidence in maths and provide them with numeracy skills relevant to a biology degree.
2007: I investigated ways of improving levels of literacy in undergraduates. This involved looking at the way writing skills were taught in schools.
I carry out a lot of outreach work with schools across Norfolk, to raise aspirations of Y7-11 and in pre University preparation in Y12-13. I also run workshops to help pupils with the A level biology syllybus, and realistic university taster events.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Christina Lee**

Current position: General Manager - Assessment Development

Organisation: Hong Kong Examinations and Assessment Authority

Qualifications: MA Applied Linguistics, M.I.L.

Brief biography

Christina Lee taught English Language at secondary level for 10 years before she joined the Hong Kong Examinations and Assessment Authority as an English Language Subject Officer in 1990. She served as Senior Subject Officer (English) for eight years and Assistant General Manager overseeing language subjects for two years. She is the General Manager of the Assessment Development Division, which is responsible for the development of examination syllabuses and question papers for the Hong Kong Certificate of Education Examination, the Hong Kong Advanced Level Examination and the new Hong Kong Diploma of Secondary Education Examination to be implemented in 2012. She has an MA in Applied Linguistics from the University of Reading, UK and has extensive experience in the field of English language testing. Her recent research work includes a paper entitled "The Beneficial Washback of the Introduction of a School-based Assessment Component on the Speaking Performance of Students" presented at the 34th IAEA Conference held in Cambridge in September 2008, and a presentation at the meeting of the Hong Kong Association for Applied Linguists in October 2008 on the onscreen marking of English language compositions.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Gloria Leung**

Current position: Manager-Assessment Development

Organisation: Hong Kong Examinations and Assessment Authority

Qualifications: Bachelor of Social Science (Geography), The Chinese University of Hong Kong; Certificate of Education, The University of Hong Kong; Master of Arts, City University of Hong Kong

Brief biography

I was a school teacher of the Certificate of Education Geography and Advanced Level Geography for 13 years.

I have been the Manager-Assessment Development of the Hong Kong Examinations and Assessment Authority since September, 2005, responsible for the development of question papers and the adminstration of the marking process of the Certificate of Education Geography (2005-2008) and Advanced Level Geography (2008-2009). Also, I have participated in the development of the Assessment Framework, Sample Papers, Level Description, School-Based Assessment, the conduct of consultations and teachers' training programmes for the Hong Kong Diploma of Secondary Education Geography

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **KY Lo**

Current position: Senior Manager - Assessment Development

Organisation: Hong Kong Examinations and Assessment Authority

Qualifications: Diploma of Education, M Phil in Political Science, CUHK

Brief biography

After obtaining his Bachelor Degree in Social Science, Mr Lo worked as a journalist and secondary school teacher for ten years. He started his career in the Hong Kong Examinations and Assessment Authority (HKEAA) in 1998. He is in charge of the subjects of AL Government and Public Affairs and AS Liberal Studies. His major duties are to review the existing syllabuses, preparing the examination papers, implementing School-based Asssessment (SBA)and administering of the public examination such as marking and grading, etc.

For the New Senior Secondary, Mr Lo in the past few years has been concentraing on the development of the currciculum and assessment of Hong Kong Diploma of Secondary Education (HKDSE) Liberal Studies including developing of the assessment framework, designing of the SBA, preparing of sample papers and marking guidelines and drafting of level descriptors. He works closely with Curriculum Development Institute officers, secondary school teachers and university teachers in the development of the new subject. For getting teachers familiarised with the new mode of assessment of HKDSE LS, Mr Lo designs and conducts a series of Professional Development Programmes on public examination and SBA for teachers.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Gwen Low**

Current position: Chair of Examiners

Organisation: OCR (Oxford, Cambridge and RSA Examinations)

Qualifications: BSc Hons (Univ. of London) ; PGCE (Univ. of London)

Brief biography

I am a Chair of Examiners for science at OCR, working closely with teams of senior examiners to maintain standards across science qualifications. My portfolio includes the new OCR specification in A level Biology, with whose development I have been actively involved. I have also quality assured support materials and documents for this specification. Currently, I serve on a number of working groups on assessment and chair the Question Paper Evaluation Committees and Awarding Committees for A level Biology.

From 1997 to 2002, I held the post of Subject Officer with UCLES and subsequently OCR , with specific responsibility for the management of GCE Biology. During that time, I participated extensively in the A level examination process, from question paper setting, moderation and script marking through to awarding.

I have been a Lecturer in Biological Sciences in an NHS Trust. Also, as a Head of Department in a London secondary school from 1981 to 1987, I managed the delivery of the 11-19 science curriculum, with a strong emphasis on A level sciences. I became a professionally qualified teacher in 1975.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Helen McAllister**

Current position: Assistant Director, Language Centre

Organisation: University of the Arts London

Qualifications: MA Linguistics and ELT, RSA Dip TEFL

Brief biography

Responsible for the running of English and modern languages provision and policy within the University, as well as for income generating private language course provision. Assess overseas qualifications against language requirements for Arts London courses. On Steering Group for development of Password, new online test of English grammar and vocabulary aimed at students joining pre-sessional and other preparatory programmes.

Previously Director of Studies in private English language school in Covent Garden. Taught EFL overseas (Turkey, Egypt, Switzerland) and worked in marketing (Greece), for ten years.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Niall MacKay**

Current position: Senior Lecturer, Department of Mathematics

Organisation: University of York

Qualifications: BA, PhD

Brief biography

Research: publications in Mathematical Physics. Member of EPSRC Review College, LMS Board of Editorial Advisers.

Teaching: full range of undergraduate teaching at York. Admissions Tutor 2004-date. STEP (Cambridge mathematics entrance) examiner, 1996-99.

Service: Member of LMS Education Committee, ACME Outer Circle, QAA subject benchmark group in MSOR. Former Council Member of ILTHE and HEA. Elected member of University of York Senate and associated committees.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Shaun O'Toole**

Current position: Chief Examiner English Language A

Organisation: AQA

Qualifications: BA Hons English Language and Literature; PGCE

Brief biography

He has taught English at Level 2 and Level 3 in a sixth form college for 24 years. He is the Learning Area Manager for English and Media and has been Head of Department for 10 years.

He has been an examiner and moderator for a range of Level 2 and Level 3 English courses, examing and assessing oral and written components. He has been a Chief Examiner for three English Language A levels, having been heavily involved in the design and writing of the specifications. He wrote the first A level English Language syllabus for AEB and has developed it for AQA as the subject criteria have altered. He has designed and led many INSET courses for teachers and spoken at student conferences. He has worked with QCA in the development of subject criteria and the writing of grade criteria forfor English Language.

He is the author of 'Transforming Texts' in the Routledge A level English Guides series.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Jonathan Robbins**

Current position: Reader in Applied Mathematics

Organisation: University of Bristol

Qualifications: BS, Mathematics and Physics; PhD, Physics; teaching university mathematics since 1993; Admissions tutor in Department of Mathematics since 2006

Brief biography
(include responsibilities, career development, relevant research, industrial experience etc.)

NB This text box will expand to the end of this page.

Education:
BS, Mathematics and Physics, Yale University, 1983
PhD in theoretical physics, University of California, Berkeley, 1989

Professional History:
Postdoctoral Researcher, Department of Physics, University of Bristol, 1989 - 93
Lecturer, Department of Mathematics and Statistics, University of Edinburgh, 1993 - 94
Lecturer, Department of Mathematics, University of Bristol, 1994-98
Reader, Department of Mathematics, University of Bristol, 1998-present

From 1994 through 2001, I held a joint appointment in the Basic Research Institute in the Mathematics Sciences at Hewlett-Packard Laboratories, Bristol.

I have lectured to undergraduate students in mathematics and related disciplines of all levels as well as to postgraduates, and have introduced new several modules in the Department of Mathematics. I also give tutorials to first-year maths undergraduates.

I was External Examiner at the National University of Ireland, Maynooth, Department of Mathematical Physics, from 2003 - 2007. I was External Examiner and Course Consultant in the Department of Mathematics at the Open University, 2002 - 2008.

Since 2006 I have been Admissions Tutor in the Department of Mathematics, with responsibility for setting admissions criteria, assessing applications and deciding on offers.

My research has been in several fields, including mathematical physics (quantum mechanics, quantum chaos) and liquid crystals. I have about 50 research publications, and am a member of the Advisory Panel of Journal of Physics A.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Dr Martin R Speight**

Current position: Reader in Soology, Director of Teaching for Biological Sciences, Tutorial Fellow in Biology

Organisation: University of Oxford, St Anne's College, Oxford

Qualifications: BSc (Wales), MA (Oxon), DPhil (York)

Brief biography

Teaching :- Undergrad and postgrad lectures, practcial;s and tutorials in invertebrate soology, population ecology, entomology, marine biology & ecology, tropical forest ecology and conservation. Spuervison of stunednt projects on ecology, conservation & management of UK woodlands and grasslands, rocky shores and sanddunes. Overseas projjects on tropical forest plnataions, coral reefs mangroves etc.

Admin :- All aspects of teaching such as lecture lists, timetables, interviews, pastoral care, admissions duties, access and outreach for life sciences at Oxford and elsewhere, production of PR materials, brochures, prospectuses etc, Chairman of Teaching Steering Committees and Sub-committees

Research :- All aspects of tropical ecology, conservation and management, especially impacts of human activities (fishing, logging etc) on rainforests and plantations, reefs, seagrass, mangroves etc. SuccessfuLly supervised more than 20 doctoral students

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Dr Ian Taylor**

Current position: Lecturer in Mathematics

Organisation: University of Ulster

Qualifications: BSc (1st class honours), Applied Mathematics, PhD, Applied Mathematics, Queen's University, Belfast, MInstP, CPhys

Brief biography

Teaching

Currently mathematical modelling to engineers and mathematicians

Project supervision in areas of spatial data analysis, population modelling, survey analysis.

Previous teaching includes mathematical methods, operational research, statistics

Administration

2003 – Course Director, BSc (Hons) Mathematics with Computing,

2004 – Subject Expert for degree programme in South China Agricultural University

2007 Subject Expert for QAA review of Collaborative Provision.

External Professional Activities

1994 – Scrutineer & Examiner for NI GCE A Level Mathematics

2002 Consultations with QCA on AS level revisions in Mathematics

2002 Consultation with CCEA on revisions to AS levels in Mathematics.

Research Interests

Mathematical modelling applied to population dynamics and spatial data analysis.

Recent Publications

Taylor I.R., Book Review of "Engineering Mathematics through Applications" K Singh, LTSN Engineering Subject Website, http://www.engsc.ac.uk/er/bkrev/eachreview.asp?review=128, 2006.

Livesey, G.E., Donegan, H.A. and Taylor, I.R., "Attributes of Evacuation and their Functional Sensitivities", Fire Australia - Journal of Fire Protection Association and Institution of Fire Engineers of Australia, February 2005, pp.13-19.

Booth D, Edwards P, Gordon N, Khait E & Taylor, I R "Goal Orientation in Mathematics Education for Computer Scientists and Engineers", UMTC 2004, Proc of the Undergraduate Mathematics Teaching Conference, Birmingham, 2005.

Donegan H. A., Taylor I. R., Christie G. & Livesey G., "Illustrating Some Rule Based Algorithms of Egress Complexity Using Simple Case Studies", Applied Fire Science in Transition Vol II, 2002, pp 123-138

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Dr W Alfred Venables**

Current position: Senior Lecturer

Organisation: Cardiff School of Biosciences, Cardiff University

Qualifications: BSc, PhD

Brief biography

1966. BSc Honours (Wales) in biochemistry
1971. PhD (Wales) in bacterial genetics
1966 -1969. Research Assistant at Dept of Microbiology, University College Cardiff
1969-1982. Lecturer in microbial genetics at University College Cardiff
1982-2006. Senior Lecturer in microbial genetics at Cardiff University
2006- Part time Senior Lecturer at Cardiff University

Publications
Over 30 major publications in fields of Biochemistry, Genetics, Microbiology and Ornithology

Relevant responsibilities

1971- present I have taught at undergraduate level in the following areas: microbiology, genetics, biochemistry, chemistry, molecular biology and ecological field courses.

!981- 1988. Undergraduate Admissions Tutor for BSc Microbiology
1989- present. Undergraduate Admissions Tutor for Biological Sciences

1988- present Frequent contacts with a wide variety of employers in the course of supervision of students on sandwich placement

2004-2006 Principal designer of new Common Year 1 curriculum for all biosciences degrees at Cardiff University.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Tak-wing Wan**

Current position: Assistant General Manager - Assessment Development

Organisation: Hong Kong Examinations and Assessment Authority

Qualifications: B.Sc (Eng) (HKU), P.C. Ed (HKU), M. Ed (HKU)

Brief biography

After graduated from his under-graduate programme in the University of Hong Kong, Tak-wing taught in a secondary school, in the capacity of a mathematics teacher for six years. He obtained the Postgraduate Certificate of Education and Master of Education in the University of Hong Kong in 1988 and 1994 respectively, both majoring in mathematics education.

Tak-wing joined the Hong Kong Examinations and Assessment Authority (HKEAA) in 1989 as a subject manager in mathematics. His main duty included the development of examination syllabuses, production of examination papers, coordination for the marking for the mathematics papers in both the Hong Kong Certificate of Education Examination (HKCEE) and the Hong Kong Advanced Level Examination (HKALE). He was involved in the major development and revision of the mathematics curricula and assessment models in the senior secondary education in Hong kong, including the introduction of the Advanced Supplementary Level mathematics courses in early 90s and the development of the mathematics curriculum and assessment model for the new Hong Kong Diploma of Secondary Education (HKDSE) Examination in recent years.

He is currently the Assistant General Manager of the Assessment Development Divison of the HKEAA. His main duties includes the general administration of the Division, development and administration of the HKCEE and HKALE, School-based Assessment development and administration, and the assessment development for the HKDSE.

UCAS COMPARABILITY STUDY

Outline biography of Expert Group member

Name: **Dr Adrian M Wood**

Current position: Programme Manager Geography

Organisation: Coventry University

Qualifications: BSc (London) PhD (Wales)

Brief biography

1987 BSc Geology University of London
1993 PhD Palaeontology University of Wales
1994 Lecturer Geography Dept Coventry University
2000 Senior Lecturer Geography Dept Coventry University
2007 Programme Manager Geography Coventry University

Programme Manger for all geography and geography-related degrees, including geography, natural hasards and climate change. This post involves the development, implimentation and continued assessment of new programmes in order to provide quality assurance. My interests are varied, including the development of new modules in support of geography in schools, however, my main area of research is biogeography, evolution and climate change

APPENDIX 2 THE EVIDENCE CONSIDERED

English Group

Hong Kong Diploma – English

- Curriculum and assessment guide
- Specimen paper
- Mark scheme
- Assessment framework

AQA GCE English Language A

- Specification
- Specimen question papers – unit 1 and 3
- Unit 1 mark schemes – unit 1 and 3
- Teacher resource bank

Liberal Studies Group

Hong Kong Diploma – Liberal Studies

- Curriculum and assessment guide
- Specimen paper
- Mark scheme
- Assessment framework

AQA A level Citizenship Studies

- Specification
- Specimen papers – Units 1 – 4
- Mark schemes – Units 1 – 4
- Resources list – Unit 1
- Scheme of work – Unit 1
- Teacher guidance – Unit 1

Mathematics Group

Hong Kong Diploma – Mathematics

- Curriculum and assessment guide
- Specimen paper
- Mark scheme
- Assessment framework

CCEA GCE A level in Mathematics

- Specification
- Assessment materials
- AS mark scheme
- A2 mark scheme
- Examiners report

Biology Group

Hong Kong Diploma - Biology

- Curriculum and assessment guide
- Specimen papers
- Sample assessment material
- Mark scheme
- Assessment framework

OCR A level Biology

- Specification
- Specimen papers
- Support materials – Units1 ,2, 4 and 5
- Practical skills handbook

Geography Group

Hong Kong Diploma – Geography

- Curriculum and assessment guide
- Assessment framework
- Sample paper and mark scheme

Edexcel GCE A level Geography

- Specification
- Sample assessment materials
- Teacher materials
- Exemplar materials - Unit 1

APPENDIX 3: GEOGRAPHY - COMPARABILITY OF CONTENT

	HK Diploma	Edexcel AS
Physical	Life in Hasard prone areas Global warming – fact or fiction?	World at Risk: Risk equation: why are some places more hazardous and disaster prone than others; global warming – impacts of climate change; strategies for dealing with climate change; challenge of global hazards for the future
	Managing Rivers and Coastal Environments - a continuing challenge	(Elements Module 2 – Extreme weather and Crowded coasts)
Human	Facing changes in the human environment : Changing industrial location – change over space and time Building a sustainable city – environmental conservation and urban development	What is globalisation? Differences in level of wealth and power: global networks; social and environmental consequences of globalisation – viability of green strategies Roots - pattern of population change in the UK; migration changing the face of the UK; new urbanisation and its consequences;
Fieldwork /research	SBA – a geographical issues/problem or phenomenon worth investigating	Geographical Investigations – **one physical** and **one human**: fieldwork, research and practical work
	Optional Unit: Weather and Climate	Extreme weather: what leads to extreme weather; impacts of extreme weather on the economy/environment; people and places at risk; response/coping with extreme weather
	Managing Rivers and Coastal Environments - a continuing challenge	Crowded coasts: why is the coast favoured for development; how do coastal developments create competition and conflict; coastal development at risk from physical processes; how adapt to new ideas and situations.
	Building a sustainable city – environmental conservation and urban development	Unequal spaces: what are unequal spaces and what causes them; what impact do they have on people; how is rural inequality managed ; what strategies can be used to combat inequality?
		Rebranding places: what is it and why is it needed; who are the 'rebranding players'; what strategies exist; how successful has rebranding been in the countryside and in urban areas
		Edexcel **A2**
		Contested Planets
		Energy Security: is the world energy secure; potential impacts of an increasingly energy insecure world; what might be the world's future energy
		Water Conflicts: world supply and demand; implications of increasingly water insecure world; possible conflicts and solutions to increasing demands for water;
	Disappearing Green Canopy: who should pay for massive deforestation in rainforest regions	Biodiversity Under Threat: nature and value of biodiversity; what threatens biodiversity; can these threats be successfully managed
		Superpower Geographies: who are the superpowers; what impacts and influence do superpowers have; implications of the continued rise of new superpowers;

		Bridging the Development; what is the nature of the development gap; implications at different scales for the world's poorest people; how can the gap be reduced and by whom
	Combating famine – is technology a panacea for food shortage	The Technological Fix: inequality of access; how does technology determine development and resource use; role of technology in the management of the contested planet.
		Geographical Research – chose **one of SIX** options
	Life in hazard-prone areas	Tectonic Activity: what are tectonic hazards; impact on landscapes; impact of tectonic hazards on people and how do they vary: how do they cope
		Cold Environments: where and what are they; climatic processes causing them; how do geomorphological processes produce distinctive landscapes; challenges and opportunities of such environments
	Combating famine – is technology a panacea for food shortage	Life on the Margins-food supply: characteristics of food supply and security; what causes inequality; role of desertification in threatening life at the margins; effectiveness of management strategies to sustain life at the margins
		The World of Cultural Diversity: nature and value of culture; why does if vary spatially; how is globalisation impacting on culture; how do cultural values impact on our relationship with the environment.
	Building a sustainable city – environmental conservation and urban development	Pollution and Human Health: what are health risks; what are health risks; how are they caused; links between health and pollution; how can impacts of health be managed; what cannot be managed.
	Building a sustainable city – environmental conservation and urban development	Consuming the Rural Landscape – Leisure and Tourism: the relationship between the growth of leisure and tourism and the rural landscape; significance of the rural landscape for leisure and tourism; impact on the landscape; how can leisure and tourism in the rural landscape be managed
	Transport and development, planning and management	
	Dynamic Earth: the building of Hong Kong	
	Regional Study of Shujiang (Pearl River) Delta	