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Heidelberg
International School

dedicated to making a difference

Diploma Programme

Heidelberg International School

International Baccalaureate Diploma Programme

DP Curriculum
2018–2020

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H.I.S. Guiding Statements

Mission

We, the H.I.S. community, work together to facilitate the intellectual, emotional and social development of our students, to promote international understanding and enable students to make a difference to the world in which they live.

Philosophy

We believe that education is the key to individuals becoming responsible global citizens. We believe that education should address all aspects of the students' development and that it should value and respect their individuality. The whole staff, parents and students themselves significantly contribute to the growth of the students' intellectual curiosity, understanding, creativity and international mindedness.

The H.I.S. Definition of International Mindedness

A Journey from Self to Other

Open-mindedness is our constant companion on this journey. We need to develop an active and sensitive frame of mind, a respecting and caring attitude and a desire to know and explore otherness without fear.

With our minds open, we need to be nourished with cumulative experiences that shape our worldview. Through opportunities, which are fully integrated into school life, we become part of a flourishing culture of new perspectives.

We start to demonstrate an understanding of our diversity, by appreciating and respecting ourselves and others, and celebrating our origins and differences.

By connecting and co-operating with others, locally and globally, we begin to realise the interdependence of the natural, cultural and social systems of which we are part.

International mindedness becomes a collaborative commitment to peaceful and sustainable action worldwide.

Core Values

Respect is a fundamental value of our school, which influences, and is the basis for, the environment of learning at H.I.S. Respect for self and others is an integral part of our community, be it in the way we learn, what we learn, why we learn, where we learn or from whom we learn.

We support respectful learning by encouraging everyone to appreciate and develop the International Baccalaureate Learner Profile (www.ibo.org) attributes by becoming:

- Inquirers
- Knowledgeable
- Thinkers
- Communicators
- Principled
- Open-minded
- Caring
- Risk-takers
- Balanced
- Reflective

1. Subjects to be offered in 2018–2020

Grade 11 and 12

GROUP 1:	Studies in Language and Literature	English Literature English Language & Literature German Language & Literature
GROUP 2:	Language Acquisition	German B Spanish B* German ab initio Mandarin ab initio* Spanish ab initio* French ab initio*
GROUP 3:	Individuals and Societies	History Business and Management Psychology* Economics* ITGS* Philosophy*
GROUP 4:	Science	Biology Chemistry Physics Computer Science
GROUP 5:	Mathematics	Mathematics Mathematical Studies
GROUP 6:	The Arts and Electives	Visual Arts Film* Biology Chemistry Computer Science History Psychology* Business and Management Economics* ITGS* Philosophy* German B Spanish B* German ab initio Mandarin ab initio* Spanish ab initio* French ab initio*

* This is a *Pamoja* Education online course, availability is restricted and extra costs are incurred.

2. The International Baccalaureate Learner Profile

The aim of all IB programmes is to develop internationally minded people who, recognising their common humanity and shared guardianship of the planet, help to create a better and more peaceful world.

IB learners are:

Inquirers They develop their natural curiosity. They acquire the skills necessary to conduct inquiry and research and show independence in learning. They actively enjoy learning and this love of learning will be sustained throughout their lives.

Knowledgeable They explore concepts, ideas and issues that have local and global significance. In so doing, they acquire in-depth knowledge and develop understanding across a broad and balanced range of disciplines.

Thinkers They exercise initiative in applying thinking skills critically and creatively to recognise and approach complex problems, and make reasoned, ethical decisions.

Communicators They understand and express ideas and information confidently and creatively in more than one language and in a variety of modes of communication. They work effectively and willingly in collaboration with others.

Principled They act with integrity and honesty, with a strong sense of fairness, justice and respect for the dignity of the individual, groups and communities. They take responsibility for their own actions and the consequences that accompany them.

Open-minded They understand and appreciate their own cultures and personal histories, and are open to the perspectives, values and traditions of other individuals and communities. They are accustomed to seeking and evaluating a range of points of view, and are willing to grow from the experience.

Caring They show empathy, compassion and respect towards the needs and feelings of others. They have a personal commitment to service, and act to make a positive difference to the lives of others and to the environment.

Risk-takers They approach unfamiliar situations and uncertainty with courage and forethought, and have the independence of spirit to explore new roles, ideas and strategies. They are brave and articulate in defending their beliefs.

Balanced They understand the importance of intellectual, physical and emotional balance to achieve personal well-being for themselves and others.

Reflective They give thoughtful consideration to their own learning and experience. They are able to assess and understand their strengths and limitations in order to support their learning and personal development.

3. The International Baccalaureate

The International Baccalaureate Diploma Programme (IB DP) is an advanced two-year course of study designed to prepare students for university and life. The IB Diploma Programme founders recognised a need to create a university preparatory curriculum with high standards, which is recognised around the world. Since its inception in 1968, the Diploma Programme has grown to include about 3,100 schools.

The IB Diploma Programme is more than just a curriculum, it is also a teaching and educational philosophy designed to inspire students to think beyond factual recall of information. The spectrum of IB classes is designed to teach students to think critically, to appreciate the importance of seeing events or knowledge claims from different perspectives, to understand strengths and weaknesses of what students or others claim to "know," to understand and explore ethical controversies inherently relevant to what they learn, and to be able to apply what they learn in meaningful ways to the "real world".

While the IB Diploma Programme is not designed exclusively for the elite or gifted academic student, the IB Diploma is most appropriate for those students who are highly motivated, open-minded, and highly responsible. The IB Diploma Programme is much more, however, than a series of academic subjects. Its unique additional features of Creativity, Activity and Service (CAS), Extended Essay (EE) and Theory of Knowledge (TOK) ensure that students are opened up to their community responsibilities, are encouraged to develop their research skills and become independent analytical thinkers.

3.1. The IB Mission Statement

" The International Baccalaureate Organisation aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect.

To this end, the IB works with schools, governments and international organisations to develop challenging programmes of international education and rigorous assessment. These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right. "

The IB Diploma programme has the strengths of a traditional and broad curriculum as shown by the graphic below:

4. Options for Grade 11/12 Students at H.I.S.

OPTION 1	OPTION 2	OPTION 3
Students officially register with the IB to take official IB exams in at least 6 subjects. They will be considered **IB Diploma Programme students.**	Students officially register with the IB for one or more IB exam(s) to earn an IB Course Certificate. They will be considered **IB Diploma Programme Courses students.**	Students do not register with the IB for any IB exam(s). They will be considered **H.I.S. Diploma students.**
Students take IB exams in at least 6 subjects, complete TOK, an EE, and meet all IB CAS requirements (approx. 150 hours).	Students take IB exams in the subjects that they officially register in at the end of the two-year programme.	Students fulfil the assessment requirements and take H.I.S. final exams in all their subjects at the end of the two-year programme.
Students will not take H.I.S. final exams at the end of the two-year IB Diploma Programme – only official IB exams – that are assessed by IB examiners outside of the school.	Students will take H.I.S. final exams in subjects other than those they have chosen as IB Courses at the end of the two-year programme.	Students must meet all IB CAS requirements (approx. 150 hours) and will be required to complete modified TOK & EE components
	Students must meet IB CAS requirements (approx. 150 hours) and can opt to complete full or modified TOK & EE components	
Students receive an official IB Diploma and transcript indicating their results in the IB Courses that they completed.	Students receive an official IB transcript indicating their results in the IB Course(s) that they completed including TOK & EE if chosen.	Students receive an official H.I.S. transcript indicating their results in the H.I.S. Courses that they completed.
In addition students receive the H.I.S. Diploma	In addition students receive the H.I.S. Diploma	Students receive the H.I.S. Diploma

5. H.I.S. Diploma Students

Students, who have decided NOT to enrol in either the full IB Diploma Programme or to undertake the IB Courses as a certificate candidate, work towards an H.I.S. Diploma. In addition to completing the requirements of six subject areas as set by their teachers, H.I.S. Diploma candidates will be required to perform approx.150 hours of Creativity, Activity and Service (CAS) they will complete a modified Extended Essay (EE) to a maximum of 1500 words, and will take a modified Theory of Knowledge (TOK) course. The courses at H.I.S. are taught over a two-year period and examinations are undertaken in May in the second year of the programme (Grade 12).

5.1. IB Diploma Programme Courses Students

Students who want to earn official recognition for the IB classes but who have decided not to enrol in the full IB Diploma can undertake the IB courses as a Courses Student. These courses can be taken at either the Higher or Standard Level. Courses students may, if they want, choose to take only Standard Level classes. Courses students will be required to perform approx. 150 hours of Creativity, Activity and Service (CAS) they will choose to complete either a full or modified Extended Essay and TOK (Theory of Knowledge) course. Like the full-diploma students, courses students can have the official grades earned in their subjects sent to universities directly from the IB. The IB courses at H.I.S. are taught over a two-year period and IB examinations are undertaken in May in the second year of the programme (Grade 12).

5.2. IB Diploma Programme Students

Students who pursue the full IB Diploma must complete six examinations: three at Higher Level and three at Standard Level. The IB courses at H.I.S. are taught over a two-year period and IB examinations are undertaken in May in the second year of the programme (Grade 12).

The heart of the full IB diploma includes:
1. The CAS requirement
2. Theory of Knowledge
3. The Extended Essay

1. CAS Requirement – CAS is an acronym, which stands for "Creativity, Activity, Service." Both diploma and certificate candidates are required to participate in appropriate activities balanced evenly between the three components, averaging about three to four hours a week for a total of approx. 150 hours over the two years of the programme. To complete the IB Diploma, students must show evidence of their participation and personal growth through on-going reflections and a final review towards the end of the programme.

2. Theory of Knowledge – Theory of Knowledge (TOK) interweaves all the IB subject areas, distinguishes between how knowledge is acquired in each area, and explores the difference between truth and belief. The course emphasises a great deal of critical thinking, personal reflection and the stresses the importance of seeing events from multiple perspectives. TOK does not have a formal IB examination, but candidates will submit a final TOK essay and make an oral presentation that will be internally and externally moderated.

3. Extended Essay – The Extended Essay (EE) is a required analytic paper of 4000 words. The EE 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 topics of their own choice (chosen from the list of approved Diploma Programme subjects), under the guidance of a supervisor (a teacher in school).

Award of Diploma points: the EE contributes to the overall IB Diploma score through the award of points in conjunction with TOK. A maximum of three bonus points are awarded according to student's combined performance in both the EE and TOK. Both the EE and TOK are measured against published assessment criteria. According to the quality of the work, and based on the application of these assessment criteria, a student's performance in each of the EE and TOK will fall into one of the following five bands:

A = Work of an excellent standard
B = Work of an good standard
C = Work of an satisfactory standard
D = Work of an mediocre standard
E = Work of an elementary standard
N = If candidates do not comply all IB assessment requirements, then no grade will be awarded

The total number of points awarded is determined by the combination of the performance levels achieved by the student in both the EE and TOK according to the following matrix.

EXTENDED ESSAY \ THEORY OF KNOWLEDGE	A	B	C	D	E	No grade N
A	3	3	2	2	Failing condition	Failing condition
B	3	2	2	1	Failing condition	Failing condition
C	2	2	1	0	Failing condition	Failing condition
D	2	1	0	0	Failing condition	Failing condition
E	Failing condition	Failing condition	Failing condition	Failing condition	Failing condition	Failing condition
No grade **N**	Failing condition	Failing condition	Failing condition	Failing condition	Failing condition	Failing condition

6. The Structure of the IB Diploma Programme at H.I.S.

6.1. Programme Structure

Full-diploma candidates complete the "core" requirements of the Programme: The Extended Essay, Theory of Knowledge, and CAS. Diploma candidates must take six courses from four, five or six subject areas, referred to as "groups". Three of these classes must be chosen at the Higher Level (HL) and three at Standard Level (SL). In addition, diploma students must take the Theory of Knowledge class. The diagram below shows core components and the IB courses and the courses within the six subject groups offered at H.I.S.

IMPORTANT: Some courses may not be offered due to insufficient student enrollment. In addition, it is not always possible to accommodate all course selections due to scheduling conflicts. Every effort will be made to accommodate student preferences but the students must sometimes make compromise choices.

* This is an online course, availability is restricted and extra costs are incurred.

6.2. Pamoja Education – IB Online Courses

Online courses delivered by Pamoja Education are developed under the IB's rigorous quality assurance standards, cover the same course content and prepare students for the same assessments as a traditional face-to-face IB Diploma Programme course. These online courses give students a wider choice of subjects than the traditional class-based subjects available at H.I.S. Pamoja Education is the only provider approved by the IB to teach Diploma Programme courses online.

Subjects available*

- Spanish B SL
- Spanish ab initio SL
- French ab initio SL
- Mandarin ab initio SL
- Economics HL and SL
- ITGS HL and SL
- Philosophy SL
- Psychology HL and SL
- Film SL

**The full Diploma Programme cannot be completed online.*

Diploma Programme courses online:

- are two years in duration
- ollow IB course guides
- meet IB course requirements
- are formally assessed in the same way as face-to-face courses
- are taught in accordance with The Diploma Programme: From principles into practice
- embed theory of knowledge (TOK) into the courses
- feature practice examinations to prepare students for IB external examinations
- are taught by experienced IB teachers, who have special training in online pedagogy
- require approximately the same amount of study time as face-to-face higher and standard level courses.

Empowering the learner is a key feature of the online courses. In online classrooms of approximately 25 students from around the world, teachers introduce weekly lessons, guide discussion and provide feedback to stimulate critical thinking and promote "lifelong learning" habits. IB Diploma Programme courses online offer a truly international, interactive model of teaching and learning.

Course tuition fees for September 2018

US$995 per subject per year. For students moving schools during their programme, a one-off additional transfer fee of US$300 is charged.

More information is available at **www.pamojaeducation.com**

7. Distinctions between Standard Level and Higher Level Classes

Whether a student pursues the full IB Diploma or IB courses, students will usually have a certain amount of choice whether they take each class at Higher Level (HL) or Standard Level (SL).

The exact difference in terms of content, standards, and requirements of class taken at the SL or Higher Level varies between subjects in the IB curriculum. In some subjects, Higher Level and Standard Level vary substantially in degree of difficulty and material covered. However, for most IB subjects, the levels differ primarily in the amount of material covered rather than degree of difficulty.

SL courses require approximately 150 class hours while Higher Level courses require approximately 240 class hours. In practice, SL students have additional in-school study time, cover fewer units, or have fewer demands in regard to their internal assessment. Students who pursue any course at the Higher Level should do so because they have a particular aptitude or high-level of motivation in this class.

In making the final decision about the level of coursework, students need to carefully balance their interests and abilities with projected university entrance requirements.

8. Components of an IB Course: Internal Assessment (IA) and IB Exams

8.1. Internal Assessment (20–30% of the Course Grade)

The IB curriculum requires that students complete a major "project" in each IB Course they take. Such projects are formally called Internal Assessments (IA) because they are assessed "internally" by the subject teachers.

Regardless of the type of project, students are asked to apply the knowledge and skills they are learning in the class to this assignment. To ensure consistency, IA projects are also "moderated". This means that while the individual teacher is responsible for grading and assessing the students work, the IB randomly requests samples of this work to be examined by IB examiners who check to see that teachers are applying the correct grading criteria. This step is essentially a "safeguard" to ensure that teacher-grading practices are consistent with IB standards. The moderation process is an important part of maintaining consistency, fairness, high standards, and accountability in the IB DP. The IA requirement also serves to lessen the relative impact of the examination at the end of the Course. Students who are not necessarily good test-takers may excel at the IA project, thereby helping to help balance any unexpected exam results.

8.2. External Assessment – IB Exams (70–80% of the Course Grade)

In May of the second year of the IB Diploma/Courses Programme, students will undertake IB exams. IB exams are comprehensive; they are usually based on two years worth of teaching materials. Therefore, they require a great deal of revision and preparation by the student. These exams are created by the IB and sent by courier to each IB school. The exams themselves are "externally assessed" (graded) by trained examiners, throughout the world, based upon published grading criteria.

9. Results for IB Diploma Students

In order to achieve the IB Diploma a candidate must fulfil certain requirements; at its most basic a candidate must achieve at least 24 points from their combined grades in six subjects, together with their grades for theory of knowledge and the extended essay, and also complete the Creativity, Activity, Service (CAS) element. However, to ensure a diploma reflects sufficient breadth in achievement across subjects and the core there are nine particular requirements stated in the articles of the IB's General regulations: Diploma Programme:

1. CAS requirements have been met.
2. Candidate's total points are 24 or more.
3. An N has not been given for theory of knowledge, extended essay or for a contributing subject.
4. A grade E has not been awarded for one or both of theory of knowledge and the extended essay.
5. There is no grade 1 awarded in a subject/level.
6. There are no more than two grade 2s awarded (HL or SL).
7. There are no more than three grade 3s or below awarded (HL or SL).
8. Candidate has gained 12 or more points on HL subjects
   (for candidates who register for four HL subjects, the three highest grades count).
9. Candidate has gained 9 or more points on SL subjects
   (candidates who register for two SL subjects must gain at least 5 points at SL).

10. Course Information for Subjects Offered

10.1. Group 1 – Studies in Language and Literature

Literature
English – Higher Level and Standard Level

I. Course description and aims

The IB Diploma Programme language A: literature course develops understanding of the techniques involved in literary criticism and promotes the ability to form independent literary judgments. In language A: literature, the formal analysis of texts and wide coverage of a variety of literature—both in the language of the subject and in translated texts from other cultural domains—is combined with a study of the way literary conventions shape responses to texts.

Students completing this course will have a thorough knowledge of a range of texts and an understanding of other cultural perspectives. They will also have developed skills of analysis and the ability to support an argument in clearly expressed writing, sometimes at significant length. This course will enable them to succeed in a wide range of university courses, particularly in literature but also in subjects such as philosophy, law and language.

Texts studied are chosen from the prescribed literature in translation (PLT) list and the prescribed list of authors (PLA) or elsewhere. The PLT list is a wide-ranging list of works in translation, from a variety of languages, allowing teachers to select works in a language different from the language of the examination. The PLA lists authors from the language of the examination. The authors on the list are appropriate for students aged 16 to 19.

All group 1 courses are suitable for students experienced in using a language in an academic context. It is also recognised that students have language backgrounds that vary significantly. For one student the target language may be his or her only proficient language; another student may have a complex language profile and competence in more than one language. While students in the group 1 courses will undergo significant development in their ability to use language for a range of purposes, these are not language-acquisition courses. In group 1, it is assumed that students are highly competent in the target language, whether or not it is their mother tongue.

The aims of the language A: literature course 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.

II. Curriculum model overview

COMPONENT	CLASS HOURS
Works in translation Study of three (HL) two (SL) works All works are chosen from the titles in the prescribed literature in translation list.	HL 65 SL 40
Detailed study Study of three (HL) two (SL) works All works are chosen from the prescribed list of authors for the language being studied, each from a different genre.	HL 65 SL 40
Literary genres Study of four (HL) three (SL) works All works are chosen from the prescribed list of authors for the language being studied, chosen from the same genre.	HL 65 SL 40
Options Study of three works Works are freely chosen in any combination.	HL 45 SL 30

III. Assessment model

The IB assesses student work as direct evidence of achievement against the stated goals of the Diploma Programme courses, which are to provide students with:

- a broad and balanced, yet academically demanding, programme of study
- the development of critical-thinking and reflective skills
- the development of research skills
- the development of independent learning skills
- the development of intercultural understanding
- a globally recognised university entrance qualification.

Students' success in the language A: literature higher level course is measured by combining their grades on external and internal assessment.

Students must demonstrate their ability to provide literary commentary about prose and poetry, both in written form and orally.

ASSESSMENT AT A GLANCE			
Type of assessment	**Format of assessment**	**Time (hours)**	**Grade percentage (%)**
External			70
Paper 1	Literary commentary and analysis of one unseen text	HL 2 SL 1.5	20
Paper 2	Essay on at least two works studied	HL 2 SL 1.5	25
Written Assignment	Reflective statement and literary essay on one work studied		25
Internal			30
Oral Work	Formal oral commentary and interview 20 minutes HL 10 minutes SL		15
	Individual oral presentation (10–15 minutes)		15

Group 1 – Studies in Language and Literature

Language and Literature
English – Higher Level and Standard Level
German – Higher Level and Standard Level

I. Course description and aims

The language A: language and literature course aims to develop skills of textual analysis and the understanding that texts, both literary and non-literary, can relate to culturally determined reading practices, and to encourage students to question the meaning generated by language and texts. An understanding of the ways in which formal elements are used to create meaning in a text is combined with an exploration of how that meaning is affected by reading practices that are culturally defined and by the circumstances of production and reception. Helping students to focus closely on the language of studied texts and to become aware of the role of wider context in shaping meaning is central to the course. The study of literature in translation from other cultures is especially important to IB DP students because it contributes to a global perspective. Texts are chosen from a variety of sources, genres and media.

The aims of language A: language and literature standard level courses are to:

- introduce students to a range of texts from different periods, styles and genres
- develop in students the ability to engage in close, detailed analysis of individual texts and make relevant connections
- develop the students' powers of expression, both in oral and written communication
- encourage students to recognise the importance of the contexts in which texts are written and received
- encourage an appreciation of the different perspectives of other cultures, and how these perspectives construct meaning
- encourage students to appreciate the formal, stylistic and aesthetic qualities of texts

- promote in students an enjoyment of, and lifelong interest in, language and literature
- develop in students an understanding of how language, culture and context determine the ways in which meaning is constructed in texts
- encourage students to think critically about the different interactions between text, audience and purpose.

II. Curriculum model overview

COMPONENT	CLASS HOURS
Part 1: Language in cultural context › effect of audience and purpose on the › structure and content of texts › impact of language changes › effect of culture and context on language and meaning	40
Part 2: Language and mass communication › forms of communication within the media › educational, political or ideological influence of the media › ways in which mass media use language and image to inform, persuade or entertain	40
Part 3: Literature—texts and contexts › historical, cultural and social contexts in which texts are written and received › relationship between context and formal elements of the text, genre and structure › attitudes and values expressed by literary › texts and their impact on readers	40
Part 4: Literature—critical study › detailed exploration of literary works › elements such as theme and the ethical › stance or moral values of literary texts › appropriate use of literary terms	40

III. Assessment model

Having followed the language and literature standard level course, students will be expected to demonstrate the following.

Knowledge and understanding

- knowledge and understanding of a range of texts
- understanding of the use of language, structure, technique and style
- critical understanding of the ways in which readers construct meaning and the influence of context
- understanding of how different perspectives influence the reading of a text

Application and analysis

- ability to choose an appropriate text type
- ability to use terminology relevant to the various text types studied
- ability to analyse the effects of language, structure, technique and style on the reader
- awareness of the ways in which the production and reception of texts contribute to their meanings
- ability to substantiate and justify ideas with relevant examples

Synthesis and evaluation

- ability to compare and contrast the formal elements, content and context of texts
- Discuss the ways in which language and image may be used in a range of texts
- ability to evaluate conflicting viewpoints within and about a text

Selection and use of appropriate presentation and language skills

› ability to express ideas clearly and with fluency, both written and orally
› ability to use the oral and written forms of the language, in a range of styles, registers and situations
› ability to discuss and analyse texts in a focused and logical manner

ASSESSMENT AT A GLANCE			
Type of assessment	**Format of assessment**	**Time (hours)**	**Grade percentage (%)**
External			HL 80 SL 70
Paper 1	Written analysis of one of two unseen texts	1.5 hours	25
Paper 2	In response to one of six questions, an essay based on two literary texts studied.	1.5 hours	25
Written Assignment	At least three written tasks based on course material, submitting one for external assessment.		20
Internal			HL 20 SL 30
Individual oral commentary	An oral commentary on an extract from a literary text studied. Two guiding questions are given.		15
Further oral activity	At least two further oral activities. The mark of one is submitted for final assessment.		15

IV. Sample questions

› Writers often use a character who is alienated from his or her culture or society in order to explore cultural or social values. Examine this idea with reference to at least two works studied.
› It has been said that history "cannot be unlived, but if faced with courage, need not be lived again." To what extent do at least two works studied "face" history in order to ensure that its wrongs "need not be lived again"?

10.2. Group 2 – Language acquisition

Language B
German B: Higher Level and Standard Level
Spanish B*: Standard Level

I. Course description and aims

The IB DP language B course provides students with the opportunity to acquire or develop an additional language and to promote an understanding of other cultures through the study of language.
Language B is designed for students who possess a degree of knowledge and experience in the target language. Those learning a language B at higher level should be able to follow university courses in other disciplines in the language B that is studied.

The aims of the language B higher level course are to:

› develop students' intercultural understanding
› enable students to understand and use the language they have studied in a range of contexts and for a variety of purposes
› encourage, through the study of texts and through social interaction, an awareness and appreciation of the different perspectives of people from other cultures
› develop students' awareness of the role of language in relation to other areas of knowledge
› develop students' awareness of the relationship between the languages and cultures with which they are familiar
› provide students with a basis for further study, work and leisure through the use of an additional language
› provide the opportunity for enjoyment, creativity and intellectual stimulation through knowledge of an additional language.

II. Curriculum model overview

COMPONENT	CLASS HOURS
Core Instruction on three topics › communication and media › global issues › Social relationships	40
Options Two options from the following five › cultural diversity › customs and traditions › health › leisure › science and technology	40
Literature (HL only) › Read 2 works of literature	40

III. Assessment model

The assessments aim to test all students' ability to understand and use the language of study as well as key concepts through:

- learning a language by engaging with its use and meaning within a social framework
- developing receptive, productive and interactive skills to meet the objectives of the course.
- Students' success in the language B higher level course is measured by combining their grades on external and internal assessment.
- Students will be assessed on their ability to:
- communicate clearly and effectively in a range of situations, demonstrating linguistic competence and intercultural understanding
- use language appropriate to a range of interpersonal and/or cultural contexts
- understand and use language to express and respond to a range of ideas with accuracy and fluency
- organise ideas on a range of topics, in a clear, coherent and convincing manner
- understand, analyse and respond to a range of written and spoken texts
- understand and use works of literature written in the target language of study (HL only)

ASSESSMENT AT A GLANCE			
Type of assessment	**Format of assessment**	**Time (hours)**	**Grade percentage (%)**
External			70
Paper 1	Receptive skills Text handling exercise on 4 written texts.	1.5 hours	25
Paper 2	Written productive skills through 2 writing exercises	1.5 hours	25
Written Assignment	Receptive and written productive skills Creative writing and rationale based on one literary text read during the course		20
Internal			30
Oral Work	Individual oral presentation		20
	Interactive oral activities.		10

IV. Sample questions

Students are asked to write 250–400 words based on one of five available topics, such as:

- Social isolation can be considered a problem for today's teenagers. In class, you have been asked to give a speech to your classmates informing them about the problem. Write the text of your speech. [based on Option: Health]
- You are a student at an international school in a (target language) speaking country. Write an article to be published in the school magazine on how your experience at the international school will affect your future job prospects. [based on Option: Cultural diversity]

Group 2 – Language acquisition
Language Ab Initio
German – Standard Level
French* – Standard Level
Spanish* – Standard Level
Mandarin* – Standard Level

At the date of printing this handbook, the IB is finalizing a review of the Language B and Language Ab Initio curriculum. Some aspects of the course will be changed including how assessment will be conducted. This review has not been finished, and so the details of the changes to the course content and assessment cannot be confirmed. As soon as the IB publishes these details, they will be provided to students and parents. The information provided below represents the current course and assessment procedures. It is provided as a guide only.

I. Course description and aims

The IB DP language ab initio course is designed to provide students with the necessary skills and intercultural understanding to enable them to communicate successfully in an environment where the language studied is spoken. This process encourages the learner to go beyond the confines of the classroom, expanding an awareness of the world and fostering respect for cultural diversity. The language ab initio course develops students' linguistic abilities through the development of receptive, productive and interactive skills by providing them opportunities to respond and interact appropriately in a defined range of everyday situations. Language ab initio is available at standard level only.

The aims of the language ab initio course are to:

- develop students' intercultural understanding
- enable students to understand and use the language they have
- studied in a range of contexts and for a variety of purposes
- encourage, through the study of texts and through social interaction, an awareness and appreciation of the different perspectives
- of people from other cultures
- develop students' awareness of the role of language in relation to other areas of knowledge
- develop students' awareness of the relationship between the languages and cultures with which they are familiar
- provide students with a basis for further study, work and leisure through the use of an additional language
- provide the opportunity for enjoyment, creativity and intellectual stimulation through knowledge of an additional language.

II. Curriculum model overview

Three areas of study – language, themes and texts – provide the basis of the language ab initio course. These three fundamental areas, as well as intercultural understanding, are all interrelated and should be studied concurrently.

AREAS OF STUDY

Language

› Receptive skills: the ability to comprehend straightforward written and spoken language.
› Productive skills: the ability to write and speak the target
› language effectively.
› Interactive skills: the ability to understand and respond effectively
› to written and spoken language.

Themes

› Individuals and society – Daily routines; education; food and drink; personal details; appearance and character physical health; relationships; shopping
› Leisure and work – Employment; entertainment; holidays; media; sport; technology; transport
› Urban and rural environment – Environmental concerns; global issues; neighbourhood; physical geography; town and services; weather
› science and technology

Texts

During the course, students are taught to understand and produce a variety of spoken, written and visual texts. Use of authentic texts is encouraged. Examples of texts to be studied include articles, letters, maps, timetables and web pages.

III. Assessment model

Having followed the language ab initio standard level course, students will be assessed on their ability to:
› demonstrate an awareness and understanding of the intercultural elements related to the prescribed topics
› communicate clearly and effectively in a range of situations
› understand and use accurately the basic structures of the language
› understand and use an appropriate range of vocabulary
› use a register and a format that are appropriate to the situation.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External			75
Paper 1 Receptive skills	Understanding of four written texts. Text-handling exercises.	1.5 hours	30
Paper 2 Productive skills	Two compulsory writing exercises. Section A: One question to be answered from a choice of two. Section B: One question to be answered from a choice of three.	1 hour	25
Written Assignment: Receptive and productive skills	A piece of writing, 200–300 words, in the target language carried out under teacher guidance.	2 hours	20
Internal			25
Individual oral: Interactive skills	1. Presentation of a visual stimulus (from a choice of two) by the student 2. Follow-up questions on the visual stimulus 3. General conversation including at least two questions on the written assignment	10 minutes	25

IV. Sample questions

› Your teacher has asked you to speak about the disadvantages of using public transport. Write the text of your speech. Mention at least three disadvantages.
› You are on holiday in a (target language) speaking country. On your personal blog you post a message about someone you have just met. In your blog entry you explain:
› three details about this person
› where you met
› what you have been doing together
› what your future plans are

10.3. Group 3 – Individuals & Societies
History: Higher Level and Standard Level

I. Course description and aims

The IB Diploma Programme higher level history course aims to promote an understanding of history as a discipline, including the nature and diversity of sources, methods and interpretations. Students are encouraged to comprehend the present by reflecting critically on the past. They are further expected to understand historical developments at national, regional and international levels and learn about their own historical identity through the study of the historical experiences of different cultures. In addition, the course is designed to:
› encourage the systematic and critical study of human experience and behaviour; physical, economic and social environments; and the history and development of social and cultural institutions
› develop the capacity to identify, analyse critically and evaluate theories, concepts and arguments about the nature and activities of the individual and society
› enable students to collect, describe and analyse data used in studies of society; test hypotheses; and interpret complex data and source material
› promote an appreciation of the way learning is relevant to both the culture in which the student lives and the culture of other societies
› develop an awareness that human attitudes and beliefs are widely diverse and that the study of society requires an appreciation of such diversity
› enable the student to recognise that the content and methodologies of the subjects in group 3 are contestable and that their study requires the toleration of uncertainty.

II. Curriculum model overview

COMPONENT	CLASS HOURS
Route 2 20th century world history—study one of three prescribed subjects › Peacemaking, peacekeeping—international relations 1918–36 › The Arab–Israeli conflict 1945–79 › Communism in crisis 1976–89	40
20th century world history—study two of the following topics › Causes, practices and effects of wars › Democratic states—challenges and responses › Origins and development of authoritarian and single-party states › Nationalist and independence movements in Africa and Asia and post–1945 Central and Eastern European states › The Cold War	90
Higher level option Study three sections in the selected option › Aspects of the history of Africa › Aspects of the history of the Americas › Aspects of the history of Asia and Oceania › Aspects of the history of Europe and the Middle East	90 (HL only)
Historical investigation	30

III. Assessment model

Assessment for history higher level

The IB assesses student work as direct evidence of achievement against the stated goals of the Diploma Programme courses, which are to provide students with:

› a broad and balanced, yet academically demanding, programme of study
› the development of critical-thinking and reflective skills
› the development of research skills
› the development of independent learning skills
› the development of intercultural understanding
› a globally recognised university entrance qualification

The assessments aim to test all students' knowledge and understanding of key concepts through various activities that demonstrate:

› knowledge and comprehension of specified content, such as an ability to recall and select relevant historical knowledge
› application and analysis, including the ability to apply historical knowledge as evidence
› synthesis and evaluation abilities
› the selection and use of historical skills.

Students' success in the history higher level course is measured by combining their grades on external and internal assessment.

On external assessments, students must be able to demonstrate an understanding of both basic facts and complex concepts related to the historical periods studied, depending on the chosen route of study. The internal assessment measures students' ability to use their own initiative to take on a historical inquiry.

Students should be able 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.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External			HL 80 SL 70
Paper 1	Short answer/structured questions from one of three prescribed subjects	1 hour	HL 20 SL 30
Paper 2 Productive skills	two extended-response questions chosen from five topics	1.5 hours	HL 25 SL 45
Paper 3 HL only	Three extended-response questions	2.5 hours	HL 35
Internal			HL 20 SL 25
Study report	Historical investigation on any area of the syllabus		HL 20 SL 25

IV. Sample questions

HL

The following questions appeared in previous IB Diploma Programme history higher level examinations.

1. Using these sources and your own knowledge, analyse how and why Henry VI became King of Sicily in December 1194. (Route 1, paper 1)
2. Analyse the reasons for, and impact of, the Sunni/Shia divide. (Route 1, paper 2)
3. Compare and contrast the domestic policies of Disraeli and Gladstone.
(Route 2, paper 3 Europe and the Middle East)

SL

The following questions appeared in previous IB Diploma Programme history standard level examinations.

1. Using provided sources and your own knowledge, 2. Compare and contrast the parts played by Cuba and analyse how the Arab Muslims controlled the lands Vietnam in the Cold War. (Route 2, Paper 2) and people they had conquered. (Route 1, Paper 1)

Group 3 – Individuals & Societies
Business Management: Higher Level and Standard Level

I. Course description and aims

The business management course is designed to develop students' knowledge and understanding of business management theories, as well as their ability to apply a range of tools and techniques. Students learn to analyse, discuss and evaluate business activities at local, national and international levels. The course covers a range of organisations from all sectors, as well as the sociocultural and economic contexts in which those organisations operate.

The course covers the key characteristics of business organisation and environment, and the business functions of human resource management, finance and accounts, marketing and operations management. Through the exploration of six underpinning concepts (change, culture, ethics, globalisation, innovation and strategy), the course allows students to develop a holistic understanding of today's complex and dynamic business environment. The conceptual learning is firmly anchored in business management theories, tools and techniques and placed in the context of real world examples and case studies.

The course encourages the appreciation of ethical concerns, at both a local and global level. It aims to develop relevant and transferable skills, including the ability to: think critically; make ethically sound and well-informed decisions; appreciate the pace, nature and significance of change; think strategically; and undertake long term planning, analysis and evaluation. The course also develops subject-specific skills, such as financial analysis.

The aims of the business management course at HL and SL are to:

1. encourage a holistic view of the world of business
2. empower students to think critically and strategically about indify
3. promote the importance of exploring business issues from different cultural perspectives
4. enable the student to appreciate the nature and significance of change in a local, regional and global context
5. promote awareness of the importance of environmental, social and ethical factors in the actions of individuals and organisations
6. develop an understanding of the importance of innovation in a business environment.

II. Curriculum model overview

COMPONENT	CLASS HOURS
Unit 1: Business organisation and environment 1.1 Introduction to business management 1.2 Types of organisations 1.3 Organisational objectives 1.4 Stakeholders 1.5 External environment 1.6 Growth and evolution 1.7 Organisational planning tools (HL Only)	HL 50 SL 40
Unit 2: Human resource management 2.1 Functions and evolution of human resource management 2.2 Organisational structure 2.3 Leadership and management 2.4 Motivation 2.5 Organisational (corporate) culture (HL Only) 2.6 Industrial/employee relations (HL Only)	HL 30 SL 15
Unit 3: Finance and accounts 3.1 Sources of finance 3.2 Costs and revenues 3.3 Break-even analysis 3.4 Final accounts (some HL only) 3.5 Profitability and liquidity ratio analysis 3.6 Efficiency ratio analysis (HL only) 3.7 Cash flow 3.8 Investment appraisal (some HL only) 3.9 Budgets (HL only)	HL 50 SL 35
Unit 4: Marketing 4.1 The role of marketing 4.2 Marketing planning (including introduction to the four Ps) 4.3 Market research 4.4 The four Ps (product, price, promotion, place) 4.6 The extended marketing mix of seven Ps (HL only) 4.7 International marketing (HL only) 4.8 E-commerce	HL 50 SL 35
Unit 5: Operations management 5.1 The role of operations management 5.2 Production methods 5.3 Lean production and quality management (HL only) 5.4 Location 5.5 Production planning (HL only) 5.6 Research and development (HL only) 5.7 Crisis management and contingency planning (HL only)	HL 30 SL 10
Internal Assessment	HL 30 SL 15

III. Assessment model

By the end of the business management SL course, students are expected to reach the following assessment objectives.

1. Demonstrate knowledge and understanding of:
› the business management tools, techniques and theories specified in the syllabus content
› the six concepts that underpin the subject
› real-world business problems, issues and decisions
2. Demonstrate application and analysis of:
› knowledge and skills to a variety of real-world and functional business situations
› business decisions by explaining the issue(s) at stake, selecting and interpreting data, and applying appropriate tools, techniques, theories and concepts
3. Demonstrate synthesis and evaluation of:
› business strategies and practices, showing evidence of critical thinking
› business decisions, formulating recommendations
4. Demonstrate a variety of appropriate skills to:
› produce well-structured written material using business terminology
› select and use quantitative and qualitative business tools, techniques and methods
› select and use business material, from a range of primary and secondary sources.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External		HL 4.5 SL 3	HL 75 SL 75
Paper 1	HL Structured and extended response questions SL Structured questions	HL 2.25 SL 1.25	HL 35 SL 40
Paper 2	two extended-response questions chosen from five topics	HL 2.25 SL 1.75	HL 40 SL 40
Paper 3 HL only	Four questions based on pre-seen case study	HL 1.25	HL 35
Internal		HL 30 SL 15	HL 20 SL 25
HL Research project **SL Written commentary**	HL Students research and report on an issue facing an organisation or a decision to be made by an organisation (or several organisations). Maximum 2,000 words. SL Students produce a written commentary based on three to five supporting documents about a real issue or problem facing a particular organisation. Maximum 1,500 words		HL 20 SL 25

IV. Sample questions

HL
› Analyse the appropriateness of a cost-plus pricing strategy for B-Pharma's drugs.
› Evaluate the effectiveness of the democratic leadership style of the partners at Hands.
› With reference to one or two organisation(s) that you have studied, discuss how marketing strategies may differ in two cultures that you are familiar with.

SL
› Apply the Boston Consulting Group (BCG) matrix to B-Pharma's product portfolio.
› Examine possible strategies for Dan Electro to prevent cash flow dificulties.
› With reference to one organisation that you have studied, examine what changes globalisation brings about in the management of human resources.

Group 3 – Individuals & Societies
Information Technology in a Global Society*: Higher Level and Standard Level

I. Course description and aims

The IB DP information technology in a global society (ITGS) course is the study and evaluation of the impacts of information technology (IT) on individuals and society. It explores the advantages and disadvantages of the access and use of digitized information at the local and global level. ITGS provides a framework for the student to make informed judgments and decisions about the use of IT within social contexts.

The aims of the ITGS standard level courses are to:
› enable the student to evaluate social and ethical considerations arising from the widespread use of IT by individuals, families, communities, organisations and societies at the local and global level
› develop the student's understanding of the capabilities of current and emerging IT systems and to evaluate their impact on a range of stakeholders
› enable students to apply their knowledge of existing IT systems to various scenarios and to make informed judgments about the effects of IT developments on them
› encourage students to use their knowledge of IT systems and practical IT skills to justify IT solutions for a specified client or end-user.

II. Curriculum model overview

COMPONENT	CLASS HOURS
Strand 1: Social and ethical significance › Reliability and integrity › Security › Privacy and anonymity › Intellectual property › Authenticity › The digital divide and equality of access › Surveillance › Globalisation and cultural diversity › Policies › Standards and protocols › People and machines › Digital citizenship	40
HL extension Social and ethical considerations linked to the two HL extension topics and annually issued case study.	20
Strand 2: Application to specified scenarios › Business and employment › Education and training › Environment › Health › Home and leisure › Politics and government	40
HL extension Scenarios based on real-life situations used to address specified IT developments in the two HL extension topics and annually issued case study.	35
Strand 3: IT systems › Hardware › Software › Networks › Internet › Personal and public communications › Multimedia/digital media › Databases › Spreadsheets, modelling and simulations › Introduction to project management	40
HL extension IT systems in organisations › Robotics, artificial intelligence and expert systems › Information systems specific to the annually issued case study	35
The project (practical application of IT skills) The application of skills and knowledge to develop an original IT product for a specified client.	30

III. Assessment model

Having followed the ITGS standard level course, students will be expected to demonstrate the following:
Knowledge and understanding of specified content

› Demonstrate an awareness of IT applications and developments in specified scenarios
› Demonstrate an awareness of the social and ethical significance of specified IT applications and developments
› Demonstrate technical knowledge of ITGS terminology, concepts and tools
› Demonstrate technical knowledge of IT systems
› Application and analysis
› Explain the impacts of IT applications and developments in specified scenarios
› Analyse the social and ethical significance of specified IT
› applications and developments
› Transfer IT knowledge and make connections between
› specific scenarios Synthesis and evaluation
› Evaluate local and global impacts of specified IT developments through individually researched studies
› Evaluate a solution involving IT to a specified problem using knowledge of IT systems
› Discuss the social and ethical implications of specified IT policies and developments
› Use of ITGS skills
› Demonstrate evidence of project management in the development of a well-organised product to resolve a specific issue
› Use IT tools and the product development life cycle (PDLC) to create an original product in consultation with a client
› Demonstrate evidence of the use of appropriate techniques to develop an original IT product.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External		HL 4.75 SL 3	HL 80 SL 70
Paper 1	HL Four structured responses SL Three structured responses	HL 2.25 SL 1.25	HL 35 SL 40
Paper 2	Written response to previously unseen article	HL & SL 1.25	HL 25 SL 30
Paper 3 HL only	Four questions based on pre-seen case study	HL 1.25	HL 35
Internal		HL & SL 30	HL 20 SL 30
Written report	Development of an original IT product for a specified client		HL 20 SL 30

IV. Sample questions

HL

Questions based on stimulus material

› Identify two reasons why organisations continue to use legacy systems.
› Many organisations are developing intranets in an attempt to address the problems in their IT developments. To what extent are intranets likely to overcome these problems?
› Explain the purposes of the following in the home network:
› SSID
› Router
› Switch

SL

Questions based on stimulus material

› Describe the relationship between the server and a client in a network.
› A company is based at various geographical locations. The senior managing team is considering the use of web-based P2P networking in order to make business-related files available to its staff. To what extent would this be an effective way to share its business data?
› Describe the relationship of one primary stakeholder to the IT system.
› Evaluate the impact of the social/ethical issues on the relevant stakeholders.

Group 3 – Individuals & Societies
Economics*: Higher Level and Standard Level

I. Course description and aims

The IB Diploma Programme economics higher level course aims 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 and encourage students' development as independent learners. Alongside the empirical observations of positive economics, students of the subject are asked to formulate normative questions and to recognise their own tendencies for bias.

In addition, the course is designed to:

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

II. Curriculum model overview

COMPONENTS
Introduction to economics
Microeconomics Markets › Markets › Elasticities › Theory of the firm (HL extension) › Market failure
Macroeconomics › Measuring national income › Introduction to development › Macroeconomic models › Demand-side and supply-side policies › Unemployment and inflation › Distribution of income
International economics › Reasons for trade › Free trade and protectionism › Economic integration › World Trade Organisation (WTO) › Balance of payments › Exchange rates › Balance of payment problems › Terms of trade
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

III. Assessment model

The IB assesses student work as direct evidence of achievement against the stated goals of the Diploma Programme courses, which are to provide students with:

› a broad and balanced, yet academically demanding, programme of study
› the development of critical-thinking and reflective skills
› the development of research skills
› the development of independent learning skills
› the development of intercultural understanding
› a globally recognised university entrance qualification.

The assessments aim to test all students' knowledge and understanding of key concepts through various activities that demonstrate their ability to:

› understand and apply economic concepts and theories to a range of circumstances and a variety of situations
› analyse information through the use of economic concepts and theories
› evaluate concepts and theories from different economic perspectives.

Students' success in the economics course is measured by combining their grades on external and internal assessment.

In external assessment components, students must be able to demonstrate an understanding of both basic facts and complex concepts related to the full economics syllabus. The internal assessment measures students' ability to produce a portfolio of four commentaries—each 650 to 750 words—based on a news media extract that links 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 commentaries may reference other sections. A fourth commentary can focus either on a single section or on two or more sections of the syllabus.

ASSESSMENT AT A GLANCE			
Type of assessment	**Format of assessment**	**Time (hours)**	**Grade percentage (%)**
External			HL 80 SL 75
Paper 1	HL Four extended-response questions based on all five sections of the syllabus SL Three structured responses	HL & SL 1 hour	SL 75
Paper 2	HL Six short-answer questions based on all five sections of the syllabus SL A data-response paper on all five sections of the syllabus	HL 1 SL 2	HL 25 SL 50
Paper 3 HL only	A data-response paper on all five sections of the syllabus	HL 2	HL 35
Internal			HL 20 SL 25
Portfolio	A portfolio of four commentaries		HL 20 SL 25

IV. Sample Questions

HL

1. (a) Using examples, describe various sources of funds available to developing countries through trade and aid. (b) Evaluate trade and aid as means of achieving economic growth and development. (Paper 1)
2. Explain why Veblen goods are an exception to the law of demand. (Paper 2)

SL

The following questions appeared in previous IB Diploma Programme economics standard level examinations.*

1. (a) Explain the concept of elasticity of demand.
1. (b) Evaluate the significance of elasticity of demand to businesses and government. (Paper 1)

Group 3 – Individuals & Societies
Psychology*: Higher Level and Standard Level

I. Course description and aims

The IB Diploma Programme higher level psychology course aims to develop an awareness of how research findings can be applied to better understand human behaviour and how ethical practices are upheld in psychological inquiry. Students learn to understand the biological, cognitive and sociocultural influences on human behaviour and explore alternative explanations of behaviour. They also understand and use diverse methods of psychological inquiry.

In addition, the course is designed to:

- encourage the systematic and critical study of human experience and behaviour; physical, economic and social environments; and the history and development of social and cultural institutions
- develop the capacity to identify, analyse critically and evaluate theories, concepts and arguments about the nature and activities of the individual and society
- enable students to collect, describe and analyse data used in studies, test hypotheses; and interpret complex data and source material
- enable the student to recognise that the content and methodologies are contestable and that their study requires the toleration of uncertainty
- develop an awareness of how psychological research can be applied for the better understanding of human behaviour
- ensure that ethical practices are upheld in psychological inquiry
- develop an understanding of the biological, cognitive and sociocultural influences on human behaviour
- develop an understanding of alternative explanations of behavior
- understand and use diverse methods of psychological inquiry.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Core › The biological level of analysis › The cognitive level of analysis › The sociocultural level of analysis	90
Options 30 hours of instruction on two(HL) one(SL) additional topic(s) › Abnormal psychology › Developmental psychology › Health psychology › Psychology of human relationships › Sport psychology	HL 60 SL 30
HL extension Qualitative research in psychology	50
Experimental study Introduction to experimental research methodology	HL 40 SL 30

III. Assessment model

Assessment for psychology
The IB assesses student work as direct evidence of achievement against the stated goals of the Diploma Programme courses, which are to provide students with:

› a broad and balanced, yet academically demanding, programme of study
› the development of critical-thinking and reflective skills
› the development of research skills
› the development of independent learning skills
› the development of intercultural understanding
› a globally recognised university entrance qualification.

The assessments aim to test all students' knowledge and understanding of key concepts through various activities that demonstrate:

› knowledge and comprehension of specified content, research methods, theories, such as key concepts, biological, cognitive and sociocultural levels of analysis
› application and analysis, including using psychological research and psychological concepts to formulate an argument in response to a specific question
› synthesis and evaluation of psychological theories, empirical studies, and research methods used to investigate behaviour
› selection and use of skills appropriate to psychology, the acquisition of knowledge, skills required for experimental design, data collection and presentation, data analysis and interpretation
› data analysis using an appropriate inferential statistical test and write an organised response.
› Students' success in the psychology higher level course is measured by combining their grades on external and internal assessment.

On external assessments students must be able to demonstrate an understanding of both basic facts and complex concepts related to the biological, cognitive and sociocultural levels of analysis. Students in higher level courses are also assessed on their knowledge and understanding of qualitative research. For their internal assessment, psychology higher level students plan, undertake and report on a simple experimental study.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External			HL 80 SL 75
Paper 1	HL & SL Question response and an essay	HL & SL 2 hours	HL 35 SL 50
Paper 2	HL Answer 2 of 15 questions in essay form SL Answer 1 of 15 questions in essay form	HL 2 SL 1	HL 25 SL 25
Paper 3 HL only	Answer three questions	HL 1	HL 20
Internal			HL 20 SL 25
Portfolio	A report of a simple experimental study conducted by the student		HL 20 SL 25

IV. Sample Questions

HL

The following questions appeared in previous IB Diploma Programme psychology higher level examinations.

1. To what extent does genetic inheritance influence behaviour? Use relevant research studies in your response. (Paper 1)
2. Evaluate two research studies investigating the role of communication in maintaining relationships. (Paper 2)
3. The study outlined above uses the phrase "inductive content analysis". Explain the advantages and disadvantages of using this research strategy in the context of this specific study. (Paper 3, with regard to a supplied study)

SL

The following questions appeared in previous IB Diploma Programme psychology standard level examinations.

1. Discuss the use of one research method (e.g. experiments, case studies) in the cognitive level of analysis. Use relevant research studies in your response. (Paper 1)
2. Discuss how biological, or cognitive, or socio-cultural factors influence psychological disorders. (Paper 2)
3. Evaluate one theory of motivation in sport. (Paper 2)

Group 3 – Individuals & Societies
Philosophy*: Standard Level

I. Course description and aims

The philosophy course provides an opportunity for students to engage with some of the world's most interesting and influential thinkers. It also develops highly transferable skills such as the ability to formulate arguments clearly, to make reasoned judgments and to evaluate highly complex and multifaceted issues. The emphasis of the DP philosophy course is on "doing philosophy", that is, on actively engaging students in philosophical activity. The course is focused on stimulating students' intellectual curiosity and encouraging them to examine both their own perspectives and those of others.
Students are challenged to develop their own philosophical voice and to grow into independent thinkers. They develop their skills through the study of philosophical themes and the close reading of a philosophical text. They also learn to apply their philosophical knowledge and skills to real-life situations and to explore how non-philosophical material can be treated in a philosophical way. Teachers explicitly teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources.

The aim of the philosophy course is to engage students in philosophical activity, enabling them to:

1. develop an inquiring and intellectually curious way of thinking
2. formulate arguments in a sound and purposeful way
3. examine critically their own experiences and their ideological and cultural perspectives
4. appreciate the diversity of approaches within philosophical thinking
5. apply their philosophical knowledge and skills to the world around them.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Core theme The core theme "Being human" is compulsory for all students.	50
Optional themes Students are required to study one theme from the following list. 1. Aesthetics 2. Epistemology 3. Ethics 4. Philosophy and contemporary society 5. Philosophy of religion 6. Philosophy of science 7. Political philosophy	40
Prescribed text Students are required to study one text from the "IB list of prescribed philosophical texts".	40
Internal assessment Students are required to produce a philosophical analysis of a non-philosophical stimulus.	20

III. Assessment model

There are four assessment objectives for the DP philosophy course. Having followed the course, students will be expected to demonstrate the following:

1. Knowledge and understanding

Demonstrate knowledge and understanding of philosophical concepts, issues and arguments.
Identify the philosophical issues present in both philosophical and non-philosophical stimuli.

2. Application and analysis

Analyse philosophical concepts, issues and arguments.
Analyse the philosophical issues present in both philosophical and non-philosophical stimuli.
Explain and analyse different approaches to philosophical issues, making use of relevant supporting evidence/examples.

3. Synthesis and evaluation

Evaluate philosophical concepts, issues and arguments. Construct and develop relevant, balanced and focused arguments.
Discuss and evaluate different interpretations or points of view.

4. Selection, use and application of appropriate skills and techniques

Demonstrate the ability to produce clear and well-structured written responses.
Demonstrate appropriate and precise use of philosophical vocabulary.
In the internal assessment task, demonstrate evidence of research skills, organisation and referencing.

ASSESSMENT AT A GLANCE			
Type of assessment	**Format of assessment**	**Time (hours)**	**Grade percentage (%)**
External		2.75	75
Paper 1	Stimulus-based questions on core theme and essay questions on optional themes.	1.75	50
Paper 2	Questions on prescribed philosophical texts.	1	25
Internal		20	25
Analysis	Students are required to complete a philosophical analysis of a non-philosophical stimulus.	20	25

IV. Sample questions

To what extent do you agree with the claim that character-based approaches are more useful in making moral decisions than consequence-based approaches? (Paper 1)
Evaluate the claim that social networking technologies are fundamentally changing the nature of social interactions and relationships. (Paper 1)
Part a.) Explain Plato's distinction between knowledge, belief and ignorance.
Part b.) Discuss the viability of these distinctions. (Paper 2)

10.4. Group 4 – Sciences
Biology: Higher Level and Standard Level

I. Course description and aims

Biology is the study of life. The vast diversity of species makes biology both an endless source of fascination and a considerable challenge. Biologists attempt to understand the living world at all levels from the micro to the macro using many different approaches and techniques. Biology is still a young science and great progress is expected in the 21st century. This progress is important at a time of growing pressure on the human population and the environment.

By studying biology in the DP students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterises the sciences. Teachers provide students with opportunities to design investigations, collect data, develop manipulative skills, analyse results, collaborate with peers and evaluate and communicate their findings.

Through the overarching theme of the nature of science, the aims of the DP biology course are to enable students to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterise science and technology
3. apply and use a body of knowledge, methods and techniques that characterise science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Core	95
1. Cell biology	15
2. Molecular biology	21
3. Genetics	15
4. Ecology	12
5. Evolution and biodiversity	12
6. Human physiology	20
Additional HL	60
7. Nucleic acids	9
8. Metabolism, cell respiration and photosynthesis	14
9. Plant biology	13
10.Genetics and evolution	8
11.Animal physiology	16
Option (Choice of one out of four)	25
A. Neurobiology and behaviour	25
B. Biotechnology and bioinformatics	25
C. Ecology and conservation	25
D. Human physiology	25
Practical scheme of work	HL 60 SL 40
Prescribed and other practical activities	HL 40 SL 20
Individual investigation	10
Group 4 project	10

The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas. The emphasis is on interdisciplinary cooperation and the scientific processes.

III. Assessment model

It is the intention of this course that students are able to fulfill the following assessment objectives:

1. Demonstrate knowledge and understanding of:
- facts, concepts, and terminology
- methodologies and techniques
- communicating scientific information.

2. Apply:
- facts, concepts, and terminology
- methodologies and techniques
- methods of communicating scientific information.

3. Formulate, analyse and evaluate:
- hypotheses, research questions and predictions methodologies and techniques

› primary and secondary data
› scientific explanations.

4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

ASSESSMENT AT A GLANCE			
Type of assessment	**Format of assessment**	**Time (hours)**	**Grade percentage (%)**
External		2.75	75
Paper 1	Stimulus-based questions on core theme and essay questions on optional themes.	1.75	50
Paper 2	Questions on prescribed philosophical texts.	1	25
Internal		20	25
Analysis	Students are required to complete a philosophical analysis of a non-philosophical stimulus.	20	25

IV. Sample questions

HL

› Membrane proteins of mice cells were marked with green and membrane proteins of human cells were marked with red. The cells were fused together. What would be seen after two hours? (Paper 1)

› The species is the basis for naming and classifying organism. o Explain how new species can emerge by
  – directional selection
  – disruptive selection
  – polyploidy.
  – Outline the advantages to scientists of the binomial system for naming species.
  –Describe the use of dichotomous keys for the identification of specimens. (Paper 2)

› Brain death is a clinical diagnosis based on the absence of neurological function, with a known irreversible cause of coma.
  – Explain a named method to assess brain damage.
  – Distinguish between a reflex arc and other responses by the nervous system.
  – Describe the events that occur in the nervous system when something very hot is touched.(Paper 3)

SL

› Cyclins were discovered by Timothy R. Hunt in 1982 while studying sea urchins. What is a function of cyclins? (Paper 1)
› Antibiotics can be used to treat bacterial infections in human tissues because of differences in cell structure between prokaryotes and eukaryotes.
  – Distinguish between the structure of prokaryotes and eukaryotes.
  – Evaluate the drug tests that Florey and Chain carried out on penicillin.
  – Explain the reasons for the ineffectiveness of antibiotics in the treatment of viral diseases (Paper 2)
› The company BASF produces a genetically modified potato called Amflora. Outline the purpose of modifying the potato. (Paper 3)

Group 4 – Sciences
Chemistry: Higher Level and Standard Level

I. Course description and aims

Chemistry is an experimental science that combines academic study with the acquisition of practical and investigational skills. Chemical principles underpin both the physical environment in which we live and all biological systems. Chemistry is often a prerequisite for many other courses in higher education, such as medicine, biological science and environmental science.
Both theory and practical work should be undertaken by all students as they complement one another naturally, both in school and in the wider scientific community. The DP chemistry course allows students to develop a wide range of practical skills and to increase facility in the use of mathematics. It also allows students to develop interpersonal and information technology skills, which are essential to life in the 21st century.
By studying chemistry students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterises the subject.
Teachers provide students with opportunities to develop manipulative skills, design investigations, collect data, analyse results and evaluate and communicate their findings.

Through the overarching theme of the nature of science, the aims of the DP chemistry course are to enable students to:

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterise science and technology
3. apply and use a body of knowledge, methods and techniques that characterise science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information
5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Core 1. Stoichiometric relationships 2. Atomic structure 3. Periodicity 4. Chemical bonding and structure 5. Energetics/thermochemistry 6. Chemical kinetics 7. Equilibrium 8. Acids and bases 9. Redox processes 10. Organic chemistry 11. Measurement and data processing	**95** 13.5 6 6 13.5 9 7 4.5 6.5 8 11 10
Additional HL 12. Atomic structure 13. The periodic table—the transition metals 14.Chemical bonding and structure 15. Energetics/thermochemistry 16. Chemical kinetics 17. Equilibrium 18. Acids and bases 19.Redox processes 20.Organic chemistry 21.Measurement and analysis	**60** 2 4 7 7 6 4 10 6 12
Option (Choice of one out of four) A. Materials B. Biochemistry C. Energy D. Medicinal chemistry	25 25 25 25 25
Practical scheme of work Prescribed and other practical activities **Individual investigation** **Group 4 project**	HL 60 SL 40 HL 40 SL 20 10 10

The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas. The emphasis is on interdisciplinary cooperation and the scientific processes.

III. Assessment model

Studying this course, students should be able to fulfill the following assessment objectives:

1. Demonstrate knowledge and understanding of:
› facts, concepts, and terminology
› methodologies and techniques
› communicating scientific information.

2. Apply:
› facts, concepts, and terminology
› methodologies and techniques
› methods of communicating scientific information.

3. Formulate, analyse and evaluate:
› hypotheses, research questions and predictions methodologies and techniques
› primary and secondary data
› scientific explanations.

4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External			80
Paper 1	multiple-choice questions	HL 1 SL .75	20
Paper 2	Data-based, short answer and extended response questions	HL 2,25 SL 1.25	HL 36 SL 40
Paper 3	Data-based, short answer and extended response questions	HL 1.25 SL 1	HL 24 SL 40
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

HL

What is the sum of the coefficients when the equation for the combustion of ammonia is balanced using the smallest possible whole numbers?

___ NH_3 (g) + ___ O_2 (g) ___ N_2 (g) + ___ H_2O (g)

A. 6
B. 12
C. 14
D. 15 (Paper 1)

› The two isomers of $[Pt(NH_3)2Cl_2]$ are crystalline. One of the isomers is widely used in the treatment of cancer.
i. Draw both isomers of the complex,
ii. Explain the polarity of each isomer using a diagram of each isomer to support your answer,
iii. State a suitable method (other than looking at dipole moments) to distinguish between the two isomers
iv. Compare and contrast the bonding types formed by nitrogen in $[Pt(NH_3)_2Cl_2]$ (Paper 2)

SL
› What is the total number of atoms in 0.50 mol of 1,4-diaminobenzene, $H_2NC_6H_4NH_2$?
A. 16.0×10^{23}
B. 48.0×10^{23}
C. 96.0×10^{23}
D. 192.0×10^{23}
(Avogadro's constant (L or NA) = 6.0×10^{23} mol–1.) (Paper 1)
Many automobile manufacturers are developing vehicles that use hydrogen as a fuel.

1. Suggest why such vehicles are considered to cause less harm to the environment than those with internal combustion engines.
2. Hydrogen can be produced from the reaction of coke with
steam: C(s)+2H O(g) 2H (g)+CO (g)
Using information from section 12 of the data booklet, calculate the change in enthalpy, ΔH, in kJ mol–1, for this reaction. (Paper 2)

Group 4 – Sciences
Physics: Higher Level and Standard Level

I. Course description and aims
Physics is the most fundamental of the experimental sciences, as it seeks to explain the universe itself, from the very smallest particles to the vast distances between galaxies. Despite the exciting and extraordinary development of ideas throughout the history of physics, observations remain essential to the very core of the subject. Models are developed to try to understand observations, and these themselves can become theories that attempt to explain the observations.
Besides helping us better understand the natural world, physics gives us the ability to alter our environments. This raises the issue of the impact of physics on society, the moral and ethical dilemmas, and the social, economic and environmental implications of the work of physicists.
By studying physics students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterises the subject. Teachers provide students with opportunities to develop manipulative skills, design investigations, collect data, analyse results and evaluate and communicate their findings.

Through the overarching theme of the nature of science, the aims of the DP physics course are to enable students to:
1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterise science and technology
3. apply and use a body of knowledge, methods and techniques that characterise science and technology
4. develop an ability to analyse, evaluate and synthesize scientific information

5. develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
6. develop experimental and investigative scientific skills including the use of current technologies
7. develop and apply 21st century communication skills in the study of science
8. become critically aware, as global citizens, of the ethical implications of using science and technology
9. develop an appreciation of the possibilities and limitations of science and technology
10. develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Core	**95**
1. Measurements and uncertainties	5
2. Mechanics	22
3. Thermal physics	11
4. Waves	15
5. Electricity and magnetism	15
6. Circular motion and gravitation	5
7. Atomic, nuclear and particle physics	14
8. Energy production	8
Additional HL	**60**
9. Wave phenomena	17
10. Fields	11
11. Electromagnetic induction	16
12. Quantum and nuclear physics	16
Option (Choice of one out of four)	25
A. Relativity	25
B. Engineering physics	25
C. Imaging	25
D. Astrophysics	25
Practical scheme of work	HL 60 SL 40
Prescribed and other practical activities	HL 40 SL 20
Individual investigation	10
Group 4 project	10

The group 4 project
The group 4 project is a collaborative activity where students from different group 4 subjects, within or between schools, work together. It allows for concepts and perceptions from across disciplines to be shared while appreciating the environmental, social and ethical implications of science and technology. It can be practically or theoretically based and aims to develop an understanding of the relationships between scientific disciplines and their influence on other areas. The emphasis is on interdisciplinary cooperation and the scientific processes.

III. Assessment model
It is the intention of this course that students are able to fulfill the following assessment objectives:

1. Demonstrate knowledge and understanding of:
› facts, concepts, and terminology
› methodologies and techniques
› communicating scientific information.

2. Apply:
› facts, concepts, and terminology
› methodologies and techniques
› methods of communicating scientific information.

3. Formulate, analyse and evaluate:
› hypotheses, research questions and predictions methodologies and techniques
› primary and secondary data
› scientific explanations.

4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External			80
Paper 1	multiple-choice questions	HL 1 SL .75	20
Paper 2	Short answer and extended response questions (Core plus AHL for HL)	HL 2,25 SL 1.25	HL 36 SL 40
Paper 3	Data- and practical-based questions plus, short answer and extended response questions on the option	HL 1.25 SL 1	HL 24 SL 36
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

HL

› Why is wave-particle duality used in describing the properties of light?
A. Light is both a wave and a particle
B. Both wave and particle models can explain all the properties of light
C. Different properties of light can be more clearly explained by using one of the wave or particle models
D. Scientists feel more confident when using more than one model to explain a phenomenon
(Paper 1)

› The tower is 120m high with an internal diameter of 3.5m. When most of the air has been removed, the pressure in the tower is 0.96 Pa.
Determine the number of molecules of air in the tower when the temperature of the air is 300 K. (Paper 2)

› The streamlines above the airfoil are closer to each other than the streamlines below the airfoil. Suggest why this implies that the speed of the air above the airfoil is greater than the speed of air below the airfoil. (Paper 3)

SL

› An object falls freely from rest through a vertical distance of 44.0m in a time of 3.0s. What value should be quoted for the acceleration of free-fall? (Paper 1)
A. 9.778ms-2
B. 9.780ms-2
C. 9.78ms-2
D. 9.8ms-2

› There is a suggestion that the temperature of the Earth may increase if the use of fossil fuels is not reduced over the coming years. Explain, with reference to the enhanced greenhouse effect, why this temperature increase may occur. (Paper 2)

› In an experiment to measure the specific heat capacity of a metal, a piece of metal is placed inside a container of boiling water at 100°C. The metal is then transferred into a calorimeter containing water at a temperature of 10°C. The final equilibrium temperature of the water was measured. One source of error in this experiment is that the small mass of boiling water will be transferred to the calorimeter along with the metal.
(a) Suggest the effect of the error on the measured value of the specific heat capacity of the metal
(b) State one other source of error for this experiment (Paper 3)

Group 4 – Sciences
Computer science: Higher Level and Standard Level

I. Course description and aims

The IB DP computer science HL & SL course requires an understanding of the fundamental concepts of computational thinking as well as knowledge of how computers and other digital devices operate. The course, underpinned by conceptual thinking, draws on a wide spectrum of knowledge, and enables and empowers innovation, exploration and the acquisition of further knowledge. Students study how computer science interacts with and influences cultures, society and how individuals and societies behave, and the ethical issues involved. During the course the student will develop computational solutions. This will involve the ability to:
› identify a problem or unanswered question
› design, prototype and test a proposed solution
› liaise with clients to evaluate the success of the proposed solution
› and make recommendations for future developments. The aims of the computer science HL courses are to:
› provide opportunities for study and creativity within a global context that will stimulate and challenge students developing the skills necessary for independent and lifelong learning
› provide a body of knowledge, methods and techniques that characterise computer science
› enable students to apply and use a body of knowledge, methods and techniques that characterise computer science
› demonstrate initiative in applying thinking skills critically to identify and resolve complex problems
› engender an awareness of the need for, and the value of, effective collaboration and communication in

resolving complex problems
› develop logical and critical thinking as well as experimental, investigative and problem-solving skills
› develop and apply the students' information and communication technology skills in the study of computer science to communicate information confidently and effectively
› raise awareness of the moral, ethical, social, economic and environmental implications of using science and technology
› develop an appreciation of the possibilities and limitations associated with continued developments in IT systems and computer science
› encourage an understanding of the relationships between scientific disciplines and the overarching nature of the scientific method.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Core syllabus content SL/HL core › Topic 1: System fundamentals › Topic 2: Computer organisation › Topic 3: Networks › Topic 4: Computational thinking, problem-solving and programming	80
HL extension › Topic 5: Abstract data structures › Topic 6: Resource management › Topic 7: Control Case study Additional subject content introduced by the annually issued case study	45 30
Option SL/HL core	30
HL extension Students study one of the following options: › Option A: Databases › Option B: Modelling and simulation › Option C: Web science › Option D: Object-oriented programming (OOP)	15
Internal assessment Solution Practical application of skills through the development of a product and associated documentation	30
Group 4 project	10

III. Assessment model

Having followed either the computer science higher or standard level course, students will be expected to:

Know and understand:
› relevant facts and concepts
› appropriate methods and techniques
› computer science terminology
› methods of presenting information.

Apply and use:
› relevant facts and concepts
› relevant design methods and techniques
› terminology to communicate effectively
› appropriate communication methods to present information.

Construct, analyse, evaluate and formulate:
› success criteria, solution specifications including task outlines, designs and test plans
› appropriate techniques within a specified solution.
Demonstrate the personal skills of cooperation and perseverance as well as appropriate technical skills for effective problem-solving in developing a specified product.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External			HL 80 SL 70
Paper 1	› Section A consists of several compulsory short answer questions. › Section B consists of five compulsory structured questions.	2hrs 10min.	
Paper 2	An examination paper of between three and seven compulsory question; linked to the option studied.	1hr, 20min.	
Internal			HL 20 SL 30
Written commentary	A report of The development of a computational solution. Students must produce: › a cover page that follows the prescribed format › a product supporting documentation (word limit 2,000 words).	30hrs	
Group 4 project	To be assessed using the criterion Personal skills.	10hrs	

IV. Sample questions

HL
› Draw the representation of the binary search tree if the following data were inserted in this order:
› FALCON, CANARY, PIGEON, TURKEY, OSPREY.
› Discuss the methods used by criminals to hide or disguise certain files. For each method, identify the countermeasures that can be taken by a computer forensic scientist.

SL
The colour of a pixel can be stored as a 16-bit integer.
(a) State how many different colours can be represented in a 16-bit integer field.
(b) State whether this storage system for colour values is digital or analog.

(c) Outline one advantage and one disadvantage of using 32-bits per-pixel to store colours instead of 16-bits per-pixel.

› State the output of the following code fragment: double n= 1234.5678; double p = math. floor((n*100)/100); output (p); Recall that math.floor(3.7) produces the integer result 3.

10.5. Group 5 – Mathematics
Mathematics: Higher Level and Standard Level

I. Course description and aims

The IB DP mathematics standard level (SL) course focuses on introducing important mathematical concepts through the development of mathematical techniques. The intention is to introduce students to these concepts in a comprehensible and coherent way, rather than insisting on the mathematical rigour required for mathematics HL. Students should, wherever possible, apply the mathematical knowledge they have acquired to solve realistic problems set in an appropriate context.

The IB DP higher level mathematics course focuses on developing important mathematical concepts in a comprehensible, coherent and rigorous way, achieved by a carefully balanced approach. Students are encouraged to apply their mathematical knowledge to solve problems set in a variety of meaningful contexts. Development of each topic should feature justification and proof of results. Students should expect to develop insight into mathematical form and structure, and should be intellectually equipped to appreciate the links between concepts in different topic areas. They are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments.

For both SL & HL the internally assessed exploration allows students to develop independence in mathematical learning. Students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas. The exploration also allows students to work without the time constraints of a written examination and to develop the skills they need for communicating mathematical ideas.

The aims of all mathematics courses in group 5 are to enable students to:

› enjoy mathematics, and develop an appreciation of the elegance and power of mathematics
› develop an understanding of the principles and nature of mathematics
› communicate clearly and confidently in a variety of contexts
› develop logical, critical and creative thinking, and patience and persistence in problem-solving
› employ and refine their powers of abstraction and generalization
› apply and transfer skills to alternative situations, to other areas of
› knowledge and to future developments
› appreciate how developments in technology and mathematics have influenced each other
› appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
› appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
› appreciate the contribution of mathematics to other disciplines, and as a particular "area of knowledge" in the TOK course.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Topic 1 Algebra	SL 9 HL 30
Topic 2 Functions and equations	SL 24 HL 22
Topic 3 Circular functions and trigonometry	SL 16 HL 22
Topic 4 Vectors	SL 16 HL 24
Topic 5 Statistics and probability	SL 35 HL 36
Topic 6 Calculus	SL 40 HL 48
Additional HL option syllabus content HL Students must study one of the following options. **Topic 7** Statistics and probability **Topic 8** Sets, relations and groups **Topic 9** Calculus **Topic 10** Discrete mathematics	HL 48
Mathematical exploration Internal assessment in mathematics SL & HL is an individual exploration. This is a piece of written work that involves investigating an area of mathematics.	10

III. Assessment model

Having followed the mathematics standard or higher level courses, students will be expected to demonstrate the following.

› Knowledge and understanding: recall, select and use their knowledge of mathematical facts, concepts and techniques in a variety of familiar and unfamiliar contexts.
› Problem-solving: recall, select and use their knowledge of mathematical skills, results and models in both real and abstract contexts to solve problems.
› Communication and interpretation: transform common realistic contexts into mathematics; comment on the context; sketch or draw mathematical diagrams, graphs or constructions both on paper and using technology; record methods, solutions and conclusions using standardized notation.
› Technology: use technology, accurately, appropriately and efficiently both to explore new ideas and to solve problems.
› Reasoning: construct mathematical arguments through use of precise statements, logical deduction and inference, and by the manipulation of mathematical expressions.
› Inquiry approaches: investigate unfamiliar situations, both abstract and real-world, involving organising and analysing information, making conjectures, drawing conclusions and testing their validity.

ASSESSMENT AT A GLANCE			
Type of assessment	**Format of assessment**	**Time (hours)**	**Grade percentage (%)**
External			HL 80 SL 70
Paper 1 (non-calculator)	Section A: Compulsory short-response questions based on the whole syllabus. Section B: Compulsory extended-response questions based on the whole syllabus.	SL 1.5 HL 2	SL 40 HL 30
Paper 2 (graphical display calculator required)	Section A: Compulsory short-response questions based on the whole syllabus. Section B: Compulsory extended-response questions based on the whole syllabus.	SL 1.5 HL 2	SL 40 HL 30
Paper 3 (graphical display calculator required)	*HL Only* Compulsory extended-response questions based mainly on the syllabus options.	HL 1	HL 20
Internal			20
Mathematical exploration	The individual exploration is a piece of written work that involves investigating an area of mathematics.		20

IV. Sample questions

SL

› A data set has a mean of 20 and a standard deviation of 6.

A) Each value in the data set has 10 added to it. Write down the value of

i. the new mean;

ii. the new standard deviation.

B) Each value in the original data set is multiplied by 10.

i. Write down the value of the new mean.

ii. Find the value of the new variance.

› Given that f(x) = 1/x, answer the following.

A) Find the first four derivatives of f (x).

B) Write an expression for f(n)in terms of x and n.

HL

› The vectors a, b, c satisfy the equation a+b+c=0. Show that a×b=b×c=c×a.

› Consider the following system of equations:

x+ y + z = 1

2x + 3y + z = 3

x + 3y – z = λ where λεR.

A. Show that this system does not have a unique solution for any value of λ.

B. i. Determine the value of λ for which the system is consistent.

ii. For this value of λ, find the general solution of the system.

Group 5 – Mathematics
Mathematical Studies: Standard Level

I. Course description and aims

The IB DP mathematical studies standard level (SL) course focuses on important interconnected mathematical topics. The syllabus focuses on: placing more emphasis on student understanding of fundamental concepts than on symbolic manipulation and complex manipulative skills; giving greater emphasis to developing students' mathematical reasoning rather than performing routine operations; solving mathematical problems embedded in a wide range of contexts; using the calculator effectively. There is an emphasis on applications of mathematics and statistical techniques. It is designed to offer students with varied mathematical backgrounds and abilities the opportunity to learn important concepts and techniques and to gain an understanding of a wide variety of mathematical topics, preparing them to solve problems in a variety of settings, develop more sophisticated mathematical reasoning and enhance their critical thinking.

The aims of all DP mathematics courses are to enable students to:

› enjoy and develop an appreciation of the elegance and power of mathematics
› develop an understanding of the principles and nature of mathematics
› communicate clearly and confidently in a variety of contexts
› develop logical, critical and creative thinking, and patience and persistence in problem-solving
› employ and refine their powers of abstraction and generalization
› apply and transfer skills to alternative situations, to other areas of knowledge and to future developments
› appreciate how developments in technology and mathematics have influenced each other
› appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
› appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
› appreciate the contribution of mathematics to other disciplines, and as a particular "area of knowledge" in the TOK course.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Topic 1 Numbers and Algebra	20
Topic 2 Descriptive statistics	12
Topic 3 Logic, sets and probability	20
Topic 4 Statistical application	17
Topic 5 Geometry and trigonometry	18
Topic 6 Mathematical models	20
Topic 7 Introduction to different calculus	18
Project An individual piece of work involving the collection of information or the generation of measurements, and subsequent the analysis and evaluation.	25

III. Assessment model

Having followed the mathematical studies SL course, students will be expected to demonstrate the following:

- Knowledge and understanding: recall, select and use knowledge of mathematical facts, concepts and techniques in a variety of contexts.
- Problem-solving: recall, select and use knowledge of mathematical skills, results and models to solve problems.
- Communication and interpretation: transform common realistic contexts into mathematics; comment on the context; create mathematical diagrams, graphs or constructions; record methods, solutions and conclusions using standardized notation.
- Technology: use technology accurately, appropriately and efficiently to explore new ideas and to solve problems.
- Reasoning: construct mathematical arguments through use of precise statements, logical deduction and inference, and by the manipulation of mathematical expressions.
- Investigative approaches: investigate unfamiliar situations involving organising and analysing information or measurements, drawing conclusions, testing their validity, and considering their scope and limitations.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Time (hours)	Grade percentage (%)
External			HL 80 SL 70
Paper 1 (graphical display calculator required)	15 compulsory short-response questions based on the whole syllabus.	1.5	40
Paper 2 (graphical display calculator required)	Section A: Compulsory short-response questions based on the whole syllabus. Section B: Compulsory extended-response questions based on the whole syllabus.	1.5	40
Internal			20
Project	An individual piece of work involving the collection of information or the generation of measurements, and subsequent the analysis and evaluation.		20

IV. Sample questions

A liquid is heated so that after 20 seconds of heating its temperature, T, is 25 °C and after 50 seconds of heating its temperature is 37 °C. The temperature of the liquid at time t can be modelled by T = at + b, where t is the time in seconds after the start of heating.

Using this model one equation that can be formed is 20a + b = 25

- Using the model, write down a second equation in a and b.
- Using y our graphic display calculator or otherwise, find the value of a and of b.
- Use the model to predict the temperature of the liquid 60 seconds after the start of heating.

Yun Bin invests 5000 euros in an account which pays a nominal annual interest rate of 6.25 %, compounded monthly. Give all answers correct to two decimal places.

Find

A. the value of the investment after 3 years;

B. the difference in the final value of the investment if the interest was compounded quarterly at the same nominal rate.

10.6. Group 6 – The Arts
Visual Arts: Higher Level and Standard Level

I. Course description and aims

The IB Diploma Programme visual arts course encourages students to challenge their own creative and cultural expectations and boundaries. It is a thought-provoking course in which students develop analytical skills in problem-solving and divergent thinking, while working towards technical proficiency and confidence as art-makers. In addition to exploring and comparing visual arts from different perspectives and in different contexts, students are expected to engage in, experiment with and critically reflect upon a wide range of contemporary practices and media. The course is designed for students who want to go on to further study of visual arts in higher education as well as for those who are seeking lifelong enrichment through visual arts.
The role of visual arts teachers should be to actively and carefully organise learning experiences for the students, directing their study to enable them to reach their potential and satisfy the demands of the course. Students should be empowered to become autonomous, informed and skilled visual artists.
The aims of the arts subjects are to enable students to:
1. enjoy lifelong engagement with the arts
2. become informed, reflective and critical practitioners in the arts
3. understand the dynamic and changing nature of the arts
4. explore and value the diversity of the arts across time, place and cultures
5. express ideas with confidence and competence
6. develop perceptual and analytical skills.

In addition, the aims of the visual arts course at SL and HL are to enable students to:
7. make artwork that is influenced by personal and cultural contexts
8. become informed and critical observers and makers of visual culture and media
9. develop skills, techniques and processes in order to communicate concepts and ideas.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Visual arts in context › Examine and compare the work of artists from different cultural contexts. › Consider the contexts influencing their own work and the work of others. › Make art through a process of investigation, thinking critically and experimenting with techniques. › Apply identified techniques to their own developing work. › Develop an informed response to work and exhibitions they have seen and experienced. › Begin to formulate personal intentions for creating and displaying their own artworks.	SL 50 HL 80
Visual arts methods › Look at different techniques for making art. › Investigate and compare how and why different techniques have evolved and the processes involved. › Experiment with diverse media and explore techniques for making art. › Develop concepts through processes informed by skills, techniques and media. › Evaluate how their ongoing work communicates meaning and purpose. › Consider the nature of "exhibition", and think about the process of selection and the potential impact of their work on different audiences.	SL 50 HL 80
Communicating visual arts › Explore ways of communicating through visual and written means. › Make artistic choices about how to most effectively communicate knowledge and understanding. › Produce a body of artwork through a process of reflection and evaluation, showing a synthesis of skill, media and concept. › Select and present resolved works for exhibition. › Explain the ways in which the works are connected. › Discuss how artistic judgments impact the overall presentation.	SL 50 HL 80

Throughout the course students are required to maintain a visual arts journal. Although sections of the journal will be selected, adapted and presented for assessment, the journal itself is not directly assessed or moderated. It is, however, regarded as a fundamental activity of the course.

III. Assessment model

Having followed the visual arts course, students are expected to:

1. Demonstrate knowledge and understanding of specified content
› Identify various contexts in which the visual arts can be created and presented
› Describe artwork from differing contexts, and identify the ideas, conventions and techniques employed by the art-makers
› Recognise the skills, techniques, media, forms and processes associated with the visual arts
› Present work, using appropriate visual arts language, as appropriate to intentions

2. Demonstrate application and analysis of knowledge and understanding
› Express concepts, ideas and meaning through visual communication
› Analyse artworks from a variety of different contexts
› Apply knowledge and understanding of skills, techniques, media, forms and processes related to art-making

3. Demonstrate synthesis and evaluation
› Critically analyse and discuss artworks created by themselves and others and articulate an informed personal response
› Formulate personal intentions for the planning, development and making of artworks that consider how meaning can be conveyed to an audience
› Demonstrate the use of critical reflection to highlight success and failure in order to progress work
› Evaluate how and why art-making evolves and justify the choices made in their own visual practice

4. Select, use and apply a variety of appropriate skills and techniques
› Experiment with different media, materials and techniques in art-making
› Make appropriate choices in the selection of images, media, materials and techniques in art-making
› Demonstrate technical proficiency in the use and application of skills, techniques, media, images, forms and processes
› Produce a body of resolved and unresolved artworks as appropriate to intentions

ASSESSMENT AT A GLANCE		
Type of assessment	**Format of assessment**	**Grade percentage (%)**
External		60
Comparative study	› 10–15 screens which examine and compare at least 3 art-works, at least 2 of which need to be by different artists › A list of sources used. › HL only › 3–5 screens which analyse the extent to which the student's work and practices have been influenced by the art and artists examined	20
Process portfolio	› SL 9–18 and HL13–25 screens which evidence sustained experimentation, exploration, manipulation and refinement of a variety of art-making activities	40
Internal		40
Exhibition	› A curatorial rationale that does not exceed SL 400 and HL 700 words › SL 4–7 and HL 8–11 artworks › Exhibition text (stating the title, medium, size and intention) for each artwork	40

Group 6 – The Arts
Film*: Standard Level

I. Course description and aims

The IB Diploma Programme film course aims to develop students' skills so that they become adept in both interpreting and making film texts.

Through the study and analysis of film texts and exercises in film-making, the course explores film history, theory and socio-economic background. The course develops students' critical abilities, enabling them to appreciate the multiplicity of cultural and historical perspectives in film. To achieve an international understanding within the world of film, students are taught to consider film texts, theories and ideas from the points of view of different individuals, nations and cultures.

Students also develop the professional and technical skills (including organisational skills) needed to express themselves creatively in film. The course emphasises the importance of working individually and as a member of a group. A challenge for students following this course is to become aware of their own perspectives and biases and to learn to respect those of others. This requires willingness to attempt to understand alternative views, to respect and appreciate cultural diversity, and to have an open and critical mind.

In addition, the course is designed to promote:

› an appreciation and understanding of film as a complex art form
› an ability to formulate stories and ideas in film terms
› the practical and technical skills of production
› critical evaluation of film productions by the student and by others
› a knowledge of film-making traditions in more than one country.

II. Curriculum model overview

COMPONENTS	CLASS HOURS
Part 1: Textual analysis › Construction according to narrative or other formal organising principles › Representation of characters and issues › Camera angles, shots and movement › Editing and sequencing › Lighting, shade and colour › Sound › Location and set design › Features determining genre › Target audience › Historical, economic, sociocultural and institutional factors	37.5
Part 2: Film theory and history Aspects of film theory and history can be introduced to students by asking such questions as: › Who made this? › Why? › What can we tell about the film-maker(s)? › For whom was it made? How does it address its audience? What is the nature of our engagement with film? › What outside influences can we perceive in terms of finance, ownership, institution and sociocultural context? › What tradition is it in(for example, American gangster film, Bollywood musical)? › To what other works might it be connected?	75
Part 3: Creative process—techniques and organisation of production Initial planning › Finding the idea › Research › Treatment and script development Pitch › Developing the proposal › Negotiating the proposal with the teacher › Receiving approval to proceed Technical planning › Conceptualization › Visualization › Production scheduling › Editing and sound strategies Physical production › Pre-production Production › Post-production Production journal Retention of materials	75

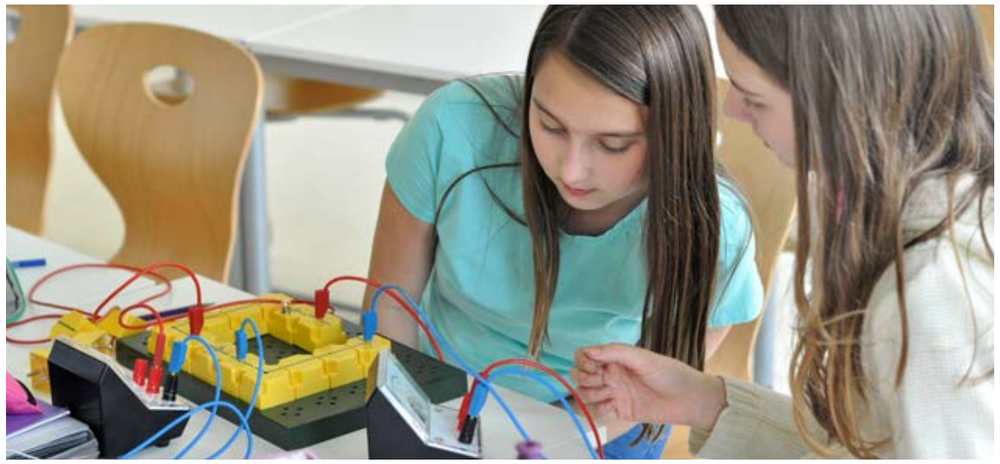
III. Assessment model

Having followed the standard level film course, students are expected to demonstrate the following:

› An understanding of the variety of ways in which film creates meaning.
› An understanding and effective use of appropriate film language.
› Originality and creativity in developing an idea through the various stages of film-making, from conception to finished production.
› Technical skills and an appropriate use of available technology.
› The ability to draw together knowledge, skills, research and experience, and apply them analytically to evaluate film texts.
› A critical understanding of the historical, theoretical, sociocultural, economic and institutional contexts of film in more than one country.
› The ability to research, plan and organise working processes.
› The ability to reflect upon and evaluate film production processes and completed film texts.

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Grade percentage (%)
External		50
Independent study	Rationale, script and list of sources for a short documentary production of 8–10 pages on an aspect of film theory and/or film history, based on a study of a minimum of two films. The chosen films must originate from more than one country.	25
Presentation	An oral presentation of a detailed critical analysis of a continuous extract from a prescribed film. Maximum length of presentation: 10 minutes.	25
Internal		50
Exhibition	One completed film project with accompanying written documentation: no more than 1,200 words. Length of film project: 4–5 minutes.	50



11. Diploma Programme core

Theory of knowledge (TOK)

I. Course description and aims

Theory of knowledge (TOK) is a course about critical thinking and inquiring into the process of knowing, rather than about learning a specific body of knowledge. It plays a special role in the DP by providing an opportunity for students to reflect on the nature of knowledge, to make connections between areas of knowledge and to become aware of their own perspectives and those of the various groups whose knowledge they share. It is a core element undertaken by all DP students, and schools are required to devote at least 100 hours of class time to the course. The overall aim of TOK is to encourage students to formulate answers to the question "how do you know?" in a variety of contexts, and to see the value of that question. This allows students to develop an enduring fascination with the richness of knowledge.

The aims of the TOK course are to:

› make connections between a critical approach to the construction of knowledge, the academic disciplines and the wider world
› develop an awareness of how individuals and communities construct knowledge and how this is critically examined
› develop an interest in the diversity and richness of cultural perspectives and an awareness of personal and ideological assumptions
› critically reflect on their own beliefs and assumptions, leading to more thoughtful, responsible and purposeful lives
› understand that knowledge brings responsibility which leads to commitment and action.

II. Curriculum model overview

Course Components

Knowing about knowing

TOK examines how we know what we claim to know, by encouraging students to analyse knowledge claims and explore knowledge questions. A knowledge claim is the assertion that "I/we know X" or "I/we know how to Y", or a statement about knowledge; a knowledge question is an open question about knowledge. The distinction between shared knowledge and personal knowledge is intended to help teachers construct their TOK course and to help students explore the nature of knowledge.

Ways of knowing

While there are arguably many ways of knowing (WOKs), TOK identifies eight specific WOKs: language, sense perception, emotion, reason, imagination, faith, intuition, and memory. Students must explore a range of ways of knowing, and it is suggested to study four of these in depth.

Areas of knowledge

Areas of knowledge are specific branches of knowledge, each of which can be seen to have a distinct nature and different methods of gaining knowledge. TOK distinguishes between eight areas of knowledge: mathematics, the natural sciences, the human sciences, the arts, history, ethics, religious knowledge systems, and indigenous knowledge systems. Students must explore a range of areas of knowledge, and it is suggested to study six of these eight.

III. Assessment model

Having followed the TOK course, students will be expected to demonstrate the following:

› Identify and analyse the various kinds of justifications used to support knowledge claims.

› Formulate, evaluate and attempt to answer knowledge questions.
› Examine how academic disciplines/areas of knowledge generate and shape knowledge.
› Understand the roles played by ways of knowing in the construction of shared and personal knowledge.
› Explore links between knowledge claims, knowledge questions, ways of knowing and areas of knowledge.
› Demonstrate an awareness and understanding of different perspectives and be able to relate these to one's own perspective.
› Explore a real-life/contemporary situation from a TOK perspective in the presentation.

IV. Sample prescribed titles

› Using history and at least one other area of knowledge, examine the claim that it is possible to attain knowledge despite problems of bias and selection.
› "It is a capital mistake to theorize before one has data. Insensibly one begins to twist facts to suit theories, instead of theories to suit facts" (Arthur Conan Doyle). Consider the extent to which this statement may be true in two or more areas of knowledge.
› In what ways may disagreement aid the pursuit of knowledge in the natural and human sciences?

ASSESSMENT AT A GLANCE

Type of assessment	Format of assessment	Grade percentage (%)
External		
Part 1: Essay on a prescribed title	One essay on a title chosen from a list of six prescribed titles.	67%
Internal		
Part 2: Presentation	One presentation to the class by an individual or a group (max of three persons); approximately 10 minutes per student. One written presentation planning document for each student.	33%

V. TOK/EE Score Matrix

The extended essay contributes to the overall diploma score through the award of points in conjunction with theory of knowledge. A maximum of three points are awarded according to a student's combined performance in both the extended essay and theory of knowledge.

TOK / EE	A	B	C	D	E
A	3	3	2	2	Failing condition
B	3	2	2	1	Failing condition
C	2	2	1	0	Failing condition
D	2	1	0	0	Failing condition
E	Failing condition	Failing condition	Failing condition	Failing condition	Failing condition

Diploma Programme Core
Extended Essay (EE)

I. Course description and aims

The extended essay is an in-depth study of a focused topic chosen from the list of approved DP subjects—normally one of the student's six chosen subjects, or in World Studies. World Studies provides students the opportunity to carry out an in-depth interdisciplinary study of an issue of contemporary global significance, utilizing two IB disciplines. Both are intended to promote high-level research and writing skills, intellectual discovery and creativity, engaging students 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, coherent and appropriate manner.
The extended essay, including the world studies option, is a compulsory, externally assessed piece of independent research/investigation. Presented as a formal piece of scholarship containing no more than 4,000 words, it is the result of approximately 40 hours of student work, and concluded with a short interview, or viva voce, with the supervising teacher (recommended).

The aims of the extended essay, including the World Studies option, are to provide students with the opportunity to:
› pursue independent research on a focused topic
› develop research and communication skills
› develop creativity and critical thinking
› engage in a systematic process of research
› experience the excitement of intellectual discovery.

II. Curriculum model overview

Components

The research process

The research process

1. Choose the approved DP subject*.
2. Choose a topic.
3. Formulate a well-focused research question.
4. Plan the investigation and writing process.
5. Plan a structure (outline headings) for the essay. This may change as the investigation develops.
6. Undertake some preparatory reading.
7. Carry out the investigation.

*for the World Studies option, students choose a topic which must address both an issue of global significance, and invite an interdisciplinary approach involving two approved DP subjects.

Writing and formal presentation

The required elements of the final work to be submitted are:

› Title page
› Abstract
› Contents page
› Introduction
› Body (development/methods/results)
› Conclusion
› References and bibliography
› Appendices.

The upper limit of 4,000 words includes the introduction, body, conclusion and any quotations.

The viva voce (concluding interview)

The viva voce is a short interview (10–15 minutes) between the student and the supervisor, and a recommended conclusion to the process. The viva voce serves as:

› A check on plagiarism and malpractice in general
› An opportunity to reflect on successes and difficulties
› An opportunity to reflect on what has been learned
› An aid to the supervisor's report.

Diploma Programme Core
Creativity, Activity, Service (CAS)

CAS is at the heart of the Diploma Programme. With its holistic approach, CAS is designed to strengthen and extend students' personal and interpersonal learning from the PYP and MYP.
CAS is organised around the three strands of creativity, activity and service defined as follows:

Creativity — exploring and extending ideas leading to an original or interpretive product or performance
Activity — physical exertion contributing to a healthy lifestyle
Service — collaborative and reciprocal engagement with the community in response to an authentic need

As a shining beacon of our values, CAS enables students to demonstrate attributes of the IB learner profile in real and practical ways, to grow as unique individuals and to recognise their role in relation to others. Students develop skills, attitudes and dispositions through a variety of individual and group experiences that provide students with opportunities to explore their interests and express their passions, personalities and perspectives. CAS complements a challenging academic programme in a holistic way, providing opportunities for self-determination, collaboration, accomplishment and enjoyment.

CAS enables students to enhance their personal and interpersonal development. A meaningful CAS programme is a journey of discovery of self and others. For many, CAS is profound and life-changing. Each individual student has a different starting point and different needs and goals. A CAS programme is, therefore, individualized according to student interests, skills, values and background.

The school and students must give CAS as much importance as any other element of the Diploma Programme and ensure sufficient time is allocated for engagement in the CAS programme. The CAS stages offer a helpful and supportive framework and continuum of process for CAS students. Successful completion of CAS is a requirement for the award of the IB Diploma. While not formally assessed, students reflect on their CAS experiences and provide evidence in their CAS portfolios of achieving the seven learning outcomes.

The CAS programme formally begins at the start of the Diploma Programme and continues regularly, ideally on a weekly basis, for at least 18 months with a reasonable balance between creativity, activity, and service. All CAS students are expected to maintain and complete a CAS portfolio as evidence of their engagement with CAS. The CAS portfolio is a collection of evidence that showcases CAS experiences and for student reflections; it is not formally assessed.

Completion of CAS is based on student achievement of the seven CAS learning outcomes. Through their CAS portfolio, students provide the school with evidence demonstrating achievement of each learning outcome. Students engage in CAS experiences involving one or more of the three CAS strands. A CAS experience can be a single event or may be an extended series of events.

Further, students undertake a CAS project of at least one month's duration that challenges students to show initiative, demonstrate perseverance, and develop skills such as collaboration, problem-solving, and decision-making. The CAS project can address any single strand of CAS, or combine two or all three strands. Students use the CAS stages (investigation, preparation, action, reflection and demonstration) as a framework for CAS experiences and the CAS project.

There are three formal documented interviews students must have with their CAS coordinator/adviser. The first interview is at the beginning of the CAS programme, the second at the end of the first year, and the third interview is at the end of the CAS programme. CAS emphasises reflection which is central to building a deep and rich experience in CAS. Reflection informs students' learning and growth by allowing students to explore ideas, skills, strengths, limitations and areas for further development and consider how they may use prior learning in new contexts.

Aims

The CAS programme aims to develop students who:

› enjoy and find significance in a range of CAS experiences
› purposefully reflect upon their experiences
› identify goals, develop strategies and determine further actions for personal growth
› explore new possibilities, embrace new challenges and adapt to new roles
› actively participate in planned, sustained, and collaborative CAS projects
› understand they are members of local and global communities with responsibilities towards each other and the environment.

Learning outcomes

Student completion of CAS is based on the achievement of the seven CAS learning outcomes realized through the student's commitment to his or her CAS programme over a period of 18 months. These learning outcomes articulate what a CAS student is able to do at some point during his or her CAS programme. Through meaningful and purposeful CAS experiences, students develop the necessary skills, attributes and understandings to achieve the seven CAS learning outcomes.

Some learning outcomes may be achieved many times, while others may be achieved less frequently. Not all CAS experiences lead to a CAS learning outcome. Students provide the school with evidence in their CAS portfolio of having achieved each learning outcome at least once through their CAS programme. The CAS coordinator must reach agreement with the student as to what evidence is necessary to demonstrate achievement of each CAS learning outcome. Commonly, the evidence of achieving the seven CAS learning outcomes is found in students' reflections.

The responsibility of the CAS student

Key to a student's CAS programme is personal engagement, choice and enjoyment of CAS experiences. Throughout the Diploma Programme students undertake a variety of CAS experiences, ideally on a weekly basis, for a minimum of 18 months. They must also undertake at least one CAS project with a minimum duration of one month. Students reflect on CAS experiences at significant moments throughout CAS and maintain a CAS portfolio. Using evidence from their CAS portfolio, students will demonstrate achievement of the seven CAS learning outcomes to the CAS coordinator's satisfaction.

CAS students are expected to:

› approach CAS with a proactive attitude
› develop a clear understanding of CAS expectations and the purpose of CAS
› explore personal values, attitudes and attributes with reference to the IB learner profile and the IB mission statement
› determine personal goals
› discuss plans for CAS experiences with the CAS coordinator and/or CAS adviser
› understand and apply the CAS stages where appropriate
› take part in a variety of experiences, some of which are self-initiated, and at least one CAS project
› become more aware of personal interests, skills and talents and observe how these evolve throughout the CAS programme
› maintain a CAS portfolio and keep records of CAS experiences including evidence of achievement of the seven CAS learning outcomes
› understand the reflection process and identify suitable opportunities to reflect on CAS experiences
› demonstrate accomplishments within their CAS programme
› communicate with the CAS coordinator/adviser and/or CAS supervisor in formal and informal meetings
› ensure a suitable balance between creativity, activity and service in their CAS programme
› behave appropriately and ethically in their choices and behaviours.

Please look for more information about:

H.I.S. Curriculum
› www.hischool.de

IB Programmes
› www.ibo.org

Life at H.I.S.
› www.his-makingadifference.com

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