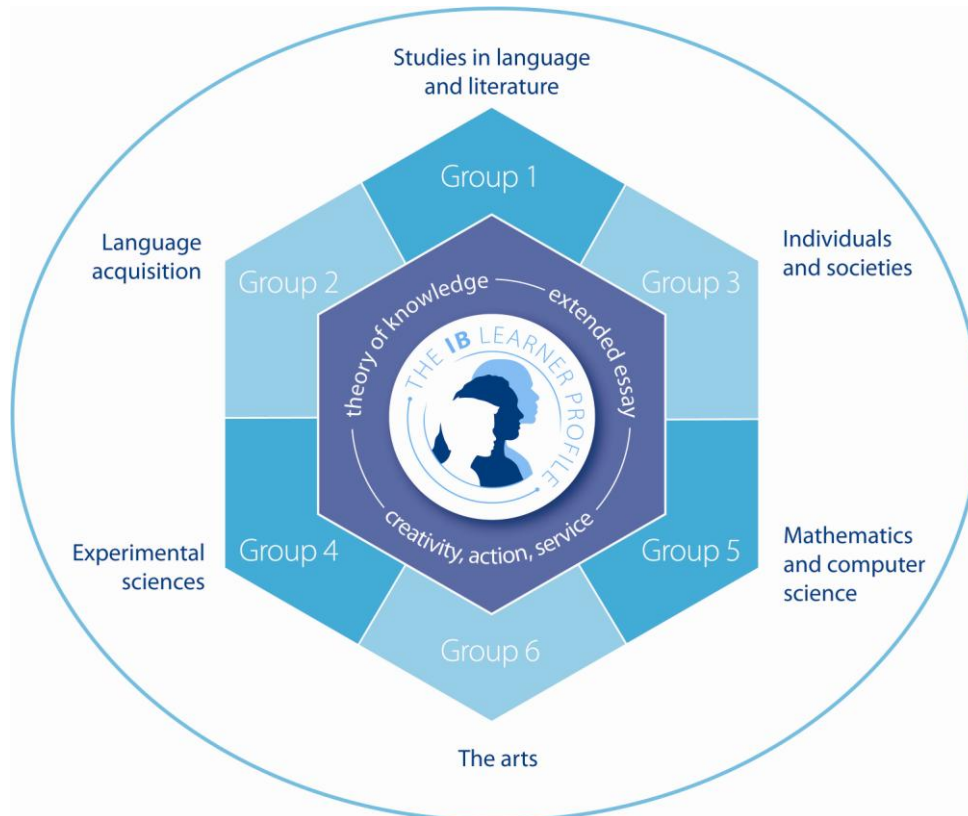


International Baccalaureate Diploma Course Programme Guide at ISR



August 2011 to May 2013



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Introduction

In August 2006 the International School Rheintal began delivering the International Baccalaureate Diploma Programme, for which it had been authorised. This Programme is a rigorous pre-university course of studies, leading to examinations, which meet the needs of highly motivated secondary school students between the ages of 16 and 19 years. Designed as a comprehensive two-year curriculum that allows its graduates to fulfil requirements of various national education systems, the Diploma Programme model is based on the pattern of no single country but incorporates the best elements of many. The programme is available in English at the International School Rheintal. The curriculum is displayed in the shape of a hexagon with six academic areas surrounding the core. Subjects are studied concurrently.

Diploma Programme candidates are required to select six subjects. At least three and not more than four are taken at higher level (HL), the others at standard level (SL). Higher level courses represent 240 teaching hours; standard level courses cover 150 hours. By arranging work in this fashion, students are able to explore some subjects in depth and some more broadly over the two-year period; this is a deliberate compromise between the early specialization preferred in some national systems and the breadth found in others.

Distribution requirements ensure that the science-orientated student is challenged to learn a foreign language and that the natural linguist becomes familiar with science laboratory procedures. While overall balance is maintained, flexibility in choosing higher level combinations allows the student to pursue areas of personal interest and to meet special requirements for university entrance.

Successful Diploma Programme candidates meet three requirements in addition to the six subjects. The interdisciplinary Theory of Knowledge (ToK) course is designed to develop a coherent approach to learning, which transcends and unifies the academic areas and encourages appreciation of other cultural perspectives. The Extended Essay of some 4000 words offers the opportunity to investigate a topic of special interest and acquaints students with the independent research and writing skills expected at university. Participation in the creativity, action and service (CAS) requirement encourages students to be involved in artistic pursuits, sports and community service work.

The school currently offers courses in two A languages, English and German, and a self-study option for other mother tongue students (Standard Level only), German ab initio, English and German B, History, Economics, Physics, Biology, Chemistry and Mathematics, all at Higher and Standard Level, and Math Studies Standard Level.

Individual courses may not be run if there are not a sufficient number of candidates electing to study that subject.

Course Outlines

GROUP 1 - Language A: English and German

Language A – Literature (HL & SL)

All IB Diploma students are expected to study examples of literature from their 'mother-tongue' language; the school offers texts in English and German as well as providing insights into the etymology and linguistic cultures of the languages. Students may follow the Self-taught option at Standard Level, but this must be agreed by the Director and IB coordinator before the course commences.

The **Language A: Literature** course is new this year, and first examinations will occur in 2013.

Skills

The study of literature is the main focus of this course - the clear presentation of ideas, arguments or responses to the works studied are assessed both orally and in written form. Students engage in detailed critical examination of texts and as appropriate for an international community, they have the opportunity to explore the literature of different cultures.

Content

- Part One: Works in Translation (HL 3 works and SL 2 works): Students focus on three/two works in translation, chosen from an extensive list of works originally written in a language other than the chosen A language.
- Part Two: Texts for Detailed Study (HL 3 works, with Poetry mandated and SL 2 works): The IB provides a list from which these works are chosen.
- Part Three: Literary Genres (HL 4 works and SL 3 works): The IB groups the works of certain authors by genre, one genre being chosen for study by the school.
- Part Four: School's Free Choice (HL 3 works and SL 3 works): This component includes works from the prescribed list or elsewhere, and may include works in translation.

Assessment

- Part One: Assessment will be through external evaluation of an essay and a written reflection at HL and SL and worth 25% of the final grade.
- Parts Two and Four: This will be an internally assessed and externally moderated oral component, which forms 30% of the final grade.
- Part Three: Assessment will be by external written examination worth 45% of the final grade. The examinations also include a commentary-writing component.

In the academic session August 2011 to May 2013 the following works of literature may be studied by the students as flexibility is needed as the new course is explored. Proposed selection:

English

Part 1: Works in Translation

Euripides: Medea
Marquez: Love in the Time of Cholera
Ibsen: Hedda Gabler
Kafka: Metamorphosis
Mann: Death in Venice

Part 2: Detailed Study

Shakespeare: Hamlet, Macbeth
Poetry(required for HL): Metaphysical Poetry,
Romantic Poetry

German

Part 1: Works in Translation

L. Esquivel: Bittersuesse Schokolade
G. Marquez: Chronik eines angekündigten Todes
Sophokles: Oedipus
OR: A. Dorfman: Der Tod und das Mädchen

Part 2: Detailed Study

Autobiografie: F. Zorn: Mars
Prosa : Kafka : Die Verwandlung
Lyrik: Romantik
Drama: J.W.v. Goethe: Faust

Part 3: Literary Genres

Conrad: Heart of Darkness
Achebe: Things Fall Apart
Ishiguro: Remains of the Day
(HL) McEwen: Atonement

Part 4: School's Free Choice

Williams: Streetcar Named Desire
Fitzgerald: The Great Gatsby
Poetry: Blake, Frost et al

Part 3: Genre: Drama

F.Dürrenmatt: Besuch der alten Dame
Oe.v.Horvath: Geschichten aus dem Wiener Wald
Theresia walsler: King Kongs Tochter
Felix Mitterer: Sibirien

Part 4: School's Free Choice:

B.Schlink: Der Vorleser
P. Süskind: Das Parfüm
R.Schneider: Schlafes Bruder

Literature is concerned with our conceptions, interpretations and experiences of the world. The study of literature, therefore, can be seen as a study of all the complex pursuits, anxieties, joys and fears that human beings are exposed to in the daily business of living. It enables an exploration of one of the more enduring fields of human creativity and artistic ingenuity, and provides immense opportunities for encouraging independent, original, critical and clear thinking. It also promotes a healthy respect for the imagination and a perceptive approach to the understanding and interpretation of literary works. The discussion of literature is itself an art which requires the clear expression of ideas both orally and in writing.

The Language A: Literature programme encourages students to see literary works as products of art and their authors as craftsmen whose methods of production can be analysed in a variety of ways and on a number of levels. This is achieved through the emphasis placed on exploring the means used by different authors to convey their subjects in the works studied. It is further reinforced by the comparative framework emphasized for the study of these works in all parts of the programme.

The aims of the Language A: Literature programme at both Higher and Standard Levels are to:

- encourage a personal appreciation of literature and develop an understanding of the techniques involved in literary criticism
- develop the students' powers of expression, both in oral and written communication, and provide the opportunity of practising and developing the skills involved in writing and speaking in a variety of styles and situations
- introduce students to a range of literary works of different periods, genres, styles and contexts
- broaden the students' perspective through the study of works from other cultures and languages
- introduce students to ways of approaching and studying literature, leading to the development of an understanding and appreciation of the relationships between different works
- develop the ability to engage in close, detailed analysis of written text
- promote in students an enjoyment of, and lifelong interest in, literature.

The internal assessment is divided between the Works in Translation Essay and the Oral tasks. In total 55% of the Language A: Literature course is undertaken before the examinations, of which 15 % is internally assessed and externally moderated.

GROUP 2 – Language B and *ab initio*

Language B: English and German

Available at both higher and standard levels, the language B course occupies the middle ground of the group 2 modern languages spectrum. Language B is a language learning course for students with some previous experience of learning German. The main focus of the course is on language acquisition and the development of skills considerably beyond those expected of an *ab initio* candidate.

The Language B course gives students the opportunity to reach a high degree of competence in German and to explore the cultures using the language. The range of purposes and situations for which and in which the language is used extends well beyond those at *ab initio*, to the domains of work, social relationships, and the discussion of abstract ideas, for example. The types of language needed for these purposes and situations are more refined.

Language B SL is for a language learner who may not intend continuing study of the language beyond the Diploma Program and who:

- Has 2 to 5 years experience of the target language
- Is not taught other subjects in the target language
- Is normally taught outside a country where the language is spoken
- Is a beginner or near-beginner who lives in a country where the language is spoken

Language B HL is for a language learner who intends to study the language at this level for a future career, or to meet a Diploma Program requirement, and who:

- Has 4 to 5 years experience of the target language
- Is not taught other subjects in the target language
- Is normally taught outside a country where the language is spoken.

Both HL and SL English/German B incorporate the four primary language skills:

- Listening
- Speaking
- Reading
- Writing

Competence in each of the primary language skills will involve an understanding of three interrelated areas:

- Language- handling the language system accurately (grammar, syntax, etc.)
- Cultural interaction- selecting language appropriate to cultural and social context
- Message understanding- ideas and how they are organized in order to communicate them appropriately.

Texts: Language skills are developed through the use of a wide range of texts or material, which are selected in view of their communicative purpose.

Internal Assessment: Oral Component 30%

External Assessment: Written Component 70%

- Paper 1: Text Handling 1½ hours 25%
- Text-handling exercises based on four written texts. A short written exercise in response to the fourth text.
- Paper 2: Written Production 1½ hours 25%
- Section A: short writing task
- Section B: extended writing task
- Paper 3: Written Essay produced in class over a period of 6 hours, 750 words 20%

***ab initio*: German**

The overall objective of this course is for students to achieve communicative competence in a variety of everyday situations.

At the end of the language *ab initio* course candidates will be expected to demonstrate ability to:

- Communicate information and some basic ideas clearly and effectively, in a limited range of situations.
- Understand and use accurately the essential spoken and written form of the language in a limited range of situations.
- Understand and use a limited range of vocabulary in common usage.
- Use a register that is generally appropriate to the situation.
- Show an awareness of some elements of the cultures related to the language studied.

German *ab initio* incorporates the four primary language skills:

- Listening
- Speaking
- Reading
- Writing

Concerning the assessment outline, there are two oral activities to be internally assessed by the teacher and externally moderated by the IBO

- An Individual Oral Activity : short interview with the teacher 15%
- An Interactive Oral Activity 15%

External Assessment: Written Component 70%

- Paper 1: Text Handling 1½ hours 40%
- Text-handling exercises based on four written texts. A short written exercise in response to the fourth text.
- Paper 2: Written Production 1½ hours 30%
- Section A: short writing task
- Section B: extended writing task

GROUP 3 – Individuals and Societies

Group 3 aims:

The aims of all subjects in **group 3, individuals and societies** are to:

1. encourage the systematic and critical study of: human experience and behaviour; physical, economic and social environments; the history and development of social and cultural institutions
2. develop in the student the capacity to identify, to analyse critically and to evaluate theories, concepts and arguments about the nature and activities of the individual and society
3. enable the student to collect, describe and analyse data used in studies of society, to test hypotheses and interpret complex data and source material
4. promote the appreciation of the way in which learning is relevant to both the culture in which the student lives, and the culture of other societies
5. develop awareness in the student that human attitudes and opinions are widely diverse and that a study of society requires an appreciation of such diversity
6. enable the student to recognize that the content and methodologies of the subjects in group 3 are contestable and that their study requires the toleration of uncertainty.

History (HL & SL)

The aims of the **history** course at SL and HL are to:

- promote an understanding of history as a discipline, including the nature and diversity of its sources, methods and interpretations
- encourage an understanding of the present through critical reflection upon the past
- encourage an understanding of the impact of historical developments at national, regional and international levels
- develop an awareness of one's own historical identity through the study of the historical experiences of different cultures.

The learning of facts and dates is only the first step in History at IB level, although of course a detailed familiarity with events is essential for what comes after this initial step. The IB History student has also to understand the concepts and philosophies behind modern historical developments. The main goal is insight into why things have happened and their consequences, and the ability to reach one's own supported conclusions on this question, based on wide and informed reading of sources and historical texts provided by the teacher and supplemented by the student's own interest. For the IB History course, a good deal of reading and study is required, as well as enthusiasm for history and a full commitment to it.

Skills

The way, in which knowledge of the subject is built up and expressed, is not by the simple question-and-answer type of approach, but through source analysis, essay writing, debates and presentations in class. The development of skills in source analysis and essay writing are vital aspects of the course. During the course, the student learns how to read and interpret historical sources, using those sources in order to write a coherent, well-argued historical essay, which includes a variety of perspectives and historiography. Skills in the use of sources, as well as being a separate and distinct part of the syllabus, are also the main means by which the skills and knowledge in the other parts of the course are acquired.

History SL/HL covers the 20th Century, with:

One prescribed subject:

1. The Arab–Israeli conflict 1945–79

Two 20th century world history—topics

1. Causes, practices and effects of wars
2. Origins and development of authoritarian and single-party states

Additionally, HL History covers Aspects of the History of Europe and the Middle East.

Assessment

HL and SL assessment consists of an externally assessed written examination (SL-75%, HL-80%) and an in-depth historical investigation on any historical subject, internally assessed by the teacher and externally moderated (SL-25%, HL-20%).

Standard level candidates are required to study one prescribed subject and two 20th century world history topics and undertake one historical investigation. *Standard level does not take the HL regional option.*

Higher level candidates are required to study one prescribed subject, two 20th century world history topics, one regional option and undertake one historical investigation.

1) Prescribed Subjects (SL/HL)

Prescribed Subjects-Use of source material

One of the objectives of the history course is to develop candidates' ability to comprehend, analyse, evaluate and use source material critically as historical evidence. Study of a prescribed subject using sources is intended to develop candidates' ability to:

- comprehend and explain the meaning of terms and references in sources and analyse sources
- classify them, draw inferences from them, compare and contrast them, test their judgments, and explain their meaning and significance, evaluate the reliability and usefulness of particular sources
- make judgments about them that involve the use of external standards and criteria, place sources and content in a wider historical context, thereby achieving understanding of them beyond what is possible from internal analysis alone, construct an argument or short essay using and synthesizing material in the sources together with their own knowledge.

Under each prescribed subject a list of areas on which source-based evidence will focus is provided. However, not all areas will be covered in each examination session.

Prescribed subject 2: The Arab–Israeli conflict 1945-79

This prescribed subject addresses the development of the Arab–Israeli conflict from 1945 to 1979. It also requires consideration of the role of outside powers in the conflict either as promoters of tension or mediators in attempts to lessen tensions in the region. The prescribed subject requires study of the political, economic and social issues behind the dispute and the specific causes and consequences of the military clashes between 1948-9 and 1973. The nature and extent of social and economic developments within the disputed territory of Palestine/Israel within the period and their impact on the populations should also be studied. The end date for the prescribed subject is 1979 with the signing of the Egyptian–Israeli peace agreement.

Areas on which the source-based questions will focus are:

- last years of the British Mandate; UNSCOP partition plan and the outbreak of civil war
- British withdrawal; establishment of Israel; Arab response and 1948/49 war
- demographic shifts: the Palestinian Diaspora 1947 onwards; Jewish immigration and the economic development of the Israeli state
- Suez Crisis of 1956: role of Britain, France, the United States, the USSR, Israel and the UNO
- Arabism and Zionism; emergence of the PLO
- Six Day War of 1967 and the October War of 1973: causes, course and consequences
- role of the United States, USSR and UNO
- Camp David and the Egyptian-Israeli Peace Agreement.

2) 20th Century World History Topics (SL/HL)

Questions will be set on major themes. Some of these will require knowledge of **two** regions.

Topic 1: Causes, practices and effects of war

War was a major feature of the 20th century. In this topic the different types of war should be identified, and the causes, practices and effects of these conflicts should be studied.

Major themes

Different types and nature of 20th century warfare

- Civil
- Guerrilla
- Limited war, total war

Origins and causes of wars

- Long-term, short-term and immediate causes
- Economic, ideological, political, religious causes

Nature of 20th century wars

- Technological developments, tactics and strategies, air, land and sea
- Home front: economic and social impact (including changes in the role and status of women)
- Resistance and revolutionary movements

Effects and results of wars

- Peace settlements and wars ending without treaties
- Attempts at collective security pre- and post-Second World War
- Political repercussions and territorial changes
- Post-war economic problems

Material for detailed study

- First World War (1914-18)
- Russian Civil War (1918-1921)
- Second World War (1939-45)
- Europe and Middle East: Arab-Israeli Wars, Iran–Iraq war (1980-88), Gulf War (1991)

Topic 3: Origins and development of authoritarian and single-party states

The 20th century produced many authoritarian and single-party states. The origins, ideology, form of government, organization, nature and impact of these regimes should be studied.

Major themes

Origins and nature of authoritarian and single-party states

- Conditions that produced authoritarian and single-party states
- Emergence of leaders: aims, ideology, support
- Totalitarianism: the aim and the extent to which it was achieved

Establishment of authoritarian and single party states

- Methods: force, legal
- Form of government, (left- and right-wing) ideology
- Nature, extent and treatment of opposition
- Domestic policies and impact
- Structure and organization of government and administration
- Political, economic, social and religious policies
- Role of education, the arts, the media, propaganda
- Status of women, treatment of religious groups and minorities

Material for detailed study

- Americas: Cuba—Castro
- Europe and the Middle East: Germany—Hitler; USSR—Stalin; Egypt—Nasser

3) HL option: Aspects of the history of Europe and the Middle East (HL Only)

This option covers major trends in Europe and the Middle East in the period from the mid 18th century to the end of the 20th century. Europe and the Middle East are geographically close, and their similarities and differences have resulted in periods of cooperation and enmity. Major developments included revolutions; the decline of empires and the establishment of nation states; political, social and economic reforms; and the emergence of dictatorships and the re-emergence of democracy. Although the focus is on major countries, developments in other states can be studied through case studies. Topics include:

- War and change in the Middle East 1914-49
- Post-war developments in the Middle East 1945-2000
- European diplomacy and the First World War 1870-1923
- Interwar years: conflict and cooperation 1919-39
- Imperial Russia, revolutions, emergence of Soviet State 1853-1924
- The Soviet Union and Eastern Europe 1924-2000

4) Historical Investigation (SL/HL)

The historical investigation is a problem-solving activity that enables students to demonstrate the application of their skills and knowledge to a historical topic that interests them and that need not be related to the syllabus. The internal assessment allows for flexibility and should encourage students to use their own initiative. The emphasis must be on a specific historical inquiry that enables the student to develop and apply the skills of a historian by selecting and analysing a good range of source material and managing diverse interpretations. The activity demands that students search for, select, evaluate and use evidence to reach a relevant conclusion. The investigation should be written in the specific format outlined later in the year.

Examples of the types of investigations students may undertake are:

- historical topic or theme using written sources or a variety of sources
- historical topic based on fieldwork, for example, a museum, archeological site, battlefields, places of worship such as mosques or churches, historic buildings
- historical problem using documents (this could include newspapers)
- local history study
- historical study based on oral interviews
- historical investigation based on interpreting a novel, film or work of art
- historical investigation of cultural issues.

The Historical Investigation, 1600-2000 words, will be internally assessed by the teacher and externally moderated by the IBO.

Economics (HL & SL)

Economics is a social science, closely related to other academic disciplines such as sociology, political science and anthropology. History and geography also provide background material for the study of economics.

Content

Among the challenges common to all societies is the search for acceptable levels of economic well being. Individuals, firms and governments must constantly make choices that will affect both their own economic well-being and that of society as a whole. How are such choices made and on what basis are their consequences to be analysed? The questions of "What?" "How?" and "For whom?" are central to the field of Economics. These should not be seen as abstract economic concepts, which are confined to a classroom, but as contemporary real world issues. Economics in the IB puts great emphasis on the issue of development, in the belief that the study of Economics and economic development are part of the solution to world problems. At the root of Economics as a discipline is the search for a better understanding of the workings of human society.

Skills

The aims of the IB Economics programme are to develop in the candidate:

- Disciplined skills of economic reasoning.
- An ability to apply the tools of economic analysis to past and contemporary situations and data, and to explain the findings clearly.
- An understanding of how individuals, organizations, societies and regions organize themselves in the pursuit of economic objectives.
- An ability to evaluate economic theories, concepts, situations and data in a way that is rational and unbiased.
- International perspectives that feature a respect for and understanding of the interdependence and the diversity of economic realities in which individuals, organizations and societies function.

Assessment

Both HL and SL are assessed by external examinations which count for 80% at HL and 75% at SL. Internal assessment consists of guided coursework (4 portfolios of commentaries on contemporary economic issues, with at least 650 and at most 750 words) counting for 20% at HL and 25% at SL.

The course deals with the following areas of economics:

Section 1: Introduction to economics

Section 2: Microeconomics

Markets

Elasticities

Theory of the firm (higher level only)

Market failure

Section 3: Macroeconomics

Measuring national income

Introduction to development

Macroeconomic models

Demand-side and supply-side policies

Unemployment and inflation

Distribution of income

Section 4: International economics

Reasons for trade

Free trade and protectionism

Economic integration

World Trade Organization (WTO)

Balance of payments

Exchange rates

Balance of payment problems

Terms of trade

Section 5: Development economics

Sources of economic growth and/or development

Consequences of growth

Barriers to economic growth and/or development

Growth and development strategies

Evaluation of growth and development strategies

Economics is a dynamic social science, forming part of the study of individuals and societies. The study of Economics is essentially about the concept of scarcity and the problem of resource allocation. Although Economics involves the formulation of theory, it is not a purely theoretical subject: economic theories can be applied to real-world examples. Economics is also a discrete

subject, since it incorporates elements of history, geography, psychology, sociology, political studies and many other related fields of study.

Economics does not exist in a vacuum, because it naturally must consider how economic theory is to be applied in an international context. The scientific approach characterizes the standard methodology of Economics. This methodology can be summarized as a progression from problem identification, through hypothesis formulation and testing, arriving finally at a conclusion. Alongside the empirical observations of positive economics, students of the subject are asked to formulate normative questions. Encouraging students to explore such questions forms the central focus of the economics course.

The aims of the **Economics** course at higher level and standard level are to:

- provide students with a core knowledge of economics
- encourage students to think critically about economics
- promote an awareness and understanding of internationalism in economics
- encourage students' development as independent learners
- enable students to distinguish between positive and normative economics
- enable students to recognize their own tendencies for bias.

Portfolios

Candidates must produce a portfolio of four commentaries, with at least 650 and at most 750 words, based on a news media extract, linking economic theory to a real-world situation.

Three of the four commentaries must have as their main focus a different section of the syllabus, although it is acceptable for commentaries to make reference to other sections.

The portfolios must address the following areas:

- Microeconomics
- Macroeconomics
- Trade
- Development

Internal assessment is an integral part of the economics course. It enables candidates to demonstrate the application of their knowledge of economic theory to real-world situations without the time constraints of written examinations. The production of a portfolio of four commentaries based on extracts from published news media has a number of further advantages.

- Because examination questions need to be written about two years in advance, some immediacy is lost. The portfolio fills this gap.
- Compiling a portfolio is more closely related to the classroom activities of teachers than it is to the formal tasks set by examiners. It is a way of rewarding candidates' enthusiasm and achievements during the learning process.
- Because the portfolio does not add any content to the syllabus, it can be a natural part of classroom and homework activities. It can be used as a motivating factor, increasing the liveliness and relevance of economics classes.
- The portfolio enables candidates to follow up aspects of the subject in which they are particularly interested. It enables them either to focus on international issues to broaden their understanding of the global impact of Economics, or to focus on issues particularly relevant to their own country or region.

Requirements

The requirements are the same at higher level and standard level. Candidates produce a portfolio of four commentaries of 650–750 words each, based on published extracts from the news media. The extracts may be from a newspaper, a journal or the World Wide Web, but must not be from television or radio broadcasts.

Each commentary must:

- explain the linkages between the extract and an economic theory taken from the section of the syllabus on which the commentary is based
- demonstrate economic insights into the implications of the extract (that is, it should provide evidence of the candidate's ability to evaluate current events from the point of view of an economist).

Focus

Three out of the four commentaries must have as their main focus a different section of the syllabus, although it is acceptable for commentaries to make reference to other sections. The fourth commentary can focus either on a single section or can focus on two or more sections of the syllabus.

Selection of extracts

Sources

The extracts on which each commentary is based must be drawn from four different sources. Extracts must as far as possible be contemporaneous with the course. Teachers should encourage candidates to look for material relating to current events. This may include material published up to six months before the start of the course.

Individual work

Candidates must select their own articles to analyse. Candidates may base their commentaries on the same extract, but the extract must not be given to the class by the teacher, and the production of the commentary must be each candidate's individual work. A commentary must not be prepared collaboratively.

Language of extract

If possible, the extract on which the commentary is based should be in the working language of the school. If an extract in another language is used, the candidate must provide a translation, in the working language of the school, exclusively of the parts of the article referred to in the commentary.

Groups 3 & 6 Online Courses

This year ISR is offering, through an external company approved by the IBO, two provisional online courses: Psychology SL and Film SL

If you would like further information about these courses, please contact the Diploma Coordinator.

GROUP 4 - Experimental Sciences

In all studies of group 4 programmes students should become aware of the way in which scientists work and communicate with each other throughout the world. While, in practice, *the scientific method* may take on a wide variety of forms, it will generally involve the formation, testing and modification of hypotheses, through observation and measurement, under the controlled conditions of an experiment. It is this approach, along with the falsifiability of scientific hypotheses that distinguishes the sciences from other disciplines and characterises each of the courses within Group 4.

Skills

It is the intention of all experimental sciences programmes that students should be able to:

- demonstrate an understanding of scientific facts and concepts, scientific methods/techniques scientific terminology and methods of presenting scientific information.
- apply and use scientific facts and concepts, scientific methods/techniques, scientific terminology to communicate effectively and appropriate methods to present scientific information.
- construct, analyse, and evaluate hypotheses, research questions and predictions, scientific methods/techniques and procedures and scientific explanations.
- demonstrate the personal skills of cooperation, perseverance and responsibility appropriate for effective scientific investigation and problem solving.
- demonstrate the manipulative skills necessary to carry out scientific investigation with precision and safety.

Assessment

Group 4 students will be expected to spend approximately 25% of the course duration on practical work. This will consist of a Group 4 project (a scientific investigation across all three disciplines) and a variety of "hands on" practical experiments to reinforce the theory. The overall contribution of internal assessment to the total mark will be 24% the remaining 76% is assessed externally by examination.

There are five assessment criteria for the practical work, which are all marked by a criterion referencing method. These are used to assess the work of both higher level and standard level candidates:

- *design*—D
- *data collection and processing*—DCP
- *conclusion and evaluation*—CE
- *manipulative skills*—MS
- *personal skills*—PS

Each candidate will be assessed at least twice on each of the first three criteria. The two marks for each of the criteria are added together with the marks for MS and PS to determine the final mark out of 48 for the IA component. This will then be scaled at IBCA to give a total out of 24%. The scaling occurs after the external moderation of the practical work has taken place. Each of the first three assessment criteria is separated into three **aspects**. Descriptions are provided to the students to indicate what is expected in order to meet the requirements of a given aspect **completely (c)** and **partially (p)**. A description is also given for circumstances in which the requirements are not satisfied, **not at all (n)**.

Additionally there is the **Group 4 Project**, where the different disciplines of science join together for a multidisciplinary scientific investigation of a scientific area of interest to the students. The students in each subject will then plan experimental work relating to the central theme from the branch of science that they are investigating. This year the Group 4 project will be carried out with grades 11 and 12 combined.

Physics (HL & SL)

Physics HL is a rigorous academic course designed for those who are thinking of pursuing science, engineering or related subjects at university. The syllabus has both breadth and depth. Students attempting IB Physics HL should also be taking IB Mathematics HL or SL.

Since all Grade 11 students are HL Physics candidates, we will cover the Core (SL) material in the first year, followed by the AHL and topics in the second year.

Skills

Students gain an understanding of quantitative data analysis, including data gathering, mathematical and analysis skills, and in particular, an understanding of what it means to obtain a value, and the confidence that one can associate with that value.

Content

Standard Level

The realm of physics

Measurement and uncertainties

Vectors and scalars

Mechanics

Kinematics

Forces and dynamics

Work, energy and power

Uniform circular motion

Thermal physics

Thermal concepts

Thermal properties of matter

Oscillations and waves

Kinematics of simple harmonic motion (SHM)

Energy changes during simple harmonic motion (SHM)

Forced oscillations and resonance

Wave characteristics

Wave properties

Electric currents

Electric potential difference, current and resistance

Electric circuits

Fields and forces

Gravitational force and field

Electric force and field

Magnetic force and field

Atomic and nuclear physics

The atom

Radioactive decay

Nuclear reactions, fission and fusion

Energy, power and climate change

Energy degradation and power generation

World energy sources

Fossil fuel power production

Non-fossil fuel power production

Greenhouse effect

Global warming

Additional Higher Level

Motion in fields

Projectile motion

Gravitational field, potential and energy

Electric field, potential and energy

Orbital motion

Thermal physics

Thermodynamics

Processes

Second law of thermodynamics and entropy

Wave phenomena

Standing (stationary) waves

Doppler effect

Diffraction

Resolution

Polarization

Electromagnetic induction

Induced electromotive force (emf)

Alternating current

Transmission of electrical power

Quantum physics and nuclear physics

Quantum physics

Nuclear physics

Digital technology

Analogue and digital signals

Data capture; digital imaging using charge-coupled devices (CCDs)

By the end of Grade 11 all students will have completed up to and including *Atomic and nuclear physics*, and the HL students will have covered the AHL components of *Motion in Fields* and *Thermal Physics*. In Grade 12 all students will study *Energy, Power and Climate Change* plus the two options. The HL students will cover the AHL topics *Wave Phenomena, Electromagnetic Induction, Quantum and Nuclear Physics* and *Digital Technology*. Both the standard level and higher level options will be decided based on the main skills and interests of the classes.

About 35 practical experiments are completed during the two years.

Biology (HL & SL)

Biology is the study of living organisms at a variety of levels from molecular to biosphere. Biologists have accumulated huge amounts of information about living organisms. In the Diploma Biology program it is hoped that students will acquire a limited body of facts and, at the same time, develop a broad, general understanding of the principles of the subject.

The syllabus is organized around four central themes: structure and function; universality versus diversity; equilibrium within systems; and evolution.

IB Biology is a two-year course designed to meet the requirements for an IB Diploma. All of the Experimental Science courses have the same general objectives.

The components are:

(a) The Subject Specific Core (SSC) – 80 hours. This is a block of six topics that introduces students to the broad fundamentals of biology. However, it does not go into depth in any particular topic

At present the subject specific core consists of:

Topic 1: Statistical analysis

Topic 2: Cells

Topic 3: The chemistry of life

Topic 4: Genetics

Topic 5: Ecology and evolution

Topic 6: Human health and physiology

(b) Additional Higher Level material (AHL) – 55 hours. This is the additional material that HL students study. It consists of:

Topic 7: Nucleic acids and proteins

Topic 8: Cell respiration and photosynthesis

Topic 9: Plant science

Topic 10: Genetics

Topic 11: Human health and physiology

(c) Two Curriculum Options – SL 30 hours, HL 45 hours. The instructor's selections are based upon his background qualifications and interests, as well as resources and equipment available at the school. Students at SL and HL are both required to study any two options.

The Curriculum Options provide the opportunity to explore a specialty area of biology in both breadth and depth and include the following:

Option E: Neurobiology and behaviour

Option G: Ecology and conservation

(c) Practical/investigative work – SL 40 hours, HL 60 hours. Students have to keep a portfolio of their practical work, part of which is sent to the IB for moderation in the second year of the course. It is thus very important that students complete their practical reports in a timely manner.

(d) The Group 4 Project – 10 hours. This is a multi-disciplinary research project that all IB students must complete. Working in multi-disciplinary science teams, students will select a

project, gather data, form conclusions, and present their results. The Group 4 project gives students an appreciation of the processes that take place in real-world scientific research.

There are three final examination papers at each level:

Paper 1: Multiple Choice (SL/HL 20%)

Paper 2: Several short answer questions plus one extended response question (SL 32%/HL 36%)

Paper 3: Several short answer questions for each of the 2 options studied (SL 24%/HL 20%)

Internal Assessment (24%)

The texts that are used in this course include:

Advanced Biology. C. J. Clegg and D. J Mackean. Second edition, 2000. Hodder Murray.

Biology for the IB Diploma: Study Guide. Andrew Allott (Paperback 2007). OUP.

Chemistry (HL & SL)

Chemistry is the Central Science. It brings together elements of Physics and Biology as well as being the fundamental Science for further study in Medicine, the Pure Sciences and the environment. Chemical principles underpin the physical environment in which we live and all Biological systems.

Chemistry is an experimental science and the course combines academic study with the acquisition of practical and investigational skills. Following completion, students should have a greater knowledge and understanding of the world around them.

IB Chemistry is a two-year course designed to meet the requirements for an IB Diploma. All of the Experimental Science courses have the same general objectives.

The IB Chemistry (SL) Course curriculum totals 150 hours of classroom instruction and laboratory exercises. It is organized into four basic components. The IB Chemistry (HL) Course curriculum totals 240 hours of classroom instruction and laboratory exercises. Both courses are organized into the same basic components although the HL course includes additional material for most of the core topics.

The components are:

(a) The Subject Specific Core (SSC) – 80 hours. This is a block of eleven topics that introduces students to the broad fundamentals of chemistry. However, it does not go into depth in any particular topic

At present the subject specific core consists of:

Topic 1: Quantitative chemistry

Topic 2: Atomic structure

Topic 3: Periodicity

Topic 4: Bonding

Topic 5: Energetics

Topic 6: Kinetics

Topic 7: Equilibrium

Topic 8: Acids and bases

Topic 9: Oxidation and reduction

Topic 10: Organic chemistry

Topic 11: Measurement and data processing

(b) Two Curriculum Options – SL 30 hours, HL 45 hours. These are curriculum blocks that the instructor can select from a menu of possible option topics. The instructor's selections are based upon his background qualifications and interests, as well as resources and equipment available at the school. Students at SL and HL are both required to study any two options. However, SL students study 15 hours per option whereas students at HL are required to study 22

hours per option. The Curriculum Options provide the opportunity to explore a specialty area of chemistry in both breadth and depth and include the following:

Option D: Medicines and drugs

Option E: Environmental chemistry

(c) Practical/investigative work – SL 40 hours, HL 60 hours. Standard level students are required to spend a minimum of 40 hours on practical/investigative work and higher level students 60 hours. This includes time for the group 4 project. Students have to keep a portfolio of their practical work, part of which is sent to the IB for moderation in the second year of the course. It is thus very important that students complete their practical reports in a timely manner.

(d) The Group 4 Project – 10 hours. This is a multi-disciplinary research project that all IB students must complete. Working in multi-disciplinary science teams, students will select a project, gather data, form conclusions, and present their results. The Group 4 project gives students an appreciation of the processes that take place in real-world scientific research.

There are three final examination papers at each level:

Paper 1: Multiple Choice (SL/HL 20%)

Paper 2: Several short answer questions plus one extended response question (SL 32%/HL 36%)

Paper 3: Several short answer questions for each of the 2 options studied (SL 24%/HL 20%)

Internal Assessment (24%)

The texts that are used in this course include:

Chemistry. John Green, Sadru Damji. IBID Press, 2008.

Chemistry for the IB Diploma: Study Guide. Geoff Neuss (Paperback 2007). OUP.

GROUP 5 - Mathematics

The nature of mathematics can be summarized in a number of ways: for example, it can be seen as a well-defined body of knowledge, as an abstract system of ideas, or as a useful tool. For many people it is probably a combination of these, but there is no doubt that mathematical knowledge provides an important key to understanding the world in which we live. Mathematics can enter our lives in a number of ways: we buy produce in the market, consult a timetable, read a newspaper, time a process or estimate a length. Mathematics, for most of us, also extends into our chosen profession: artists need to learn about perspective; musicians need to appreciate the mathematical relationships within and between different rhythms; economists need to recognize trends in financial dealings; and engineers need to take account of stress patterns in physical materials. Scientists view mathematics as a language that is central to our understanding of events that occur in the natural world. Some people enjoy the challenges offered by the logical methods of mathematics and the adventure in reason that mathematical proof has to offer. Others appreciate mathematics as an aesthetic experience or even as a cornerstone of philosophy. This prevalence of mathematics in our lives provides a clear and sufficient rationale for making the study of this subject compulsory within the Diploma Program.

Every IB Diploma student must take a course in mathematics. At the International School Rheintal three different levels are offered to meet the maths needs of both specialists and non-specialists.

The aims of all mathematical courses are to enable students to:

- appreciate the multicultural and historical perspectives of mathematics
- enjoy the courses and develop an appreciation of the elegance, power and usefulness of the mathematics
- develop logical, critical and creative thinking
- develop an understanding of the principles and nature of the subject
- employ and refine their powers of abstraction and generalization
- develop patience and persistence in problem solving
- appreciate the consequences arising from technological developments
- transfer skills to alternative situations and to future developments
- communicate clearly and confidently in a variety of contexts.

Skills

Having followed any one of the programmes in Group 5, candidates will be expected to:

- know and use mathematical concepts and principles
- read and interpret a given problem in appropriate mathematical terms
- organize and present information/data in tabular, graphical and/or diagrammatic forms
- know and use appropriate notation and terminology
- formulate a mathematical argument and communicate it clearly
- select and use appropriate mathematical techniques
- understand the significance and reasonableness of results
- recognize patterns and structures in a variety of situations and draw inductive generalizations
- demonstrate an understanding of, and competence in, the practical applications of mathematics
- use appropriate technological devices as mathematical tools.

Mathematics SL

Mathematics SL focuses more on the acquisition of skills rather than on the theoretical background behind them. It is aimed at those who anticipate a need for a sound mathematical background in their future studies, such as, for example, chemistry, economics, psychology and business administration.

Content

Topics dealt with through the course in mathematics will include:

Algebra

Functions and equations

Circular functions and trigonometry

Matrices

Vectors

Statistics and probability

Calculus

The syllabus for this course contains a core that is similar to, but less extensive than, that of the HL course.

Assessment

Assessment consists of an externally assessed examination (40%+40%) and a portfolio of two pieces of work assigned by the teacher and completed by the candidate during the course (20%). **It is to be noted that, as of May 2008 calculators are no longer allowed in the Paper 1 exam session.** The portfolio assignments must be based on different areas of the syllabus and represent the two activities: mathematical investigation and mathematical modelling. The portfolio is internally assessed by the teacher and externally moderated by the IBO.

Mathematics HL

This course is designed for students who have a good background and have demonstrated ability in mathematics. Those who take it will probably be intending to follow mathematical or scientific careers at university. Generally the student studying mathematics at this level would enjoy solving mathematical problems.

Higher Level Mathematics students study the same topics as in Mathematics SL but in greater depth and as well, there is an additional option which is chosen from among the following:

- Statistics and probability
- Sets, relations and groups
- Series and differential equations
- Discrete mathematics

Assessment

Assessment consists of an externally assessed examination consisting of 3 papers, the last one of which based on an optional topic (30%+30%+20%), a portfolio of two pieces of work assigned by the teacher and completed by the candidate during the course (20%). *It is to be noted that, as of May 2008 calculators are no longer allowed in the Paper 1 exam session.* The portfolio assignments must be based on different areas of the syllabus and represent the two activities: mathematical investigation and mathematical modelling. The portfolio is internally assessed by the teacher and externally moderated by the IBO.

Portfolio

The purpose of the portfolio is to provide students with opportunities to be rewarded for mathematics carried out under ordinary conditions, that is, without the time limitations and pressure associated with written examinations. Consequently, the emphasis should be on good mathematical writing and thoughtful reflection.

The portfolio is also intended to provide students with opportunities to increase their understanding of mathematical concepts and processes. It is hoped that, by doing portfolio work, students benefit from these mathematical activities and find them both stimulating and rewarding.

The specific purposes of portfolio work are to:

- develop students' personal insight into the nature of mathematics and to develop their ability to ask their own questions about mathematics
- provide opportunities for students to complete extended pieces of mathematical work without the time constraints of an examination
- enable students to develop individual skills and techniques, and to allow them to experience the satisfaction of applying mathematical processes on their own
- provide students with the opportunity to experience for themselves the beauty, power and usefulness of mathematics
- provide students with the opportunity to discover, use and appreciate the power of a calculator or computer as a tool for doing mathematics
- enable students to develop the qualities of patience and persistence, and to reflect on the significance of the results they obtain
- provide opportunities for students to show, with confidence, what they know and what they can do.

Portfolio Objectives

The portfolio is internally assessed by the teacher and externally moderated by the IBO. Assessment criteria have been developed to relate to the mathematics objectives. In developing these criteria, particular attention has been given to the objectives listed here, since these cannot be easily addressed by means of timed, written examinations.

Where appropriate in the portfolio, students are expected to:

- know and use appropriate notation and terminology
- organize and present information and data in tabular, graphical and/or diagrammatic forms
- recognize patterns and structures in a variety of situations, and make generalizations
- demonstrate an understanding of and the appropriate use of mathematical modeling
- recognize and demonstrate an understanding of the practical applications of mathematics
- use appropriate technological devices as mathematical tools.

Portfolio Requirements

The portfolio must consist of two pieces of work assigned by the teacher and completed by the student during the course.

Each piece of student work contained in the portfolio must be based on:

- an area of the syllabus
- one of the two types of tasks
- type I—mathematical investigation
- type II—mathematical modeling.

The level of sophistication of the students' mathematical work should be similar to that contained in the syllabus. It is not intended that additional topics are taught to students to enable them to complete a particular task.

Each portfolio must contain two pieces of student work, each of the two types of task: the portfolio must contain one type I and one type II piece of work. Finally, it is worth mentioning that the list of tasks suggested by the IBO has recently been restructured.

Mathematical Studies SL

This course is available at standard level only. It caters for students with varied backgrounds and abilities. More specifically, it is designed to build confidence and encourage an appreciation of mathematics in students who do not anticipate a need for mathematics in their future studies. The students most likely to select this course are those whose main interests lie outside the field of mathematics, and for many students this course will be their final experience of being taught formal mathematics.

The course concentrates on mathematics that can be applied to contexts related as far as possible to other subjects being studied, to common real-world occurrences and to topics that relate to home, work and leisure situations.

Content

The graphics display calculator
Number and algebra
Sets, logic and probability
Functions
Geometry and trigonometry
Statistics
Introductory differential calculus
Financial mathematics

Assessment

Assessment consists of an externally assessed examination consisting of 2 papers (Paper 1, 15 compulsory short response questions - 40% and Paper 2, 5 compulsory extended response questions - 40%), and a project. Calculators may be used on both examination papers.

Project

The project is an individual piece of written work involving the collection of information or the generation of measurements, and the analysis and evaluation of the information or measurements.

The specific purposes of the project are to:

- develop student's insight into the nature of mathematics and to develop their ability to ask their own questions about mathematics
- Encourage students to initiate and sustain a piece of work in mathematics
- Enable students to acquire confidence in developing strategies for dealing with new situations and problems
- Provide opportunities for students to develop individual skills and techniques and to allow students with varying abilities, interests and experiences to achieve a sense of personal satisfaction in studying mathematics
- Enable students to experience mathematics as an integrated organic discipline rather than fragmented and compartmentalized skills and knowledge
- Enable students to see connections and applications of mathematics to other areas of interest
- Provide opportunities for students to show, with confidence, what they know and what they can do.

For the project students can choose from a wide variety of project types, for example, modeling, investigations, applications and statistical surveys. In developing their projects, students should make use of mathematics learned as part of the course. The level of sophistication of the mathematics should be similar to that suggested by the syllabus. The project should not exceed 2000 words, excluding diagrams, graphs, appendices and bibliography.

The Core

Creativity, Action and Service (CAS)

Aims of CAS

CAS stands for **Creativity, Action, Service**, and aims to help students develop themselves into young people who are:

- **reflective thinkers** – students gain a better understanding of their strengths and limitations, identify goals and devise strategies for personal improvement
- willing to accept **new challenges** and new roles
- aware of themselves as **members of communities** with responsibilities towards each other and the environment
- active participants in sustained, **collaborative** projects
- **balanced** – students should enjoy and find significance in a range of activities involving intellectual, physical, creative and emotional experiences.

CAS is also about personal enjoyment: student's individual CAS program should be developed by the student and for the student so that it reflects their own interests and is ultimately really **good fun**. The importance of this cannot be underestimated!

CAS should involve:

- purposeful activities with significant outcomes
- personal challenge – tasks must extend the student and be achievable in scope
- thoughtful consideration, including planning and reviewing the progress
- reflection on outcomes and personal learning.

The required minimum is 150 hours and must span 18 months. Students are expected to be involved in CAS activities for the equivalent of at least three hours each week during the two years of the programme.

CAS is at the centre of the IB Diploma program, being one of three essential elements in the Diploma experience. In the design of the CAS activities, students are asked to demonstrate **quality, balance between the three areas, and commitment**.

Activities should help further define the student as a confident and resilient person of integrity, as well as a global citizen characterised by an awareness of ethical considerations. Therefore, it is expected that, at the beginning of the process, students review their interests and strengths, as well as areas of growth, to establish goals for their own, personal CAS program.

What Defines Creativity, Action and Service?

Creativity: experiences in the arts, and any other experiences that involve creative thinking, such as planning activities or problem solving.

Action: physical exertion contributing to a healthy lifestyle to complement the demands of academic work.

Service: an unpaid and voluntary exchange in which students are giving time to help others and also gaining some learning benefit themselves.

Are my activities in the spirit of CAS?

Students often ask *'does this count as CAS?'* This is a question which should really be answered by the student. The following guiding questions will help enable students to decide for themselves whether a proposed activity is of value or not for a CAS program:

- What do I hope to learn or achieve from getting involved in this activity?
- What realistic targets can I set myself in order to do this?
- Does this activity have real consequences for other people and/or for me?
- How might it help extend me as a person? Is the activity a new role for me in some way?
- How can this activity benefit other people?
- What can I reflect on and when and how will I think about my progress during the course of this activity?

Activities should not generally be isolated and sporadic, emphasising **quality** and **commitment**. Students will need to document their activities on ManageBac and reflect on personal growth to provide **evidence that one has achieved the 8 key learning outcomes** for CAS.

At least ONE significant, enduring project that is self-directed and self-initiated that involves collaboration and the integration of at least two strands of Creativity, Action, and Service is required. This being said, students will be expected to review all long-term activities and this may involve setting new objectives so that the reflective documentation remains meaningful and beneficial to the CAS requirements.

Learning Outcomes

To complete the CAS requirement, students must provide evidence that all eight learning outcomes described below have been met. Some may be demonstrated many times, in a variety of activities, but successful completion of the overall CAS requires that there is evidence for **every** outcome. As a result of the CAS experience as a whole, including reflections, there should be evidence that the student has:

Increased their awareness of their own strengths and areas for growth

Each student is able to see themselves as an individual with various skills and abilities, some more developed than others, and understand that one can make choices about how one wishes to move forward.

Undertaken new challenges

A new challenge may be an unfamiliar activity, or an extension to an existing one.

Planned and initiated activities

Planning and initiation will often be in collaboration with others. It can be shown in activities that are part of larger projects, for example, ongoing school activities in the local community, as well as in small student-led activities.

Worked collaboratively with others

Collaboration can be shown in many different activities, such as team sports, playing music in a rock band, or helping out at Ducks.

Shown perseverance and commitment in their activities

As a minimum, this means attending regularly and accepting a share of responsibility for dealing with problems that arise in the course of activities.

Engaged with issues of global importance

Students may be involved in international projects, but there are also many other global issues that can be acted upon locally or nationally (for example, environmental concerns, caring for the elderly/poor).

Considered the ethical implications of their actions

Ethical decisions arise in almost any CAS activity (for example, on the sports field, in relationships with others involved in service activities). Evidence of thinking about ethical issues can be shown in various ways, including journal entries and conversations with a Supervisor about a given activity.

Developed new skills

As with new challenges, new skills may be shown in activities that one has not previously undertaken, or in increased expertise in an established area.

To demonstrate these learning outcomes have successfully been met, students will need to present the evidence collected over the course of their IB Diploma Programme. This evidence should come in a variety of forms, for example, written reflections, activity logs and verification forms, photos, video, podcasts, etc. Students will be presenting this evidence through their CAS portfolio, which will be kept up to date on ManageBac.

Theory of Knowledge

Theory of Knowledge (ToK) is a compulsory component of the International Baccalaureate (IB) programme for those students taking the full IB.

The ToK course content is divided up as follows over the next two years:

In **Grade 11** the students will consider the ways of knowing which include sense perception, emotion, language and reason and the areas of knowledge, which include history, natural sciences, mathematics and human sciences.

In **Grade 12** the students will consider the arts and ethics as areas of knowledge, followed by preparation and guidance for the ToK essay and the presentation.

There is an external and internal component for ToK assessment:

- Students are required to write an essay (1200-1600 words) chosen from a list of titles supplied by the IB and this is to be completed by January in Grade 12. Once they have decided on their title, it is in their interest to ensure that they meet with a ToK teacher to discuss the essay and get it organized well before the deadline. The completed essay should be submitted to the ToK teacher with whom they have been consulting. Their ToK teacher does not mark the essay but it is assessed by an external examiner.
- Students are required to make a presentation to the grades 11/12 and DP teachers on a knowledge issue relevant to ToK. This presentation may take a variety of forms. The presentations, which take place in Grades 11 and 12, are assessed by the ToK teachers.
- Students are given an internal report semester grade based on the ToK criteria: A – E.

Extended Essay

As part of the IB Diploma Program candidates must complete a formal research paper during their IB Diploma studies. The Extended Essay is an integral part of the IB program. Its process and completion emphasizes independent research, candidate dedication, academic interest, and organization. IB Diploma recipients often say that the lessons they learned from the Extended Essay are the most valuable part of the IB Diploma Program. The student begins work on the essay in January of Grade 11 and works in monitored steps toward completion of the Extended Essay by the end of December in Grade 12. Students pursuing the IB Diploma are required to choose a topic from within an IB subject they are studying.

All IB Diploma candidates receive information on the Extended Essay, complete with detailed instructions, suggestions for the research and writing process, and a timeline of required deadlines. They also receive and have access to the IBDP Extended Essay Guide which contains all the requirements and criteria necessary to produce a quality essay.

The Extended Essay is an in-depth study of a focused topic chosen from the list of approved Diploma Programme subjects—normally one of the student’s six chosen subjects for the IB diploma. It is intended to promote high-level research and writing skills, intellectual discovery and creativity. It provides students with an opportunity to engage in personal research in a topic of their own choice, under the guidance of a supervisor (a teacher in the school). This leads to a major piece of formally presented, structured writing, in which ideas and findings are communicated in a reasoned and coherent manner, appropriate to the subject chosen. It is recommended that completion of the written essay is followed by a short, concluding interview, or *viva voce*, with the supervisor. The extended essay is assessed against common criteria, interpreted in ways appropriate to each subject. The extended essay is:

- compulsory for all Diploma Programme students
- externally assessed and, in combination with the grade for Theory of Knowledge, contributes up to three points to the total score for the IB diploma
- a piece of independent research/investigation on a topic chosen by the student in cooperation with a supervisor in the school

- chosen from the list of approved Diploma Programme subjects
- presented as a formal piece of scholarship containing no more than 4,000 words
- the result of approximately 40 hours of work by the student
- concluded with a short interview, or *viva voce*, with the supervising teacher (recommended).

In the Diploma Programme, the extended essay is the prime example of a piece of work where the student has the opportunity to show knowledge, understanding and enthusiasm about a topic of his or her choice. In those countries where it is the norm for interviews to be required prior to acceptance for employment or for a place at university, the extended essay has often proved to be a valuable stimulus for discussion.

The aims of the extended essay are to provide students with the opportunity to:

- pursue independent research on a focused topic
- develop research and communication skills
- develop the skills of creative and critical thinking
- engage in a systematic process of research appropriate to the subject
- experience the excitement of intellectual discovery.

In working on the extended essay, students are expected to:

1. plan and pursue a research project with intellectual initiative and insight
2. formulate a precise research question
3. gather and interpret material from sources appropriate to the research question
4. structure a reasoned argument in response to the research question on the basis of the material gathered
5. present their extended essay in a format appropriate to the subject, acknowledging sources in one of the established academic ways
6. use the terminology and language appropriate to the subject with skill and understanding
7. apply analytical and evaluative skills appropriate to the subject, with an understanding of the implications and the context of their research.

It is required that students:

- choose a topic that fits into one of the subjects on the approved extended essay list
- observe the regulations relating to the extended essay
- meet deadlines
- acknowledge all sources of information and ideas in an approved academic manner.

It is strongly recommended that students:

- start work early
- think very carefully about the research question for their essay
- plan how, when and where they will find material for their essay
- plan a schedule for both researching and writing the essay, including extra time for delays and unforeseen problems
- record sources as their research progresses (rather than trying to reconstruct a list at the end)
- have a clear structure for the essay itself before beginning to write
- check and proofread the final version carefully
- make sure that all basic requirements are met (for example, all students should get full marks for the abstract).

Theory of Knowledge and Extended Essay Bonus Points

In order to be considered for the award of an IB diploma each candidate must submit an Extended Essay on a topic of his/her choice in one of the subjects of the IB curriculum. An external examiner appointed by the IB will assess the essay. It is possible for candidates to be awarded three bonus points on the basis of their **overall** performance in Theory of Knowledge and the Extended Essay. According to the quality of work in each of these two important requirements for the IB Diploma, a candidate's performance will fall into one of five bands:

Band A Work of an excellent standard

Band B Work of a good standard

Band C Work of a satisfactory standard

Band D Work of a mediocre standard

Band E Work of an elementary standard

The total number of bonus points awarded will be determined according to the following matrix:

The diploma points matrix

		Theory of Knowledge				
		A	B	C	D	E
Extended Essay	A	+3	+3	+2	+2	+1 F*
	B	+3	+2	+1	+1	F*
	C	+2	+1	+1	0	F*
	D	+2	+1	0	0	F*
	E	+1 F*	F*	F*	F*	F

F* From 2010 onwards 28 points overall will be required to be eligible for the diploma if a student attains an 'E' grade in either the extended essay or theory of knowledge.

As previously, a grade 'A' in one of the requirements earns an extra point even if the other is a grade 'E'.

Attaining a grade 'E' in both the extended essay and theory of knowledge continues to represent an automatic failure.

For example, a candidate who achieves Level B for Theory of Knowledge and Level C for the Extended Essay will be awarded one bonus point. Candidates who achieve Level E for either Theory of Knowledge or the Extended Essay will be awarded F for their bonus points score. The award of F is **a failing condition** for the IB Diploma.

Consulting the matrix, it can be seen that there are a further 3 bonus points available to give a maximum IB score of 45 points. Depending on the performance in both the Extended Essay and Theory of Knowledge, these points will be added to the six IB academic scores the student receives. It is clearly in the student's interest to put a great deal of effort into their ToK essay and presentation as well as into their Extended Essay.

All further regulations about the award of the IB Diploma are stipulated in the IBDP General Regulations.

Conclusion

Students who are unable to achieve the necessary points and conditions as specified in the IBDP Regulations do not receive an IB Diploma. They will receive instead the "Diploma Programme (DP) Courses Results", a document listing the subjects taken and overall scores. Students may choose to register only for Diploma courses and not the full Diploma; however we strongly encourage students to try for the full IB Diploma, as it will serve them well in the future. Universities in many countries do not accept students who only have some Diploma courses.

Successful completion of the IB Diploma requires dedication and organisation by the student. The teachers at ISR will provide the necessary support and guidance, but in the end it is the perseverance and commitment of the student that counts the most.

Good luck!

Grade 11 (2011-2013)

Timetable for the Extended Essay

Year 1 2011-2012

Date	Activity	Supervision
September 1 – 2	IB Retreat	Diploma Coordinator/ CAS Coordinator
January 9 th 18 th	Initial ideas for EE EE Criteria Meeting	EE Supervisor/ Diploma Coordinator
Feb 10 th	Selection of EE Topic + supervisor	EE Supervisor/ Diploma Coordinator
March 19	Review of progress with EE, preliminary MLA bibliography, appropriate source and methodology identified. List of key questions and outline.	EE Supervisor/ Diploma Coordinator
April 23	Review of Progress I: Expanded MLA bibliography, working outline for the Essay, based on questions and research. Formulated research question/thesis and working draft with 1200-1500 words	EE Supervisor
June 4 th June 22/24/25	Review of Progress II: 1500-2000 Words EE/ToK/Math Studies Project in school work days	EE Supervisor Organised with Supervisor DP Coordinator

Year 2 2012-2013 (Provisional)

Date	Activity	Supervision
August 27 th	First Draft EE submitted to EE Supervisor for comment and electronic version to DP Coordinator: 3000 word draft with research question/thesis clearly established, table of contents, preliminary experimental work/date, and complete MLA bibliography and referencing.	EE Supervisor/ Diploma Coordinator
October 29 th	Progress check	EE Supervisor
November 24 th	Second draft of EE to supervisor. Abstract, Introduction, Conclusion, MLA bibliography and referencing, appendices (if required) Proof read Self Assessment and EE criteria mark	EE Supervisor/Diploma Coordinator
December 10 th	Submit 2 final copies of EE to supervisor and electronic version to DP Coordinator	EE Supervisor/ Diploma Coordinator

Timetable for Coursework Deadlines

Year 1 2011-2012

Date	Activity	Supervision
September 19 th	Introduction- Program Evening	Diploma Coordinator
Nov 8 th Nov 14 th – Nov 17 th	Group 4 Project German A Lit Oral Presentation	Science Teachers German Teacher
Dec 12-16	Mid-term examinations	Diploma Coordinator
January 16 th – 20	Economics Portfolio Commentary 1	Economics Teacher
March 28 th	German A HL/SL Literature – Assignment 1	German Teacher
May 4 (Draft) May 11 (Final Version)	English A HL/SL Literature – Assignment 1	English Teacher
May 25 th	Economics Portfolio Commentary 2	Economics Teacher
June 4-8	Final Exams	Diploma Coordinator
June 14-15	English A Lit Oral Presentations	English Teacher
June 21 June 22 June	ToK Presentation Science IA Task 1 Mathematics Portfolio 1 HL/SL	DP Teachers Science Teachers Mathematics Teacher

Year 2 2012-2013 (Provisional)

September 1	ToK presentation (Optional)	DP Teachers
September 22 nd	Economics Portfolio Commentary 3	Economics Teacher
September 24 th Draft September 30 th Final	English A HL Literature – Assignment 2	English Teacher
October 18 th	Historical Investigation	History Teacher
November 8 th	Mathematics Portfolio 2 – HL/SL Math Studies Project	Math Teacher
November 15 th – 19 th November 29 th	German Lit Oral Commentary English/German B Interactive Oral Economics Portfolio Commentary 4	German Teacher English/German Teacher Economics Teacher
December 3 th December 17 th	English/German B Individual Oral ToK Essay Final Version	English/German Teacher DP Coordinator
December 14 th -16 th December 12 th -16 th	English Lit Oral Commentary Partial Midterms	English Teacher Diploma Coordinator
January 9-13 2013 January 9	Partial Midterms ToK Essay Final Tweaked Version	DP Coordinator
February 27 th March 26 th – 30 th	Science IAs Tasks 2 & 3 Mock Exams	Science Teachers DP Coordinator

IB Fees

Registration and examination Fees will be in the region of CHF 1000. The precise cost is not known until the year of examination, when the IBO publish the relevant costs. As soon as the details are published the school will send them out in order for parents to pay the necessary sum into the school's bank account which is then paid directly to the IBO. The school covers the cost of postage (courier service) for the coursework and examination scripts.

IB Diploma Programme: scale of fees

Scale of Fees (1 September 2011 to 31 August 2012)	Currency			
	US\$	SFr	UK£	C\$
1. Annual fee (per school)	10,200	13,280	5,830	12,240
2. Registration fee (per candidate)				
<ul style="list-style-type: none"> • Before the first registration deadline 16 November/16 May • Between the first and second registration deadline 16 January/16 July • After the second registration deadline up until 16 April/16 October 	145 194 416	187 254 541	82 111 238	173 233 499
The registration fee for candidates retaking examinations after six months is the fee payable before the first registration deadline of 16 November/16 May up until 29 January/29 July. After this date the highest fees will apply. This applies to both retake (R) and certificate (C) candidates.				
3. Subject fee (per candidate)				
Fee for each subject (including theory of knowledge and extended essay when taken as retake subjects) a candidate is registered for	100	130	57	120
4. Registration amendments (per candidate)				
The fee is for the addition of a new subject, each amendment to a registration category, subject, level or response language, including theory of knowledge and the extended essay.				
<ul style="list-style-type: none"> • Between the first and second registration deadline • After the second registration deadline 	32 127	41 164	19 73	38 152
5. Enquiry upon results				
<ul style="list-style-type: none"> • Category 1 re-mark: per candidate/subject/level • Category 1 review: per candidate/subject/level • Category 2A: per subject component (photocopies) • Category 2A: per subject component (electronic) • Category 2B: per candidate/subject/level (electronic only) • Category 3: re-moderation: per subject/level sample 	104 178 75 47 16 250	136 232 98 61 21 327	60 102 43 26 9 144	126 213 90 56 19 303
6. Other by-request services				
<ul style="list-style-type: none"> • Legalization of each diploma document and/or of each consulate country (requests received before 16 June/16 December) • Legalization of each IB diploma document and/or of each consulate country (requests received after 16 June/16 December) • Replacement diploma or certificate (per diploma or certificate) • Results to universities (per candidate: no charge for first six universities) 	142 213 70 15	145 218 90 19	89 134 40 10	148 222 84 17
7. Appeals (per candidate)				
Fee for an appeal under article 32 of the General regulations: Diploma Programme	237	309	135	285

Re-marking and Re-taking Exam Fees

Re-marking, re-taking exams and other services offered by the IBO regarding the IBDP exams are charged the costs as set by the IBO and this amount is sent directly to the IBO. These fees are subject to change and are announced yearly.

For 2011-2012:

Re-marking is CHF 136

Re-taking exams is CHF 187 for candidate registration fee and CHF 130 per subject

In addition the following costs are charged for taking the exams:

- ISR Administration Fee CHF 1'500
- Supervision Fee CHF 80 per 40 minutes of examination or part thereof
- Postage Fee variable costs as calculated by DHL

- The exam fees and the administration fee must be paid to ISR by the end of September. The supervision fees and the postage fees will need to be paid once these amounts are known. Where more than one student takes the same exam, the supervision fees and postage fees will be evenly split between the students taking the exam.
- The school is required to post the exams using DHL and they are sent to examiners in various places around the world as decided by the IBO. The postage fees to send a full set of exams in 6 subjects for one student may be as high as CHF 3'000 to CHF 4'000, depending on where the exams must be sent to; for students sitting for less than 6 subjects the costs will be proportionately less.
- If a candidate withdraws from the retakes, all IBO fees still apply except if there was an increased mark in a particular subject due to a remark, and half the ISR administration fee will be refunded.
- Note: Some universities require that students retake **all** subjects simultaneously for the retake to be accepted.

ISR Graduation Requirements

The graduation requirements of ISR ensure that all students receive the breadth of program necessary for a sound education.

In order to graduate from ISR, a student must spend at least grade 12 at ISR and have successfully completed four years of high school (grades 9-12), fulfilling the minimum requirement of **24 credits** and maintaining satisfactory attendance.

In grades 11 and 12 students take courses that lead to graduation.

The minimum credit requirement is made up as follows:

<u>Subject Area</u>	<u>Years of Study</u>	<u>Credits</u>
English	4	4
Mathematics	3	3
Humanities	3	3
Experimental Sciences	3	3
Second Language	2	2
Technology	1	0.5
The Arts	1	0.5
Physical Education	1	0.5

Total 16.5

In addition to obtaining minimum credit requirements, all students are expected to satisfactorily complete CAS requirements:

- A minimum of 10 hours per semester per year for grades 9 and 10
- A minimum of 60 hours total for grades 11 and 12.

In order to reach the minimum level of 24 credits for graduation, additional requirements can be earned in the following ways:

1. Students follow a compulsory 2 year course of Theory of Knowledge in grades 11 and 12 leading to a total of 1 credit (0.5 credit per year).
2. Students follow additional courses from the areas of Mathematics, Humanities, Sciences, Languages, Arts and Physical Education.
3. Students who successfully complete their MYP Personal Project (gain a grade 3 or above) in grade 10 will earn 0.5 credit.

Explanatory Notes:

- All courses graded may be used for credit towards ISR graduation.
- All requirements, except previously earned credits, must be completed during ISR enrolment.
- One credit represents the successful completion of a full year of study in a subject covering 2 ½ - 5 hours per week with at least an end of year grade 3.
Examples:
 - One year of study in English can result in 1 credit
 - Courses such as Art, French, Technology and PE in grades 9/10 will result in 0.5 credit per year
 - Personal Project receives 0.5 credit in grade 10
 - ToK receive 0.5 credit per year in grades 11 and 12
- Credit from high schools other than ISR, Grades 9-12, is granted on the basis of the identity of the class content, requirements and time spent in class in the school from which the student comes, as compared with the course requirements and the time spent in class at ISR. This is usually determined on an individual basis.
- ESL courses may fulfill English requirements.
- It is generally expected that most students will study German each year at ISR.
- Regardless of the cumulative number of credits earned, Grade 9 and 10 students are required to enroll in all courses offered and Grades 11 and 12 students are required to enroll in a minimum of four standard level IB courses and Theory of Knowledge. Students are encouraged to select a program of study that meets their ability-level, piques their interest, fulfills diploma requirements, and furthers their college/university admission and/or career objectives.

Note: The above requirements may only be amended on an individual basis with approval from the Head of School.