satyam, shivam, sundaram

MODERN HIGH SCHOOL FOR GIRLS
KOLKATA

Handbook 2021-2023

MODERN HIGH SCHOOL FOR GIRLS

MISSION:

Commitment to excellence

To maintain its stamp of excellence while progressing continuously as an institution. To provide a stress-free yet stimulating environment which offers everyone in the school community opportunities to develop her full potential as a unique individual and to learn to be a team player.

IB MISSION STATEMENT

The International Baccalaureate® 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 organization works with schools, governments and international organizations 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.[1]

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[1] http://www.ibo.org/about-the-ib/mission/ date accessed 02/10/2017

Modern High School for Girls

A *post-Independence, all-faiths school* for girls

Modern High School for Girls, Kolkata was founded in 1952 by Rukmani Devi Birla. The first Principal was Mrs. Violet Clarke.

It is an all-girls' institution committed to developing thinking, independent and strong young women. MHS for Girls is free of any bias and embraces all students on equal terms irrespective of religion, community or socio-economic background. It offers a liberal education which is intended to motivate students to discover and build on their own individual strengths and contribute to society in turn.

The school has produced an astonishing number of outstanding alumnae who have done their alma mater proud. They are continuing to do so in different corners of the globe.

Ethos: *A stress-free yet stimulating learning environment and acknowledging the uniqueness of every child.*

MHS for Girls is perceived as a school which blends tradition and modernity. It combines Indian and other cultures in an interesting mix. It's well -integrated student population comprises children from different communities and socio-economic backgrounds.

The school has an established reputation for academic excellence and for providing its students a wide range of co-curricular activities. Its curriculum is dynamic with sports and games, communicative skills, health and value education, environmental studies, community service, art, aesthetics and life skills woven seamlessly into the school programme.

The teaching-learning process is not text book oriented. The focus is on enquiry and creativity rather than passive learning and aggressive competition. MHS boasts of a system that recognizes personal attributes such as integrity and diligence in addition to talent and achievement.

MHS for Girls respects the uniqueness of every individual and tries to provide a stress-free yet stimulating learning environment.

Vision:

Truth, Compassion and Beauty

To empower students to initiate or participate in activities local and global, which will promote peace and happiness – locally and globally - in the spirit of *satyam, shivam, sundaram.*

At MHS for Girls we are

1. **Inquirers:** The MHS for Girls school community is curious about the world around them. They are willing to undertake research to find the answers. They acknowledge the sources of information, according to the citation conventions recognized by the school.
2. **Knowledgeable**: The MHS for Girls school community adds to its knowledge in a manner that is ethical and acknowledges the creation and the authorship of the works of others. There is a respect *for* and trust *in* the learning environment at the school.
3. **Thinkers**: The school community at MHS for Girls are encouraged to be thinkers, to develop ideas and attitudes and to think of ways to apply what is learned. They should be able to question, and challenge thoughts and ideas as required. Thinkers respect and acknowledge the ideas of others.
4. **Communicators**: Communication is an essential part of the teaching and learning that takes place at MHS for Girls. Ideas and thoughts of others will always be acknowledged, using the citations and conventions as identified by the school.
5. **Principled**: The MHS for Girls school community is principled and strives to acknowledge all sources of information using the appropriate conventions. Staff at the school will actively encourage academic integrity.
6. **Open-minded**: The school community at MHS for Girls is open-minded. Discussions will be initiated, and differences of opinion are welcomed. Differing viewpoints are discussed, questioned and challenged. All evidence gathered from other sources is acknowledged.
7. **Caring**: The community of learners at MHS for Girls is committed to learning and takes care to see that all work that is not their own is acknowledged in the appropriate manner. Caring implies concern that authorship, creativity and ideas of others is acknowledged always.
8. **Risk-takers**: At MHS for Girls, the students are risk takers for they are ready for the challenges that lie in exploring new ideas, creating new written works and assignments. The students acknowledge the ideas/ resources and information that were used to support their creative endeavours.
9. **Balanced**: The community of learners at MHS for Girls strive for a balance between academics and co-curricular activities. All teaching and learning at the school, be it in the classroom or through clubs and activities, is committed to upholding the principles of academic honesty.
10. **Reflective**: The community of learners at MHS for girls is contemplative. The students reflect upon their own work, as well as process information that is available to them. They demonstrate their respect for the copyright, authorship and creativity of others.

The International Baccalaureate Programmme

This is a programme for 16-19-year olds. It is widely seen as a well-rounded holistic programme of education, which prepares students for University.

The IB Diploma Curriculum includes the study of six subjects

- A mother tongue language- at MHS for Girls it is English A Literature
- An additional language
- A humanities subject
- A science subject,
- Mathematics **AND**
- An arts subject **OR one** additional subject.
- A core element – Theory of Knowledge, Extended Essay as well as Creativity Activity and Service All these combine to provide a well-rounded holistic education.

The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced programme of education designed to prepare students aged 16 to 19 for success at university and life beyond. The DP aims to encourage students to be knowledgeable, inquiring, caring and compassionate, and to develop intercultural understanding, open-mindedness and the attitudes necessary to respect and evaluate a range of viewpoints. Approaches to teaching and learning (ATL) are deliberate strategies, skills and attitudes that permeate the teaching and learning environment. In the DP, students develop skills from five ATL categories: thinking, research, social, self-management and communication.

To ensure both breadth and depth of knowledge and understanding, students must choose 6 courses from six distinct groups: 1) Studies in language and literature 2) language acquisition 3) Individuals and societies 4) Sciences 5) Mathematics 6) The Arts. Students may choose to replace the Arts course with a second course from one of the other five groups.

At least three, and not more than four, subjects are taken at Higher level (240 recommended teaching hours), while the remaining are taken at Standard level (150 recommended teaching hours).

In addition, three core elements—the Extended Essay, Theory of Knowledge and Creativity, Activity, Service—are compulsory and central to the philosophy of the programme.

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- An additional language
- A humanities subject
- A science subject,
- Mathematics **AND**
- An arts subject **OR one** additional subject (either a science or a humanities option)
- A core element – Theory of Knowledge, Extended Essay as well as Creativity Activity and Service. These combine to provide a well-rounded holistic education.

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At least three, and not more than four, subjects are taken at Higher level (240 recommended teaching hours), while the remaining are taken at Standard level (150 recommended teaching hours).

The three core elements—the Extended Essay, Theory of Knowledge and Creativity, Activity, Service—are compulsory and central to the philosophy of the programme.

The Diploma Programme Model

Figure 1http://www.ibo.org/globalassets/digital-tookit/logos-and-programme-models/dp-model-en.png date accessed 03/10/2107

Grading scheme for the IB Diploma Programme

Each of the six subjects offered, will be graded on the IBDP designated scale of Grade 1 to 7. Students will be familiarised with the Grade descriptors at the very outset of the programme. The detailed grade descriptors for the IBDP and the grading matrix for the Theory of Knowledge and Extended Essay are included in Appendix 2.

The grade boundaries for the subjects vary marginally from year to year. Teachers use the subject reports to work out the grade boundaries. Attainment grades in the six subjects are reported using number grades 1-7, where 7 is the highest attainable grade. Grading in the core is done using letter grades from A -E, where A is the highest **and E is a fail grade**.

Grade	Descriptors
7	The student demonstrates excellent content knowledge and understanding, conceptual and contextual awareness and critical, reflective thinking.
6	The student demonstrates very good content knowledge and understanding, conceptual and contextual awareness and critical, reflective thinking.
5	The student demonstrates sound content knowledge and understanding, good conceptual and contextual awareness and evidence of critical, reflective thinking.
4	The student demonstrates, with some gaps, secure content knowledge and understanding, some conceptual and contextual awareness and some evidence of critical thinking.
3	The student demonstrates basic knowledge and understanding of the content, with limited evidence of conceptual and contextual awareness.
2	The student demonstrates little understanding or understanding of the context. with weak comprehension of concepts and context and little evidence of application.
1	The student demonstrates very rudimentary knowledge or understanding of the content, with very weak comprehension of concepts and context.

Conditions for the Award of the IB Diploma

All assessment components for each of the six subjects and the additional Diploma requirements must be completed to qualify for the award of the IB Diploma

The IB Diploma will be awarded to a candidate provided all the following requirements have been met.

- CAS requirements have been met.
- The candidate's total points are 24 or more.
- **There is no "N" awarded** for Theory of Knowledge, the Extended Essay or for a contributing subject.
- **There is no grade E** awarded for Theory of Knowledge and/or the Extended Essay.
- **There is no grade 1 awarded in any subject/level**.
- There are no more than **two grade 2s awarded (HL or SL).**
- There are **no more than three grade 3s** or below awarded (HL or SL).
- The candidate has **gained 12 points or more on HL subjects** (for candidates who register for four HL subjects, the three highest grades count).
- The candidate has **gained 9 points or more on SL subjects** (candidates who register for two SL subjects must gain at least 5 points at SL).
- **The candidate has not received a penalty for academic misconduct** from the Final Award Committee.
- *A maximum of three examination sessions is allowed in which to satisfy the requirements for the award of the IB Diploma. The examination sessions need not be consecutive.*

MODERN HIGH SCHOOL FOR GIRLS

Calendar of Assessments

These assessments are a part of the IB external examinations and contribute to the student's Final Grade. There are two terms each year. IB1 - terms 1 and 2. For IB2 Terms 3 and 4. The introduction to these tasks is done towards the end of the second term in Year 1, a draft task is due in the 3rd Term or in some cases at the start of Term 4 and the Final Assessment is submitted towards the end of Term 2 . These assessment in most cases are marked internally and moderated externally.

Group	Subject	Name of Task	Hours required	Weightage	Deadlines tbc
1	English Literature A	HL Essay	20 hours	20%	3rd term in Year 2
		Interactive oral HL/SL		25%	4th term in Year 2
2	Hindi B HL/SL	Interactive oral HL/SL		25%	4th term in Year 2
	German ab intio SL	Interactive oral SL		25%	4th term of Year 2
3	History HL /SL	Internal Assessment	20 hours	20%	4th term of Year 2
	Economics HL/SL	Portfolio Assessment	20 hours	20%	2nd term Y1 and 3rd term Y2
	Psychology HL/SL	Internal Assessment	20 hours	20%	4th term of Year 2
4	Biology	Independent Investigation	20 hours	20%	4th term of Year 2
	Chemistry	Independent Investigation	20 hours	20%	4th term of Year 2
	Physics	Independent Investigation	20 hours	20%	4th term of Year 2
	Environmental Systems and Societies	Independent Investigation	20 hours	20%	4th term of Year 2
5	Mathematics Analysis and Approaches HL/SL	Exploration	20 hours	20%	4th term of Year 2
	Mathematics Applications and Interpretation HL/SL	Exploration	20 hours	20%	4th term of Year 2
6	Visual Arts	Exhibition		40%	4th term of Year 2
CORE	Extended Essay		40 hours		3rd Term of Year 2
	Theory of Knowledge	Exhibition	10 hours	33%	1st term of Year 2
	Theory of Knowledge	Essay	10 hours	67%	4th Term of Year 2
	Creativity Activity and Service	Ongoing for a period of 18th months. Portfolio			NO CAS NO DIPLOMA

TENTATIVE CALENDAR OF ASSESSMENTS FOR IB YEAR 1

The Summative and Formative assessments are linked to school progress reports. These assess academic progress in the subject as well, as attitude and aptitude for the subject. The school reports, attitude and aptitude in class, are used for writing the Letters of Recommendation and computing the Predicted grades that are required for application to Universities. Summative assessments are announced to the students, two weeks ahead of schedule and the dates will be indicated on this calendar by the start of the school year. Formative assessments are more ad hoc. These may be assigned as project, a presentation , completion of a worksheet and so on

Week	Assessment for Group	Actual date tbc once the session commences	Type of SA tbc when the session commences
Week 15th April	NO assessment		
Week 19th April	ONLY FA		
Week 26th April	Group 1		
Week 3rd May	Group 2		
Week 10th May	Group 5		
Summer Break			
Summer Break			
Week 15th June	ONLY FA		
Week 21st June	ONLY FA		
Week 28th June	ONLY FA		
Week 5th July	Group 3		
Week 12th July	Group 4		
Week 19th July	Group 6		
Week 26th July	Group 1		
Week 2nd August	Group 2		
Week 9th August	Group 5		
Week 16th August	tbc		
Week 23rd August	tbc		
Week 30th August	Group 3		
Week 7th September	Group 4		
Week 14th September	Group 6		
Week 21st September	ONLY FA		
Week 28th September	ONLY FA		
Term 1 ends			
Week 4th October	Group 1		
Week 25th October	Group 5		

Week 1st November	ONly FA		
Week 8th November	Group 2		
Week 15th November	Group 3		
Week 22nd November	Group 4		
Week 29th November	Group 6		
Week 6th December	Group 2		
Week 13th December	Group 1		
Week 3rd January	Group 5		
Week 10th January	Only FA		
Week 17th January	Only FA		
Week 24th January	Group 3		
Week 31st January	Group 4		
Week 7th February	Group 6		
Week 14th February	Only FA		
Week 21st February	Only FA		
Week 28th February			
Week 7th March			
Week 14th March	End of Year examinations begin		
Week 21st March			
Week 28th March			
END of YEAR 1			

CORE

Creativity Activity and Service

Theory of Knowledge

Extended Essay

1. THE EXTENDED ESSAY

The Extended Essay of 4,000 words offers the opportunity for IB students to investigate a topic of special interest, usually one of the student's six Diploma Programme subjects, and acquaints them with the independent research and writing skills expected at university.
It is intended to promote high-level research and writing skills, intellectual discovery and creativity—resulting in approximately 40 hours of work. It provides students with an opportunity to engage in personal research on a topic of choice, under the guidance of a supervisor.

This leads to a major piece of formally presented, structured writing of no more than 4,000 words, in which ideas and findings are communicated in a reasoned and coherent manner, appropriate to the subject.
It is recommended that students follow the completion of the written essay with a short, concluding interview—viva voce—with the supervisor. In countries where normally interviews are required prior to acceptance for employment or for a place at university, the Extended Essay has proved to be a valuable stimulus for discussion.

EXTENDED ESSAY ASSESSMENT: Students are expected to demonstrate the ability to do the following:

• **Plan and pursue a research project** with intellectual initiative and insight • gather and interpret material from sources appropriate to the research question.

• **Structure a reasoned argument in response to the research question** on the basis of the material gathered.

• **Present their Extended Essay in a format appropriate to the subject,** acknowledging sources in one of the established academic ways.

• **Use the terminology and language appropriate to the subject** with skill and understanding.

• **Apply analytical and evaluative skills appropriate to the subject**, with an understanding of the implications and the context of their research. 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

2. Theory of Knowledge

The TOK course plays a special role in the DP by providing an opportunity for students to reflect on the nature, scope and limitations of knowledge and the process of knowing. In this way, the main focus of TOK is not on students acquiring new knowledge but on helping students to reflect on, and put into perspective, what they already know.

TOK underpins and helps to unite the subjects that students encounter in the rest of their DP studies. It engages students in explicit reflection on how knowledge is arrived at in different disciplines and areas of knowledge, on what these areas have in common and the differences between them. It is intended that through this holistic approach, discussions in one area will help to enrich and deepen discussions in other areas.

It is a core element undertaken by all Diploma Programme 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 encourage students to reflect on the central question, "How do we know that?", and to recognize the value of asking that question
- to expose students to ambiguity, uncertainty and questions with multiple plausible answers
- to equip students to effectively navigate and make sense of the world, and help prepare them to encounter novel and complex situations
- to encourage students to be more aware of their own perspectives and to reflect critically on their own beliefs and assumptions
- to engage students with multiple perspectives, foster open-mindedness and develop intercultural understanding
- to encourage students to make connections between academic disciplines by exploring underlying concepts and by identifying similarities and differences in the methods of inquiry used in different areas of knowledge
- to prompt students to consider the importance of values, responsibilities and ethical concerns relating to the production, acquisition, application and communication of knowledge.

II. Curriculum model overview

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.

CORE THEME: KNOWLEDGE AND THE KNOWER

This theme provides an opportunity for students to reflect on themselves as knowers and thinkers, and on the different communities of knowers to which we belong.

Optional themes Students are required to study **two** optional themes from the following five options.

- Knowledge and technology
- Knowledge and language
- Knowledge and politics
- Knowledge and religion
- Knowledge and indigenous societies

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 5 areas of knowledge: mathematics, the natural sciences, the human sciences, the arts and history

iii. Theory of Knowledge Assessment

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

Types of Assessment	Format of Assessment	Weighting of final grade
External Assessment		**67**
Part I: Essay on a prescribed title	One essay on a title chosen from a list of six prescribed titles.	
Internal assessment	Internal assessment	**33**
	Theory of knowledge exhibition The students are required to create an exhibition that explores how TOK manifests in the world around us. This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.	

PERFORMANCE IN THE EXTENDED ESSAY AND IN THEORY OF KNOWLEDGE IS ASSESSED USING IB ASSESSMENT CRITERIA.
USING THE TWO PERFORMANCE LEVELS AND THE DIPLOMA POINTS MATRIX, A MAXIMUM OF THREE DIPLOMA POINTS CAN BE AWARDED FOR A STUDENT'S COMBINED PERFORMANCE IN THEORY OF KNOWLEDGE AND THE EXTENDED ESSAY.

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?**

PHOTOGRAPHS FROM THE 2019 CAS TRIP TO PUNE AND 2020 CAS TRIP TO PONDICHERRY

1. Creativity Activity & Service

With its holistic approach, CAS is designed to strengthen and extend students' personal and interpersonal learning

CAS is organized 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.

CAS 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.

A CAS experience is a specific event in which the student engages with one or more of the three CAS strands. It can be a single event or an extended series of events.

A CAS project is a collaborative series of sequential CAS experiences lasting at least one month.

Typically, a student's CAS programme combines planned/unplanned singular and ongoing experiences. All are valuable and may lead to personal development. However, a meaningful CAS programme must be more than just a series of unplanned/singular experiences.

Students must be involved in at least one CAS project during the programme.

At MHS for Girls, there are a range and variety of clubs that a student can join.

An IB Diploma student is expected to join three clubs, which will contribute towards fulfilling the aims of the Creativity Activity and Service component of the IB Diploma Programme.

For more details see the CAS Handbook or speak with Ms Asmita Chatterjee and Ms Arkamitra Das

The Diploma Points Matrix

Extended essay	Theory of knowledge					
	Grade A	Grade B	Grade C	Grade D	Grade E	No grade N
Grade A	3	3	2	2	Failing condition	Failing condition
Grade B	3	2	2	1	Failing condition	Failing condition
Grade C	2	2	1	0	Failing condition	Failing condition
Grade D	2	1	0	0	Failing condition	Failing condition
Grade 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

http://hrsbstaff.ednet.ns.ca/michaelh/michaelh_H._Michael_Welcome/Marking_in_IB.html

CURRICULUM GROUP1

Language A: English Language and Literature

IB Language A: Literature English higher level

I. Course Description and aims

The language A: literature aims at exploring the various manifestations of literature as a particularly powerful mode of writing across cultures and throughout history. The course aims at developing an understanding of factors that contribute to the production and reception of literature—the creativity of writers and readers, the nature of their interaction with their respective contexts and with literary tradition, the ways in which language can give rise to meaning and/or effect, and the performative and transformative potential of literary creation and response. Through close analysis of a range of literary texts in a number of literary forms and from different times and places, students will consider their own interpretations as well as the critical perspectives of others, to explore how such positions are shaped by cultural belief systems and to negotiate meanings for texts.

THE AIMS OF STUDIES IN LANGUAGE AND LITERATURE COURSES ARE TO ENABLE STUDENTS TO:

- engage with a range of texts, in a variety of media and forms, from different periods, styles and cultures.
- develop skills in listening, speaking, reading, writing, viewing, presenting and performing
- develop skills in interpretation, analysis and evaluation.
- develop sensitivity to the formal and aesthetic qualities of texts and an appreciation of how they contribute to diverse responses and open up multiple meanings.
- develop an understanding of relationships between texts and a variety of perspectives, cultural contexts, and local and global issues, and an appreciation of how they contribute to diverse responses and open up multiple meanings.
- develop an understanding of the relationships between studies in language and literature and other disciplines z communicate and collaborate in a confident and creative way.
- foster a lifelong interest in and enjoyment of language and literature.

Curriculum model overview

Syllabus Component	Recommended teaching hours
Readers, writers and texts	80
Time and Space	80
Intertextuality: Connecting texts	80
TOTAL TEACHING HOURS	**240 hours**

III. Assessment model

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

1. **KNOW, UNDERSTAND AND INTERPRET:**
- a range of texts, works and/or performances, and their meanings and implications
- contexts in which texts are written and/or received
- elements of literary, stylistic, rhetorical, visual and/or performance craft z features of particular text types and literary forms.

2. ANALYSE AND EVALUATE:
- ways in which the use of language creates meaning
- uses and effects of literary, stylistic, rhetorical, visual or theatrical techniques
- relationships among different texts z ways in which texts may offer perspectives on human concerns.

3. COMMUNICATE:
- ideas in clear, logical and persuasive ways
- in a range of styles, registers and for a variety of purposes and situations
- (for literature and performance only) ideas, emotion, character and atmosphere through performance.

Assessment at a glance

Types of Assessment	Format of Assessment	Time (Hours)	Weighting of final grade (%)
External			**80**
Paper 1	Paper 1: Guided literary analysis	**2hrs 15 mins**	35
Paper 2	Comparative essay based on two literary works written in response to a choice of one out of four questions	**1 hr 45 mins**	25
HL Essay	Written coursework component: 1,200–1,500 word essay on one work studied.		20
Internal			**20**
Oral Work	Prepared oral response on the way that one work originally written in the language studied and one work studied in translation have approached a common global issue	(20 minutes)	**20**

POSSIBLE CAREER OPTIONS English A Literature HL/SL

Students who choose to study English A Literature HL have a range of available career options:

- Journalism
- Diplomacy
- Teaching
- Editing and translation services
- Law
- Public policy
- Media and Publishing
- Possible political career
- Study Philosophy
- Tourism and Hospitality services
- Event Management
- Work with NGO's

IB Language A: Literature English standard level

I. Course Description and aims

The language A: literature aims at exploring the various manifestations of literature as a particularly powerful mode of writing across cultures and throughout history. The course aims at developing an understanding of factors that contribute to the production and reception of literature—the creativity of writers and readers, the nature of their interaction with their respective contexts and with literary tradition, the ways in which language can give rise to meaning and/or effect, and the performative and transformative potential of literary creation and response. Through close analysis of a range of literary texts in a number of literary forms and from different times and places, students will consider their own interpretations as well as the critical perspectives of others, to explore how such positions are shaped by cultural belief systems and to negotiate meanings for texts.

THE AIMS OF STUDIES IN LANGUAGE AND LITERATURE COURSES ARE TO ENABLE STUDENTS TO:

- engage with a range of texts, in a variety of media and forms, from different periods, styles and cultures
- develop skills in listening, speaking, reading, writing, viewing, presenting and performing
- develop skills in interpretation, analysis and evaluation
- develop sensitivity to the formal and aesthetic qualities of texts and an appreciation of how they contribute to diverse responses and open up multiple meanings
- develop an understanding of relationships between texts and a variety of perspectives, cultural contexts, and local and global issues, and an appreciation of how they contribute to diverse responses and open up multiple meanings
- develop an understanding of the relationships between studies in language and literature and other disciplines z communicate and collaborate in a confident and creative way
- foster a lifelong interest in and enjoyment of language and literature

CURRICULUM MODEL OVERVIEW

Syllabus Component	Recommended teaching hours
Readers, writers and texts	50
Time and Space	50
Intertextuality: Connecting texts	50
TOTAL TEACHING HOURS	**150 hours**

III. Assessment model

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

1. **KNOW, UNDERSTAND AND INTERPRET**:

- a range of texts, works and/or performances, and their meanings and implications
- contexts in which texts are written and/or received
- elements of literary, stylistic, rhetorical, visual and/or performance craft z features of particular text types and literary forms.

2. ANALYSE AND EVALUATE:

- ways in which the use of language creates meaning
- uses and effects of literary, stylistic, rhetorical, visual or theatrical techniques
- relationships among different texts z ways in which texts may offer perspectives on human concerns.

3. **COMMUNICATE:**

- ideas in clear, logical and persuasive ways
- in a range of styles, registers and for a variety of purposes and situations
- (for literature and performance only) ideas, emotion, character and atmosphere through performance.

Assessment at a glance

Types of Assessment	Format of Assessment	Time (Hours)	Weighting of final grade (%)
External			**70**
Paper 1	Paper 1: Guided literary analysis	**1hrs 15 mins**	35
Paper 2	Comparative essay based on two literary works written in response to a choice of one out of four questions	**1 hr 45 mins**	35
Internal			**30**
Oral Work	Prepared oral response on the way that one work originally written in the language studied and one work studied in translation have approached a common global issue	(20 minutes)	30

POSSIBLE CAREER OPTIONS English A Literature HL/SL

Students who choose to study English A Literature HL have a range of available career options:

- Journalism
- Diplomacy
- Teaching
- Editing and translation services
- Law
- Media and Publishing
- Possible political career
- Study Philosophy
- Tourism and Hospitality services
- Event Management

IB Language A: Literature Bengali standard level only

THIS IS A SCHOOL SUPPORTED SELF TAUGHT OPTION:

I. Course Description and aims

The language A: literature aims at exploring the various manifestations of literature as a particularly powerful mode of writing across cultures and throughout history. The course aims at developing an understanding of factors that contribute to the production and reception of literature—the creativity of writers and readers, the nature of their interaction with their respective contexts and with literary tradition, the ways in which language can give rise to meaning and/or effect, and the performative and transformative potential of literary creation and response. Through close analysis of a range of literary texts in a number of literary forms and from different times and places, students will consider their own interpretations as well as the critical perspectives of others, to explore how such positions are shaped by cultural belief systems and to negotiate meanings for texts.

THE AIMS OF STUDIES IN LANGUAGE AND LITERATURE COURSES ARE TO ENABLE STUDENTS TO:

- engage with a range of texts, in a variety of media and forms, from different periods, styles and cultures
- develop skills in listening, speaking, reading, writing, viewing, presenting and performing
- develop skills in interpretation, analysis and evaluation
- develop sensitivity to the formal and aesthetic qualities of texts and an appreciation of how they contribute to diverse responses and open up multiple meanings
- develop an understanding of relationships between texts and a variety of perspectives, cultural contexts, and local and global issues, and an appreciation of how they contribute to diverse responses and open up multiple meanings
- develop an understanding of the relationships between studies in language and literature and other disciplines z communicate and collaborate in a confident and creative way
- foster a lifelong interest in and enjoyment of language and literature

Curriculum model overview

Syllabus Component	Recommended teaching hours
Readers, writers and texts	50
Time and Space	50
Intertextuality: Connecting texts	50
TOTAL TEACHING HOURS	**150 hours**

III. Assessment model

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

1**. KNOW, UNDERSTAND AND INTERPRET**:

- a range of texts, works and/or performances, and their meanings and implications
- contexts in which texts are written and/or received
- elements of literary, stylistic, rhetorical, visual and/or performance craft z features of particular text types and literary forms.

2. **ANALYSE AND EVALUATE:**

- ways in which the use of language creates meaning
- uses and effects of literary, stylistic, rhetorical, visual or theatrical techniques
- relationships among different texts z ways in which texts may offer perspectives on human concerns.

3. COMMUNICATE:

- ideas in clear, logical and persuasive ways
- in a range of styles, registers and for a variety of purposes and situations
- (for literature and performance only) ideas, emotion, character and atmosphere through performance.

Assessment at a glance

Types of Assessment	Format of Assessment	Time (Hours)	Weighting of final grade (%)
External			**70**
Paper 1	Paper 1: Guided literary analysis	**1hrs 15 mins**	35
Paper 2	Comparative essay based on two literary works written in response to a choice of one out of four questions	**1 hr. 45 mins**	35
Internal			**30**
Oral Work	Prepared oral response on the way that one work originally written in the language studied and one work studied in translation have approached a common global issue	(20 minutes)	**30**

POSSIBLE CAREER OPTIONS BENGALI A Literature SL ONLY

Students who choose to study English A Literature HL have a range of available career options:

- Journalism
- Diplomacy
- Teaching
- Editing and translation services
- Law
- Media and Publishing
- Possible political career
- Study Philosophy
- Tourism and Hospitality services
- Event Management

CURRICULUM GROUP 2

Language B: Language Acquisition

CONTENT OUTLINE FOR ALL LANGUAGE ACQUISITION COURSES

Hindi B HL/SL German B SL German/French ab initio SL

Theme	Guiding principle	Optional recommended topics		Possible questions
Identities	Explore the nature of the self and what it is to be human.	• Lifestyles • Health and well-being • Beliefs and values	• Subcultures • Language and identity	• What constitutes an identity? • How do language and culture contribute to form our identity?
Experiences	Explore and tell the stories of the events, experiences and journeys that shape our lives.	• Leisure activities • Holidays and travel • Life stories	• Rites of passage • Customs and traditions • Migration	• How does our past shape our present and our future? • How and why do different cultures mark important moments in life?
Human ingenuity	Explore the ways in which human creativity and innovation affect our world.	• Entertainment • Artistic expressions • Communication and media	• Technology • Scientific innovation	• What can we learn about a culture through its artistic expression? • How do the media change the way we relate to each other?
Social organization	Explore the ways in which groups of people organize themselves, or are organized, through common systems or interests.	• Social relationships • Community • Social engagement	• Education • The working world • Law and order	• What is the individual's role in the community? • What role do rules and regulations play in the formation of a society?
Sharing the planet	Explore the challenges and opportunities faced by individuals and communities in the modern world.	• The environment • Human rights • Peace and conflict • Equality	• Globalization • Ethics • Urban and rural environment	• What environmental and social issues present challenges to the world, and how can these challenges be overcome? • What challenges and benefits does globalization bring?

Language acquisition: Language B Hindi – higher level

I. Course Description and aims

Language B is a language acquisition course designed for students with some previous experience of the target language. Students further develop their ability to communicate through the study of language, themes and texts. There are five prescribed themes: identities, experiences, human ingenuity, social organization and sharing the planet.

Both language B SL and HL students learn to communicate in the target language in familiar and unfamiliar contexts. The distinction between language B SL and HL can be seen in the level of competency the student is expected to develop in receptive, productive and interactive skills.

At HL the study of two literary works originally written in the target language is required and students are expected to extend the range and complexity of the language they use and understand in order to communicate.

Students continue to develop their knowledge of vocabulary and grammar, as well as their conceptual understanding of how language works, in order to construct, analyse and evaluate arguments on a variety of topics relating to course content and the target language culture(s).

THE LANGUAGE ACQUISITION AIMS ARE COMMON TO BOTH LANGUAGE AB INITIO & LANGUAGE B.

- Develop international mindedness through the study of languages, cultures, and ideas and issues of global significance.
- Enable students to communicate in 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 a variety of perspectives of people from diverse cultures.
- Develop students' understanding of the relationship between the languages and cultures with which they are familiar.
- • Develop students' awareness of the importance of language in relation to other areas of knowledge.
- Provide students, through language learning and the process of inquiry, with opportunities for intellectual engagement and the development of critical- and creative-thinking skills.
- Provide students with a basis for further study, work and leisure through the use of an additional language.
- Foster curiosity, creativity and a lifelong enjoyment of language learning.

II. Curriculum model overview

Syllabus Component	Recommended teaching hours
The students study 5 prescribed themes, all must be addressed equally	Component Recommended teaching hours
• Identities • Experiences • Human ingenuity • Social organization • Sharing the planet	
Literature: Read two works of literature • Pachpan khambe lal deware-Usha Priyamvada • Jwalamukhi ke phool –Sushil Kumar	
TOTAL TEACHING HOURS	**240 hours**

III. Assessment model

Assessment for language B: Hindi higher level

The language acquisition assessment objectives are common to both language ab initio and language B.

- **Communicate clearly and effectively** in a range of contexts and for a variety of purposes.
- **Understand and use language appropriate to a range of interpersonal and/or intercultural contexts** and audiences.
- **Understand and use language to express and respond to a range of ideas** with fluency and accuracy.
- **Identify, organize and present ideas** on a range of topics.
- **Understand, analyse and reflect** upon a range of written, audio, visual and audio-visual texts

The assessment outlines for language B SL and HL are identical; it is the nature of the assessment that differs, and this is what distinguishes SL assessments from those of HL.
For language B HL paper 1, the tasks set will require more complex language and structures and demand higher order thinking skills. Additionally, for HL, a higher word range has been provided in order to accommodate the more complex responses required.
For the individual oral internal assessment, the stimulus at language B SL is a visual image that is clearly relevant to one (or more) of the themes of the course. **The stimulus at language B HL is an excerpt from one of the two literary works studied.**

Assessment at a glance

Types of Assessment	Format of Assessment	Time (Hours)	Weighting of final grade (%)
External		***3.5 hours***	**75**
Paper 1 PRODUCTIVE SKILLS—WRITING (30 MARKS)	One writing task of 450–600 words from a choice of three, each from a different theme.	**1.5hrs**	25
Paper 2 RECEPTIVE SKILLS—(65 MARKS) Separate sections for listening and reading	**LISTENING COMPREHENSION** (1 hour) (25 marks) – 25% **READING COMPREHENSION** (1 hour) (40 marks) - 25% Comprehension exercises on three audio passages and three written texts, drawn from all five themes.	**2.0**	50
Internal			**25**
Oral Work This component is internally assessed by the teacher and externally moderated by the IB at the end of the course (30 marks)	**INDIVIDUAL ORAL ASSESSMENT** A conversation with the teacher, based on an extract from one of the literary works studied in class, followed by discussion based on one or more of the themes from the syllabus.		

Sample Questions

Students are asked to write 450-600 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: Sharing the Planet

• 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: Experiences]

POSSIBLE CAREER OPTIONS HINDI B HL/SL

Students who choose to study Hindi B HL have a range of available career options:

- Journalism
- Diplomacy
- Media and Advertising
- Teaching
- Arts Management
- Tourism and Hospitality
- Translation Services
- Publishing desktop and digital
- Counselling advisory services in the Hindi Language
- Entertainment

Language acquisition: Language B Hindi – standard level

German – standard level

I. Course Description and aims

Language B is a language acquisition course designed for students with some previous experience of the target language. Students further develop their ability to communicate through the study of language, themes and texts. There are five prescribed themes: identities, experiences, human ingenuity, social organization and sharing the planet.

Both language B SL and HL students learn to communicate in the target language in familiar and unfamiliar contexts. The distinction between language B SL and HL can be seen in the level of competency the student is expected to develop in receptive, productive and interactive skills.

At HL the study of two literary works originally written in the target language is required and students are expected to extend the range and complexity of the language they use and understand in order to communicate.

Students continue to develop their knowledge of vocabulary and grammar, as well as their conceptual understanding of how language works, in order to construct, analyse and evaluate arguments on a variety of topics relating to course content and the target language culture(s).

THE LANGUAGE ACQUISITION AIMS ARE COMMON TO BOTH LANGUAGE AB INITIO AND LANGUAGE B.

- Develop international mindedness through the study of languages, cultures, and ideas and issues of global significance.
- Enable students to communicate in 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 a variety of perspectives of people from diverse cultures.
- Develop students' understanding of the relationship between the languages and cultures with which they are familiar.
- • Develop students' awareness of the importance of language in relation to other areas of knowledge.
- Provide students, through language learning and the process of inquiry, with opportunities for intellectual engagement and the development of critical- and creative-thinking skills.
- Provide students with a basis for further study, work and leisure through the use of an additional language.
- Foster curiosity, creativity and a lifelong enjoyment of language learning.

II. Curriculum model overview

Syllabus Component	Recommended teaching hours
The students study 5 prescribed themes, all must be addressed equally	Component Recommended teaching hours
• Identities • Experiences • Human ingenuity • Social organization • Sharing the planet	
TOTAL TEACHING HOURS	**150 hours**

III. Assessment model

Assessment for language B: Hindi higher level

The language acquisition assessment objectives are common to both language ab initio and language B.

- **Communicate clearly and effectively** in a range of contexts and for a variety of purposes.
- **Understand and use language appropriate to a range of interpersonal and/or intercultural contexts** and audiences.
- **Understand and use language to express and respond to a range of ideas** with fluency and accuracy.
- **Identify, organize and present ideas** on a range of topics.
- **Understand, analyse and reflect** upon a range of written, audio, visual and audio-visual texts

The assessment outlines for language B SL and HL are identical; it is the nature of the assessment that differs, and this is what distinguishes SL assessments from those of HL.

For language B HL paper 1, the tasks set will require more complex language and structures and demand higher order thinking skills. Additionally, for HL, a higher word range has been provided in order to accommodate the more complex responses required.

For the individual oral internal assessment, the stimulus at language B SL is a visual image that is clearly relevant to one (or more) of the themes of the course. **The stimulus at language B HL is an excerpt from one of the two literary works studied.**

Assessment at a glance

Types of Assessment	Format of Assessment	Time (Hours)	Weighting of final grade (%)
External		***3.5 hours***	**75**
Paper 1 PRODUCTIVE SKILLS— WRITING (30 MARKS)	One writing task of 250–400 words from a choice of three, each from a different Theme, choosing a text type from among those listed in the examination instructions	**1hr 15 mins**	25
Paper 2 RECEPTIVE SKILLS— (65 MARKS) Separate sections for listening and reading	**LISTENING COMPREHENSION** (45 minutes) (25 marks) – 25% **READING COMPREHENSION** (1 hour) (40 marks) - 25% Comprehension exercises on three audio passages and three written texts, drawn from all five themes.	**1hr 45 mins**	50
Internal			**25**
Oral Work (30 marks) This component is internally assessed by the teacher and externally moderated by the IB at the end of the course	**INDIVIDUAL ORAL ASSESSMENT** A conversation with the teacher, based on an extract from one of the literary works studied in class, followed by discussion based on one or more of the themes from the syllabus.		

Sample Questions

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

• What can we learn about a culture through its artistic expression? (Human ingenuity)

• What environmental and social issues present challenges to the world, and how can these challenges be overcome? (Sharing the planet)

POSSIBLE CAREER OPTIONS HINDI B/GERMAN B SL

Students who choose to study Hindi B HL have a range of available career options:

- Journalism
- Diplomacy
- Media and Advertising
- Teaching
- Arts Management
- Tourism and Hospitality
- Translation Services
- Publishing- desktop and digital
- Counselling advisory services in the Hindi Language
- Entertainment

Language acquisition: Language ab initio German/French – standard level

I. Course Description and aims

Language acquisition consists of two modern language courses— language ab initio and language B—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. Offered at SL only, language ab initio is a language acquisition course designed for students with no previous experience in—or very little exposure to—the target language. Language ab initio students develop their receptive, productive and interactive skills while learning to communicate in the target language in familiar and unfamiliar contexts. Students develop the ability to communicate through the study of language, themes and texts. There are five prescribed themes: identities, experiences, human ingenuity, social organization and sharing the planet. While the themes are common to both language ab initio and language B, the language ab initio syllabus additionally prescribes four topics for each of the five themes, for a total of 20 topics that must be addressed over the two years of the course.

THE LANGUAGE ACQUISITION AIMS FOR LANGUAGE AB INITIO ARE:

- Develop international mindedness through the study of languages, cultures, and ideas and issues of global significance.
- Enable students to communicate in 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 a variety of perspectives of people from diverse cultures.
- Develop students' understanding of the relationship between the languages and cultures with which they are familiar.
- Develop students' awareness of the importance of language in relation to other areas of knowledge.
- Provide students, through language learning and the process of inquiry, with opportunities for intellectual engagement and the development of critical- and creative-thinking skills.
- Provide students with a basis for further study, work and leisure through the use of an additional language.
- Foster curiosity, creativity and a lifelong enjoyment of language learning

II. Curriculum model overview

Syllabus Component	Recommended teaching hours
Four topics are prescribed for each of the five prescribed themes The themes and topics are to be studied using a range of texts-personal, professional and mass media texts There are five prescribed themes, these are: • Identities • Experiences • Human Ingenuity • Social Organization • Sharing the Planet.	
Total hours of study	**150 hours**

III. Assessment model

Assessment for language B German ab initio standard level

Assessment objectives common to all language acquisition courses are

1**. Communicate clearly and effectively** in a range of contexts and for a variety of purposes.

2. **Understand and use language** appropriate to a range of interpersonal and/or intercultural contexts and audiences.

3. **Understand and use language to express and respond** to a range of ideas with fluency and accuracy.

4**. Identify, organize and present ideas** on a range of topics.

5**. Understand, analyse and reflect** upon a range of written, audio, visual and audio-visual texts.

Types of Assessment	Format of Assessment	Time (Hours)	Weighting of final grade (%)
External	**2 hours 45 minutes**		**75**
Paper 1 PRODUCTIVE SKILLS—writing (30 marks)	Two writing task of 70-150 words from a choice of three, each from a different theme, choosing one text type.	**1 hour**	25
Paper 2 RECEPTIVE SKILLS—separate sections for listening and reading (65 marks)	**LISTENING COMPREHENSION** (45 minutes) (25 marks) **READING COMPREHENSION** (1 hour) (40 marks) Comprehension exercises on three audio passages and three written texts, drawn from all five themes.	**1.45**	50
Internal			**25**
Oral Work This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.	A conversation with the teacher, based on a visual stimulus, followed by discussion based on an additional theme. (30 marks)		25

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.

POSSIBLE CAREER OPTIONS

Students who choose to study English A Literature HL have a range of available career options:

- Journalism
- Diplomacy
- Publishing digital media
- Media and Advertising
- Teaching
- Arts Management
- Events Management
- Tourism and Hospitality services
- Editing and translation services
- Possible political career
- Work for International NGO's and organizations such as WWF, World Bank, UNICEF

CURRICULUM GROUP 3: Individuals and Societies

Individuals and societies: Economics —higher Level

I. Course Description and aims

Economics is an exciting, dynamic subject that allows students to develop an understanding of the complexities and interdependence of economic activities in a rapidly changing world. At the heart of economic theory is the problem of scarcity. Owing to scarcity, choices have to be made. The economics course, at both SL and HL, uses economic theories, models and key concepts to examine the ways in which these choices are made: at the level of producers and consumers in individual markets (microeconomics); at the level of the government and the national economy (macroeconomics); and at an international level, where countries are becoming increasingly interdependent (the global economy).

The DP economics course allows students to explore these models, theories and key concepts, and apply them, using empirical data, through the examination of six real-world issues. Through their own inquiry, students will be able to appreciate both the values and limitations of economic models in explaining real-world economic behaviour and outcomes. By focusing on the six real-world issues through the nine key concepts (**scarcity, choice, efficiency, equity, economic well-being, sustainability, change, interdependence and intervention),** students of the economics course will develop the knowledge, skills, values and attitudes that will encourage them to act responsibly as global citizens.

THE AIMS OF THE DP ECONOMICS COURSE ARE TO ENABLE STUDENTS TO:

- develop a critical understanding of a range of economic theories, models, ideas and tools in the areas of microeconomics, macroeconomics and the global economy
- apply economic theories, models, ideas and tools, and analyse economic data to understand and engage with real-world economic issues and problems facing individuals and societies
- develop a conceptual understanding of individuals' and societies' economic choices, interactions, challenges and consequences of economic decision-making.

Teachers explicitly **teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources.**

II. Curriculum model overview

Syllabus Component		Recommended teaching hours
Intro to Economics	What is economics? How do economists approach the world?	**10 hours**
Microeconomics	• Demand and Supply • Competitive market equilibrium • Critique of the maximizing behaviour of consumers and producers • Elasticity of demand and Elasticity of supply • Role of government in microeconomics • Market failure—externalities and common pool or common access resources • Market failure—public goods, asymmetric information market power and the market's inability to achieve equity	**70 hours**
Macroeconomics	• Measuring economic activity and illustrating its variations	**75 hours**

	• Variations in economic activity— aggregate demand and aggregate supply • Macroeconomic objectives • Economics of inequality and poverty • Demand management (demand-side policies)—monetary policy Demand management—fiscal policy • Supply-side policies	
The global economy	• Benefits of international trade • Types of trade protection • Arguments for and against trade control/ protection • Economic integration • Exchange rates • Balance of payments • Sustainable development • Measuring development • Barriers to economic growth and/or economic development • Economic growth and/or economic development strategies	**65 hours**
	Internal Assessment Portfolio of three commentaries	**20 hours**
	Total teaching time	240 hours

III. Assessment model

Assessment for Economics HL:

There are four assessment objectives for the DP economics course. Having followed the course at HL, students will be expected to meet the following objectives.

ASSESSMENT OBJECTIVE 1: KNOWLEDGE AND UNDERSTANDING

- Demonstrate knowledge and understanding of specified content
- Demonstrate knowledge and understanding of the common SL/HL syllabus
- Demonstrate knowledge and understanding of current economic issues and data
- Demonstrate knowledge and understanding of the HL extension topics

ASSESSMENT OBJECTIVE 2: APPLICATION AND ANALYSIS

- Apply economic concepts and theories to real-world situations
- Identify and interpret economic data
- Analyse how economic information is used effectively in particular contexts
- In the internal assessment task: Explain the link between key economic concepts and economic commentaries
- Demonstrate application and analysis of the HL extension topics

ASSESSMENT OBJECTIVE 3: SYNTHESIS AND EVALUATION

- Examine economic concepts and theories
- Use economic concepts and examples to construct and present an argument
- Discuss and evaluate economic information and theories
- Demonstrate economic synthesis and evaluation of the HL extension topics
- Select and use economic data using economic theory to make policy recommendations

ASSESSMENT OBJECTIVE 4: USE AND APPLICATION OF APPROPRIATE SKILLS

- Produce well-structured written material, using appropriate economic theory, concepts and terminology
- Produce and use diagrams to help explain economic theory, concepts and real-world issues
- Select, interpret and analyse appropriate extracts from the news media z Interpret appropriate data sets

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		***4 hours 45mins***	***80***
Paper 1	Extended response paper based on all units of the syllabus	1hr 15 mins	20
Paper 2	Data response paper based on all units of the syllabus	1 hour 45 mins	30
Paper 3	Policy paper based on all units of the syllabus	1 hour 45 mins	30
Internal			**20**
Portfolio	Three commentaries based on different sections of the syllabus and on published extracts from the news media.		**20**

- Use quantitative techniques to identify, explain and analyse economic relationships

Sample Questions:

Paper 1

- Explain two tools open to a central bank to conduct expansionary monetary policy.
- Using real-world examples, evaluate the effectiveness of monetary policy to achieve low unemployment.

Paper 2

- Using an exchange rate diagram, explain how the increase in the interest rate by the Nigerian central bank might prevent the continued fall in the value of the naira.

Paper 3

- Using the data provided, and your knowledge of economics, recommend a policy that could be introduced by the government of Country X in response to the expected fall in the world price of coffee.

POSSIBLE CAREER OPTIONS Economics HL/SL

Students who choose to study Economics HL/SL have a range of available career options:

- Actuarial analyst.
- Chartered accountant.
- Chartered public finance accountant.
- Data analyst/ Economic Analyst/Statistician.
- Economist.
- Financial risk analyst.
- Forensic accountant/ Forensic Economics
- Investment Banker.
- Insurance Broker.
- Consultant.
- Litigation Analyst

Individuals and societies: Economics —standard level

I. Course Description and aims

Economics is an exciting, dynamic subject that allows students to develop an understanding of the complexities and interdependence of economic activities in a rapidly changing world. At the heart of economic theory is the problem of scarcity. Owing to scarcity, choices have to be made. The economics course, at both SL and HL, uses economic theories, models and key concepts to examine the ways in which these choices are made: at the level of producers and consumers in individual markets (microeconomics); at the level of the government and the national economy (macroeconomics); and at an international level, where countries are becoming increasingly interdependent (the global economy).

The DP economics course allows students to explore these models, theories and key concepts, and apply them, using empirical data, through the examination of six real-world issues. Through their own inquiry, students will be able to appreciate both the values and limitations of economic models in explaining real-world economic behaviour and outcomes. By focusing on the six real-world issues through the nine key concepts (**scarcity, choice, efficiency, equity, economic well-being, sustainability, change, interdependence and intervention),** students of the economics course will develop the knowledge, skills, values and attitudes that will encourage them to act responsibly as global citizens.

THE AIMS OF THE DP ECONOMICS COURSE ARE TO ENABLE STUDENTS TO:

- develop a critical understanding of a range of economic theories, models, ideas and tools in the areas of microeconomics, macroeconomics and the global economy
- apply economic theories, models, ideas and tools, and analyse economic data to understand and engage with real-world economic issues and problems facing individuals and societies
- develop a conceptual understanding of individuals' and societies' economic choices, interactions, challenges and consequences of economic decision-making.

Teachers explicitly **teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources.**

II. Curriculum model overview

Syllabus Component		Recommended teaching hours
Intro to Economics	• What is economics? • How do economists approach the world?	**10 hours**
Microeconomics	• Demand and Supply • Competitive market equilibrium • Critique of the maximizing behaviour of consumers and producers Elasticity of demand • Elasticity of supply • Role of government in microeconomics • Market failure—externalities and common pool or common access resources • Market failure—public goods	**35 hours**
Macroeconomics	• Measuring economic activity and illustrating its variations	**40 hours**

	• Variations in economic activity— aggregate demand and aggregate supply • Macroeconomic objectives • Economics of inequality and poverty • Demand management (demand-side policies)—monetary policy • Demand management—fiscal policy • Supply-side policies	
The global economy	• Benefits of international trade • Types of trade protection • Arguments for and against trade control/ protection • Economic integration • Exchange rates • Balance of payments • Sustainable development • Measuring development • Barriers to economic growth and/or economic development • Economic growth and/or economic development strategies	**45 hours**
	Internal Assessment Portfolio of three commentaries	**20 hours**
	Total teaching time	**240 hours**

III. Assessment model

Assessment for Economics HL:

There are four assessment objectives for the DP economics course. Having followed the course at HL, students will be expected to meet the following objectives.

ASSESSMENT OBJECTIVE 1: KNOWLEDGE AND UNDERSTANDING

- Demonstrate knowledge and understanding of specified content
- Demonstrate knowledge and understanding of the common SL/HL syllabus
- Demonstrate knowledge and understanding of current economic issues and data

ASSESSMENT OBJECTIVE 2: APPLICATION AND ANALYSIS

- Apply economic concepts and theories to real-world situations
- Identify and interpret economic data
- Analyse how economic information is used effectively in particular contexts
- In the internal assessment task: Explain the link between key economic concepts and economic commentaries

ASSESSMENT OBJECTIVE 3: SYNTHESIS AND EVALUATION

- Examine economic concepts and theories
- Use economic concepts and examples to construct and present an argument
- Discuss and evaluate economic information and theories
- Select and use economic data using economic theory to make policy recommendations

ASSESSMENT OBJECTIVE 4: USE AND APPLICATION OF APPROPRIATE SKILLS

- Produce well-structured written material, using appropriate economic theory, concepts and terminology
- Produce and use diagrams to help explain economic theory, concepts and real-world issues
- Select, interpret and analyse appropriate extracts from the news media z Interpret appropriate data sets
- Use quantitative techniques to identify, explain and analyse economic relationships

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		***3 hours***	***70***
Paper 1	Extended response paper based on all units of the syllabus	1 hr. 15 mins	30
Paper 2	Data response paper based on all units of the syllabus	1 hr. 45 mins	40
Internal			**30**
Portfolio	Three commentaries based on different sections of the syllabus and on published extracts from the news media.		30

Sample Questions:

Paper 1

Explain two reasons why a government might set a price ceiling (maximum price) on a good. z Using real-world examples, discuss the consequences of a price ceiling on stakeholders.

Paper 2

Using a poverty cycle diagram, explain how the net increase in foreign direct investment (FDI) in Mexico between 2010 and 2015 might lead to an improvement in economic development

POSSIBLE CAREER OPTIONS Economics HL/SL

Students who choose to study Economics HL/SL have a range of available career options:

- Actuarial analyst.
- Chartered accountant.
- Chartered public finance accountant.
- Data analyst/ Economic Analyst/Statistician.
- Economist.
- Financial risk analyst.
- Forensic accountant/ Forensic Economics
- Investment Banker.
- Insurance Broker.
- Consultant.
- Litigation Analyst

Individuals and societies: History—Higher level

I. Course Description and aims

The DP History course is a world history course based on a comparative and multi-perspective approach to History. It involves the study of a variety of types of history, including political, economic, social and cultural, and provides a balance of structure and flexibility. The course emphasizes the importance of encouraging students to think historically and to develop historical skills as well as gaining factual knowledge. It puts a premium on developing the skills of critical thinking, and on developing an understanding of multiple interpretations of history. In this way, the course involves a challenging and demanding critical exploration of the past.

Teachers explicitly teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources. **There are six key concepts that have particular prominence throughout the DP history course: change, continuity, causation, consequence, significance and perspectives**.

THE AIMS OF THE DP HISTORY COURSE ARE TO ENABLE STUDENTS TO:

- Develop an understanding of, and continuing interest in, the past
- Encourage students to engage with multiple perspectives and to appreciate the complex nature of historical concepts, issues, events and developments
- Promote international-mindedness through the study of history from more than one region of the world
- Develop an understanding of history as a discipline and to develop historical consciousness including a sense of chronology and context, and an understanding of different historical perspectives
- Develop key historical skills, including engaging effectively with sources
- • Increase students' understanding of themselves and of contemporary society by encouraging reflection on the past.

II. Curriculum model overview

Component	**Recommended teaching hours**
Prescribed subject (one of 5 topics) 3. The move to global war	**40**
World History topics (Two) 8. Independence movements 1800-2000 11: Causes and effects of 20th Century wars	**45x2**
HL options: Depth studies 3. History of Asia and Oceania • The Mughal Empire • Impact of the Second World War in S. Asia • Developments and challenges in South Asia after 1947	**90**
Internal assessment Historical investigation	**20**
Total	**240 hours**

III. Assessment model

Assessment for History Higher level

There are four assessment objectives for the DP history course.

Assessment objectives

1: KNOWLEDGE AND UNDERSTANDING

• Demonstrate detailed, relevant and accurate historical knowledge.
• Demonstrate understanding of historical concepts and context.
• Demonstrate understanding of historical sources.

2: APPLICATION AND ANALYSIS

- Formulate clear and coherent arguments.
- Use relevant historical knowledge to effectively support analysis.
- Analyse and interpret a variety of sources.

3: SYNTHESIS AND EVALUATION

- Integrate evidence and analysis to produce a coherent response.
- Evaluate different perspectives on historical issues and events and integrate this evaluation effectively into a response.
- Evaluate sources as historical evidence, recognizing their value and limitations.
- Synthesize information from a selection of relevant sources.

4: USE AND APPLICATION OF APPROPRIATE SKILLS

- Structure and develop focused essays that respond effectively to the demands of a- question.
- Reflect on the methods used by, and challenges facing, the historian.
- Formulate an appropriate, focused question to guide a historical inquiry.
- Demonstrate evidence of research skills, organization, reference and selection of appropriate sources of relevant sources.

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final Grade (%)**
External		5	**80**
Paper 1	Source-based paper based on the five prescribed subjects	1	20
Paper 2	Essay paper based on the 2 world history topics	1.5	25
Paper 3	Essay paper based on one of the four regional options	2.5	35
Internal			**20**
Internal Historical investigation	A historical investigation into a topic of the student's choice.	20	20

Sample Questions:

Paper 1 When presented with five sources related to the enforcements of the provisions of the treaties, disarmament and London Naval Conference (1930), students will:

- Explain the significance of the Conference
- Compare and contrast the views of the Conference presented in different sources
- Assess the value and limitations of sources

They will use the sources and their own knowledge to discuss the extent to which they agree with the view that the London Naval Conference was unsuccessful.

Paper 2:

- Compare and contrast the methods used to achieve independence in **two** states, each from a different region. (Independence Movements 1800-2000)
- "The influence of foreign powers determined the outcome of 20th century civil wars." Discuss with reference to **two** wars. (Causes and effects of 20th century wars)

Paper 3:

- Evaluate the contribution of Babur **and** Humayun to the rise of Mughal power.
- Evaluate the impact of the First World War **and** the Treaty of Versailles on South-East Asia.
- Discuss the political and economic developments that took place in Bangladesh between 1971 and 2005.

POSSIBLE CAREER OPTIONS HISTORY HL/SL

Students who choose to study History HL/SL have a range of available career options:

- Journalism
- Diplomacy
- Law
- Media and Advertising
- Teaching,
- Arts Management
- Events Management
- Tourism and Hospitality services
- Editing and translation services
- Possible political career
- Art History
- Work for Museums
- Work in UN Agencies- UN, UNICEF, UNESCO

Individuals and societies: History—standard level

I. Course Description and aims

The DP History course is a world history course based on a comparative and multi-perspective approach to history. It involves the study of a variety of types of history, including political, economic, social and cultural, and provides a balance of structure and flexibility. The course emphasizes the importance of encouraging students to think historically and to develop historical skills as well as gaining factual knowledge. It puts a premium on developing the skills of critical thinking, and on developing an understanding of multiple interpretations of history. In this way, the course involves a challenging and demanding critical exploration of the past.

Teachers explicitly teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources. **There are six key concepts that have prominence throughout the DP history course: change, continuity, causation, consequence, significance and perspectives**.

THE AIMS OF THE DP HISTORY COURSE ARE TO ENABLE STUDENTS TO:

- Develop an understanding of, and continuing interest in, the past
- Encourage students to engage with multiple perspectives and to appreciate the complex nature of historical concepts, issues, events and developments
- Promote international-mindedness through the study of history from more than one region of the world
- Develop an understanding of history as a discipline and to develop historical consciousness including a sense of chronology and context, and an understanding of different historical perspectives
- Develop key historical skills, including engaging effectively with sources
- Increase students' understanding of themselves and of contemporary society by encouraging reflection on the past.

II. Curriculum model overview

Component	Recommended teaching hours
Prescribed subject (one of 5 topics) Topic #3 The Move to Global War Case Study – Japan Case Study – Germany and Italy	40
World History topics (two) Topic #8 Independence Movements 1800-2000 Topic #11 Causes and effects of 20th Century Wars	45 x2= 90
Internal Assessment History Investigation	20
Total teaching hours	**150**

III. Assessment model

Assessment for History Higher level

There are four assessment objectives for the DP history course.

ASSESSMENT OBJECTIVE 1: KNOWLEDGE AND UNDERSTANDING

• Demonstrate detailed, relevant and accurate historical knowledge.

• Demonstrate understanding of historical concepts and context.

• Demonstrate understanding of historical sources.

ASSESSMENT OBJECTIVE 2: APPLICATION AND ANALYSIS

• Formulate clear and coherent arguments.

• Use relevant historical knowledge to effectively support analysis.

• Analyse and interpret a variety of sources.

ASSESSMENT OBJECTIVE 3: SYNTHESIS AND EVALUATION

• Integrate evidence and analysis to produce a coherent response.

• Evaluate different perspectives on historical issues and events and integrate this evaluation effectively into a response.

• Evaluate sources as historical evidence, recognizing their value and limitations.

• Synthesize information from a selection of relevant sources.

ASSESSMENT OBJECTIVE 4: USE AND APPLICATION OF APPROPRIATE SKILLS

- Structure and develop focused essays that respond effectively to the demands of a question.
- Reflect on the methods used by, and challenges facing, the historian.
- Formulate an appropriate, focused question to guide a historical inquiry.
- Demonstrate evidence of research skills, organization, reference and selection of appropriate sources of relevant sources.

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final Grade (%)**
External		5	**75**
Paper 1	Source-based paper based on the five prescribed subjects	1	30
Paper 2	Essay paper based on the 2 world history topics	1.5	45
Internal			**25**
Internal Historical investigation	A historical investigation into a topic of the student's choice.	20	**25**

Sample Questions:

Paper 1 When presented with five sources related to the enforcements of the provisions of the treaties, disarmament and London Naval Conference (1930), students will:

- Explain the significance of the Conference
- Compare and contrast the views of the Conference presented in different sources
- Assess the value and limitations of sources

They will use the sources and their own knowledge to discuss the extent to which they agree with the view that the London Naval Conference was unsuccessful.

Paper 2:

- Compare and contrast the methods used to achieve independence in **two** states, each from a different region. (Independence Movements 1800-2000)
- "The influence of foreign powers determined the outcome of 20th century civil wars." Discuss with reference to **two** wars. (Causes and effects of 20th century wars)

POSSIBLE CAREER OPTIONS FOR HISTORY HL/SL

Students who choose to study History HL/SL have a range of available career options:

- Journalism
- Diplomacy
- Law
- Media and Advertising
- Teaching,
- Arts Management
- Events Management
- Tourism and Hospitality services
- Editing and translation services
- Possible political career
- Art History
- Work for Museums
- Art Houses such as Sothebys
- Work in UN Agencies- UN, UNICEF, UNESCO

Individuals and societies: Psychology—higher level

I. Course Description and aims

At the core of the DP psychology course is an introduction to three different approaches to understanding behaviour: the biological, cognitive and sociocultural approaches. Students study and critically evaluate the knowledge, concepts, theories and research that have developed the understanding in these fields. The contribution and the interaction of the three approaches is understood through the four options in the course, focusing on areas of applied psychology: abnormal psychology, developmental psychology, health psychology, and the psychology of relationships. The options provide an opportunity to take what is learned from the study of the approaches to psychology and apply it to specific lines of inquiry. Psychologists employ a range of research methods, both qualitative and quantitative, to test their observations and hypotheses. DP psychology promotes an understanding of the various approaches to research and how they are used to critically reflect on the evidence as well as assist in the design, implementation, analysis and evaluation of the students' own investigations. Surrounding the approaches and the options are the overarching themes of research and ethics. A consideration of both is paramount to the nature of the subject.

THE AIMS OF THE PSYCHOLOGY COURSE AT SL AND AT HL ARE TO:

- develop an understanding of the biological, cognitive and sociocultural factors affecting mental processes and behaviour
- apply an understanding of the biological, cognitive and sociocultural factors affecting mental processes and behaviour to at least one applied area of study z understand diverse methods of inquiry
- understand the importance of ethical practice in psychological research in general and observe ethical practice in their own inquiries
- ensure that ethical practices are upheld in all psychological inquiry and discussion
- develop an awareness of how psychological research can be applied to address real-world problems and promote positive change
- provide students with a basis for further study, work and leisure through the use of an additional language
- foster curiosity, creativity and a lifelong enjoyment of language learning.

II. Curriculum model overview

Syllabus Component	Recommended teaching hours	
Core	Three compulsory topics • Biological approach to understanding behaviour • Cognitive approach to understanding behavior • Sociocultural approach to understanding behavior	**120 hours**
Approaches to researching behaviour	• Approaches to researching behaviour	**60 hours**
Options	Two options out of 4 selected • Abnormal psychology • Developmental psychology • Health Psychology • Psychology of human relationships	**40 hours**
Internal Assessment Experimental study	Approaches to researching behaviour	**20 hours**
	Total teaching time	**240 hours**

III. Assessment model

Assessment in Psychology higher level

By the end of the psychology course at HL, students will be expected to demonstrate the following.

1. KNOWLEDGE AND COMPREHENSION OF SPECIFIED CONTENT

- Demonstrate knowledge and comprehension of key terms and concepts in psychology.
- Demonstrate knowledge and comprehension of a range of psychological theories and research studies.
- Demonstrate knowledge and comprehension of the biological, cognitive and sociocultural approaches to mental processes and behaviour.
- Demonstrate knowledge and comprehension of research methods used in psychology.

2. APPLICATION AND ANALYSIS

- Demonstrate an ability to use examples of psychological research and psychological concepts to formulate an argument in response to a specific question.
- Demonstrate application and analysis of a range of psychological theories and research studies.
- Demonstrate application and analysis of the knowledge relevant to areas of applied psychology.
- At HL only, analyse qualitative and quantitative research in psychology.

3. SYNTHESIS AND EVALUATION

- Evaluate the contribution of psychological theories to understanding human psychology.
- Evaluate the contribution of research to understanding human psychology.
- Evaluate the contribution of the theories and research in areas of applied psychology.
- **At HL only, evaluate research scenarios from a methodological and ethical perspective.**

4. SELECTION AND USE OF SKILLS APPROPRIATE TO PSYCHOLOGY

- Demonstrate the acquisition of skills required for experimental design, data collection and presentation, data analysis and the evaluation of a simple experiment while demonstrating ethical practice.
- Work in a group to design a method for a simple experimental investigation, organize the investigation and record the required data for a simple experiment.
- Write a report of a simple experiment.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		***5***	***80***
Paper 1	Three short answer questions on the core. One essay from a choice of three on the biological, cognitive and sociocultural approaches. **HL only:** essays will reference additional HL topic	2	35
Paper 2	HL: two questions; one each from a choice of three on two options.	2	25
Paper 3	Three short-answer questions on approaches to research	1	20
Internal			**20**
Study report	A report on an experimental study undertaken by the student.	20	**20**

Sample Questions:

- Outline one study investigating schema.
- Discuss ethical considerations linked to genetic research into human behaviour.
- (HL only) Discuss how the use of technology affects one cognitive process.

POSSIBLE CAREER OPTIONS Psychology HL/SL

Students who choose to study Psychology HL/SL have a range of available career options:

- Journalism
- Counselling
- (Child, behavioural, emotional counselling)
- Forensic Science
- Clinical Psychologist
- Health Psychologist
- Sports Psychologist
- Human Resource Management
- Education
- Research and teaching
- Industrial and organizational Psychologist

Individuals and societies: Psychology—standard Level

I. Course Description and aims

At the core of the DP psychology course is an introduction to three different approaches to understanding behaviour: the biological, cognitive and sociocultural approaches. Students study and critically evaluate the knowledge, concepts, theories and research that have developed the understanding in these fields. The contribution and the interaction of the three approaches is understood through the four options in the course, focusing on areas of applied psychology: abnormal psychology, developmental psychology, health psychology, and the psychology of relationships. The options provide an opportunity to take what is learned from the study of the approaches to psychology and apply it to specific lines of inquiry. Psychologists employ a range of research methods, both qualitative and quantitative, to test their observations and hypotheses. DP psychology promotes an understanding of the various approaches to research and how they are used to critically reflect on the evidence as well as assist in the design, implementation, analysis and evaluation of the students' own investigations. Surrounding the approaches and the options are the overarching themes of research and ethics. A consideration of both is paramount to the nature of the subject.

THE AIMS OF THE PSYCHOLOGY COURSE AT SL AND AT HL ARE TO:

- develop an understanding of the biological, cognitive and sociocultural factors affecting mental processes and behaviour
- apply an understanding of the biological, cognitive and sociocultural factors affecting mental processes and behaviour to at least one applied area of study z understand diverse methods of inquiry
- understand the importance of ethical practice in psychological research in general and observe ethical practice in their own inquiries
- ensure that ethical practices are upheld in all psychological inquiry and discussion
- develop an awareness of how psychological research can be applied to address real-world problems and promote positive change
- provide students with a basis for further study, work and leisure through the use of an additional language
- foster curiosity, creativity and a lifelong enjoyment of language learning.

II. Curriculum model overview

Syllabus Component		Recommended teaching hours
Core	Three compulsory topics • The biological level of analysis • The cognitive level of analysis • The sociocultural level of analysis	**60 hours**
Options	Two options out of 4selected • Abnormal psychology • Psychology of human relationships	**20 hours**
Approaches to researching behaviour		**20**
Experimental study	Introduction to experimental research methodology	**20 hours**
	Total teaching time	**150 hours**

III. Assessment model

Assessment in Psychology higher level

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 behavior
- 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 organized response

Students' success in the psychology standard 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 standard level students plan, undertake and report on a simple experimental study.

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final grade (%)**
External		***3***	***75***
Paper 1	Question response and an essay	2	50
Paper 2	Answer 1 of 15 questions in essay form	1	25
Internal			**25**
Study report	A report of a simple experimental study conducted by the student		25

Sample Questions:

- Outline one study investigating schema.
- Discuss ethical considerations linked to genetic research into human behaviour

POSSIBLE CAREER OPTIONS Psychology HL/SL

Students who choose to study Psychology HL/SL have a range of available career options:

- Journalism
- Counselling
- (Child, behavioural, emotional counselling)
- Forensic Science
- Clinical Psychologist, Health Psychologist, Sports Psychologist
- Human Resource Management
- Education
- Research and teaching
- Industrial and organizational Psychologist

Individuals and societies:

Social and Cultural Anthropology —Higher Level

I. Course Description and aims

Social and cultural anthropology is the comparative study of culture and human societies and the exploration of the general principles of social and cultural life. The course emphasizes comparative perspectives that make cultural assumptions explicit, and contributes to an understanding of contemporary real-world issues such as war and conflict, the environment, poverty, injustice, and human rights. Social and cultural anthropology is distinct from other social sciences in its research tradition of participant observation and in-depth, empirical study of social groups.

Areas of anthropological inquiry in this course are: belonging; classifying the world; communication, expression and technology; conflict; development; health, illness and healing; movement, time and space; production, exchange and consumption; and the body. These areas are explored through the key anthropological concepts of belief and knowledge, change, culture, identity, materiality, power, social relations, society, and symbolism.

The course engages students with the concepts, methods, language and theories of the discipline. At the heart is the practice of anthropologists, and the insights they produce in the form of ethnographic material. It contributes a distinctive approach to intercultural awareness and understanding, and fosters the development of globally aware, internationally minded, and ethically sensitive citizens.

THE AIMS OF THE SOCIAL AND CULTURAL ANTHROPOLOGY COURSE AT SL AND HL ARE TO ENABLE STUDENTS TO:

- Explore the characteristics and complexities of social and cultural life
- Develop new ways of thinking about the world that demonstrate the interconnectedness of local, regional and global processes and issues
- Foster an awareness of how cultural and social contexts inform the production of anthropological knowledge
- Develop as critical thinkers who are open-minded, reflective and ethically sensitive
- Apply anthropological understanding in order to reflect on their own lives and experiences, as well as those of others, transforming their actions in the world.

II. Curriculum model overview

Syllabus Component	Hours
Engaging with anthropology • The language of anthropology • The practice of anthropology • Anthropological thinking Plus HL extension areas	**45**
Engaging with Ethnography: Four areas of Inquiry: One from each group PLUS one more from one of the three groups 1. Classifying the World 2. Belonging 3. Movement in Time and Space (group 2) and 4. Conflict	**135**
Internal assessment Engaging in anthropological practice Fieldwork HL: Fieldwork(observation, second data collection and critical reflection)	**60**
Total Teaching time	**240**

III. Assessment model

Assessment in Social and Cultural Anthropology standard level

Having followed the course at SL or at HL, students will be expected to do the following.

KNOWLEDGE AND UNDERSTANDING

- Demonstrate knowledge and understanding of: anthropological concepts and theories
- anthropological research methods and ethics
- a range of appropriately identified ethnographic materials
- specified areas of inquiry

APPLICATION AND ANALYSIS

- Recognize anthropological concepts in ethnographic materials
- Use ethnographic examples and anthropological concepts to formulate an argument
- Apply anthropological knowledge and understanding to reflect on the "big" anthropological questions
- Analyse ethnographic materials in terms of the viewpoint of the anthropologist, research methods, concepts and ethics
- Use anthropological theories to formulate an argument
- In the internal assessment task, engage in the practice of anthropology, including recognition of the position of the observer; select appropriate methods; interpret methods; interpret data; consider ethical issues

SYNTHESIS AND EVALUATION

- Compare and contrast characteristics of specific cultures and societies
- Discuss a range of ethnographic materials and critically evaluate them utilizing appropriate conceptual frameworks
- In the internal assessment task, justify methodological choices and critically reflect on the practice of anthropology
- At HL only, to demonstrate understanding and use of anthropological theories to evaluate ethnographic materials.

SELECTION AND USE OF A VARIETY OF SKILLS

- Identify an appropriate context, anthropological concept and research question for investigation
- Select and demonstrate the use of methods and skills, appropriate to a specific anthropological research question, to gather, present, analyse, interpret and reflect on ethnographic data

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		**4.5**	**75**
Paper 1 (Engaging With Anthropology)	Three questions based on unseen text. One question from 6 "big questions". HL: One question on anthropological ethics based on one of two stimuli"	2	30
Paper 2 (Engaging with ethnography)	One question requiring students to connect a key concept, area of inquiry and real-world issue. HL: Two questions from two areas of inquiry other than the one used in section A	2.5	45
Internal		60	**25**
Field work	Three compulsory activities based on part 3 of the syllabus, engaging in anthropological practice. 1. Fieldwork proposal form 2. Critical reflection 3. Research report and reflection	60	

Sample Questions:

Paper One SL/HL:
How are we the same as and different from each other? Discuss with references to at least two sources of ethnographic material and examples from the passage.

Paper Two, Section A SL/HL:
With reference to ethnographic material from one area of inquiry you have studied, discuss how either symbolism or materiality or society helps you to understand one of the following issues that is grounded in a contemporary, real-world example.
• Inequality • Violence • Poverty • Mobility • Environment

Paper Two, Section B SL/HL:
Discuss how the body is constructed through either symbolism or social relations.

POSSIBLE CAREER OPTIONS Social and Cultural Anthropology

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Field work and research
- Advertising
- Business and Finance
- Law
- Journalism
- Criminology and Forensics
- Sociology
- Archaeology
- Curation
- Conservation in museums
- Archiving data
- Writing and publishing
- Education- teaching and/or research
- Work for NGO's or International agencies

Individuals and societies:

Social and Cultural Anthropology —Standard Level

I. Course Description and aims

Social and cultural anthropology is the comparative study of culture and human societies and the exploration of the general principles of social and cultural life. The course emphasizes comparative perspectives that make cultural assumptions explicit, and contributes to an understanding of contemporary real-world issues such as war and conflict, the environment, poverty, injustice, and human rights. Social and cultural anthropology is distinct from other social sciences in its research tradition of participant observation and in-depth, empirical study of social groups.

Areas of anthropological inquiry in this course are: belonging; classifying the world; communication, expression and technology; conflict; development; health, illness and healing; movement, time and space; production, exchange and consumption; and the body. These areas are explored through the key anthropological concepts of belief and knowledge, change, culture, identity, materiality, power, social relations, society, and symbolism.

The course engages students with the concepts, methods, language and theories of the discipline. At the heart is the practice of anthropologists, and the insights they produce in the form of ethnographic material. It contributes a distinctive approach to intercultural awareness and understanding, and fosters the development of globally aware, internationally minded, and ethically sensitive citizens.

THE AIMS OF THE SOCIAL AND CULTURAL ANTHROPOLOGY COURSE AT SL AND HL ARE TO ENABLE STUDENTS TO:

- Explore the characteristics and complexities of social and cultural life
- Develop new ways of thinking about the world that demonstrate the interconnectedness of local, regional and global processes and issues
- Foster an awareness of how cultural and social contexts inform the production of anthropological knowledge
- Develop as critical thinkers who are open-minded, reflective and ethically sensitive
- Apply anthropological understanding in order to reflect on their own lives and experiences, as well as those of others, transforming their actions in the world.

II. Curriculum model overview

Syllabus Component	Hours
Engaging with anthropology • The language of anthropology • The practice of anthropology • Anthropological thinking	**30**
Engaging with Ethnography: Four areas of Inquiry: One from each group PLUS one more from one of the three groups 1. Classifying the World 2. Communication Expression and Technology 3. Movement in Time and Space (group 2) and 4. Conflict	**90**
Internal assessment Engaging in anthropological practice Fieldwork HL: Fieldwork(observation, second data collection and critical reflection)	**30**
Total Teaching time	**150**

III. Assessment model

Assessment in Social and Cultural Anthropology standard level

Having followed the course at SL or at HL, students will be expected to do the following.

KNOWLEDGE AND UNDERSTANDING

- Demonstrate knowledge and understanding of: anthropological concepts and theories
- anthropological research methods and ethics
- a range of appropriately identified ethnographic materials
- specified areas of inquiry

APPLICATION AND ANALYSIS

- Recognize anthropological concepts in ethnographic materials
- Use ethnographic examples and anthropological concepts to formulate an argument
- Apply anthropological knowledge and understanding to reflect on the "big" anthropological questions
- Analyse ethnographic materials in terms of the viewpoint of the anthropologist, research methods, concepts and ethics
- Use anthropological theories to formulate an argument
- In the internal assessment task, engage in the practice of anthropology, including recognition of the position of the observer; select appropriate methods; interpret methods; interpret data; consider ethical issues

SYNTHESIS AND EVALUATION

- Compare and contrast characteristics of specific cultures and societies
- Discuss a range of ethnographic materials and critically evaluate them utilizing appropriate conceptual frameworks
- In the internal assessment task, justify methodological choices and critically reflect on the practice of anthropology
- At HL only, to demonstrate understanding and use of anthropological theories to evaluate ethnographic materials.

SELECTION AND USE OF A VARIETY OF SKILLS

- Identify an appropriate context, anthropological concept and research question for investigation
- Select and demonstrate the use of methods and skills, appropriate to a specific anthropological research question, to gather, present, analyse, interpret and reflect on ethnographic data

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		**3**	**80**
Paper 1 (Engaging With Anthropology)	Three questions based on unseen text. One question from 6 "big questions".	1.5	40
Paper 2 (Engaging with ethnography)	One question requiring students to connect a key concept, area of inquiry and real-world issue. SL: One question from one area of inquiry other than the one used in section A.	1.5	40
Internal		30	**20**
Field work	Four compulsory activities based on part 3 of the syllabus, engaging in anthropological practice. 1. Observation report 2. Methodological and conceptual extension of initial fieldwork 3. Second fieldwork data collection and analysis 4. Critical reflection	30	

Sample Questions:

Paper One SL/HL:
How are we the same as and different from each other? Discuss with references to at least two sources of ethnographic material and examples from the passage.

Paper Two, Section A SL/HL:
With reference to ethnographic material from one area of inquiry you have studied, discuss how either symbolism or materiality or society helps you to understand one of the following issues that is grounded in a contemporary, real-world example.
• Inequality • Violence • Poverty • Mobility • Environment

Paper Two, Section B SL/HL:
Discuss how the body is constructed through either symbolism or social relations.

POSSIBLE CAREER OPTIONS Social and Cultural Anthropology

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Field work and research
- Advertising
- Business and Finance
- Law
- Journalism
- Criminology and Forensics
- Sociology
- Archaeology
- Curation
- Conservation in museums
- Archiving data
- Writing and publishing
- Education- teaching and/or research
- Work for NGO's or International agencies

CURRICULUM GROUP 3/4

Inter-disciplinary course

Interdisciplinary course: Environmental Systems and Societies —Standard Level

ENVIRONMENTAL SYSTEMS AND SOCIETIES IS AN INTERDISCIPLINARY COURSE. IT COUNTS AS A GROUP 3 SUBJECT (SHOULD SCIENCE STUDENTS REQUIRE A 3RD SCIENCE COURSE) OR AS A GROUP 4. IT IS STUDIED AT THE STANDARD LEVEL ONLY.

I. Course Description and aims

Environmental systems and societies (ESS) course enables students to satisfy the requirements of both subjects groups 3 and 4 simultaneously while studying one course.

ESS is firmly grounded in both a scientific exploration of environmental systems in their structure and function, and in the exploration of cultural, economic, ethical, political and social interactions of societies with the environment. Students will become equipped with the ability to recognize and evaluate the impact of our complex system of societies on the natural world.

The course requires a systems approach to environmental understanding and promotes holistic thinking about environmental issues. Thinking and research skills such as comprehension, text analysis, knowledge transfer and use of primary sources are taught. Students are encouraged to develop solutions at the personal, community and global levels.

THE AIMS OF THE DP ENVIRONMENTAL SYSTEMS & SOCIETIES COURSE ARE TO ENABLE STUDENTS TO:

- Acquire the knowledge and understandings of environmental systems and issues at a variety of scales
- Apply the knowledge, methodologies and skills to analyse environmental systems and issues at a variety of scales
- Appreciate the dynamic interconnectedness between environmental systems and societies
- Value the combination of personal, local and global perspectives in making informed decisions and taking responsible actions on environmental issues
- Be critically aware that resources are finite, that these could be inequitably distributed and exploited, and that management of these inequities is the key to sustainability
- Develop awareness of the diversity of environmental value systems
- Develop critical awareness that environmental problems are caused and solved by decisions made by individuals and societies that are based on different areas of knowledge
- Engage with the controversies that surround a variety of environmental issues
- • Create innovative solutions to environmen**tal issues by engaging actively in local and global contexts**

II. Curriculum model overview

Syllabus component			Hours
Core	1.Foundations of environmental systems and societies 2. Ecosystems and ecology 3. Biodiversity and conservation 4. Water and aquatic food production systems and societies	5. Soil systems and terrestrial food production systems and societies 6. Atmospheric systems and societies 7. Climate change and energy production 8. Human systems and resource use	**120**
Practical scheme of work ▪ Individual investigation			**30**

▪ Practical activities	10 20
Total Teaching time	**150**

III. Assessment model

Assessment in Environmental Systems and Societies standard level

There are four assessment objectives for the DP environmental systems and societies course.
Having followed the course at SL, students will be expected to do the following.

ASSESSMENT OBJECTIVE 1: DEMONSTRATE KNOWLEDGE AND UNDERSTANDING OF RELEVANT:

- Facts and concepts
- Methodologies and techniques
- Values and attitudes.

ASSESSMENT OBJECTIVE 2 APPLY THIS KNOWLEDGE AND UNDERSTANDING IN THE ANALYSIS OF:

- Explanations, concepts and theories
- Data and models
- Case studies in unfamiliar contexts
- Arguments and value systems.

ASSESSMENT OBJECTIVE 3 EVALUATE, JUSTIFY AND SYNTHESIZE, AS APPROPRIATE:

- Explanations, theories and models
- Arguments and proposed solutions
- Methods of fieldwork and investigation
- Cultural viewpoints and value systems.

ASSESSMENT OBJECTIVE 4 ENGAGE WITH INVESTIGATIONS OF ENVIRONMENTAL AND SOCIETAL ISSUES AT THE LOCAL AND GLOBAL LEVEL THROUGH:

- Evaluating the political, economic and social contexts of issues
- selecting and applying the appropriate research and practical skills necessary to carry out investigations
- suggesting collaborative and innovative solutions that demonstrate awareness and respect for the cultural differences and value systems of others.

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final grade (%)**
External		**3**	**75**
Paper 1	Case study	1	25
Paper 2	Short answers and structured essays	2	50
Internal		**30**	**25**
Individual investigation	Written report of a research question designed and implemented by the student.	10	25

The group 4 project ESS students have the option to participate in the group 4 project.
For those who participate, 10 hours of practical activities will be replaced with 10 hours of work on the group 4 project.

Sample Questions:

Paper 1

- With reference to source material, outline two possible reasons why the snow leopard has received special attention from conservationists. [8]
- With reference to figures 6, 7 and 9 [in the resource booklet] explain how desertification and water resource shortage have led to the formation of smog in Ulan Bator. [3]

Paper 2

- Outline how the reasons for food wastage may differ between human societies. [4]
- Explain how the choice of food production systems may influence the ecological footprint of a named human society. [7]
- Discuss how different environmental value systems influence responses to the human population growth rate. [9]

POSSIBLE CAREER OPTIONS Environmental Systems & Societies SL

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Environmental consultant.
- Environmental education officer.
- Environmental manager.
- Environmental Engineer
- Nature conservation officer.
- Public Relations Specialist
- Policy Analyst
- Environmental Attorney
- Recycling officer.
- Sustainability consultant.
- Waste management officer.
- Water quality scientist
- Work for Environmental agencies
- Work for agencies such as WWF, UNICEF and World Bank

CURRICULUM GROUP 4:

Sciences

Sciences: Biology—higher 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. By studying biology in the DP students should become aware of how scientists work and communicate with each other. 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:

- Appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
- Acquire a body of knowledge, methods and techniques that characterize science and technology
- Apply and use a body of knowledge, methods and techniques that characterize science and technology
- Develop an ability to analyse, evaluate and synthesize scientific information
- Develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
- Develop experimental and investigative scientific skills including the use of current technologies
- Develop and apply 21st century communication skills in the study of science
- Become critically aware, as global citizens, of the ethical implications of using science and technology
- Develop an appreciation of the possibilities and limitations of science and technology
- Develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

II. Curriculum model overview

Syllabus Component		Hours
Core	1. Cell biology 2. Molecular biology 3. Genetics 4. Ecology 5. Evolution and biodiversity 6. Human physiology	**95**
Additional HL content	7. Nucleic acids 8. Metabolism, cell respiration and photosynthesis 9. Plant biology 10.Genetics and evolution 11.Animal physiology	**60**
Option	One of four is chosen- Human Physiology	**25**
Practical scheme of work ▪ Group 4 Project ▪ Individual investigation ▪ Prescribed and other Practical activities		**60** 10 10 40
	Total Teaching time	**240**

III. Assessment model

Assessment in Biology Higher level

It is the intention of this course that students are able to fufill 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.**

The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, 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. The emphasis is on interdisciplinary cooperation and the scientific processes

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		**4.5**	**80**
Paper 1	40 multiple-choice questions	1	20
Paper 2	Data-based, short answer and extended response questions (CORE and AHL)	2 hrs 15mins	36
Paper 3	Data-based and practical based, short answer and extended response questions based on the option	1hr 15 mins	24
Internal		10 hours	**20**
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

Sample Questions:

Paper 1

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 2

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. o Describe the use of dichotomous keys for the identification of specimens.

Paper 3

Brain death is a clinical diagnosis based on the absence of neurological function, with a known irreversible cause of coma.

o Explain a named method to assess brain damage.

o Distinguish between a reflex arc and other responses by the nervous system.

o Describe the events that occur in the nervous system when something very hot is touched.

POSSIBLE CAREER OPTIONS Biology HL/SL

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Environmental consultant
- Environmental education office
- Environmental Manager
- Environmental Engineer
- Nature conservation officer
- Microbiologist
- Marine Biologist
- Research and teaching
- Work for NGO's
- Food technology
- Nutritionist
- Forensic Sciences
- Criminology
- Geologist
- Environmentalist
- Agriculture- crop physiology

Sciences: Biology—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. By studying biology in the DP students should become aware of how scientists work and communicate with each other. 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:

- Appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
- Acquire a body of knowledge, methods and techniques that characterize science and technology
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- Develop experimental and investigative scientific skills including the use of current technologies
- Develop and apply 21st century communication skills in the study of science
- Become critically aware, as global citizens, of the ethical implications of using science and technology
- Develop an appreciation of the possibilities and limitations of science and technology
- Develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

II. Curriculum model overview

Syllabus Component		**Hours**
Core	1. Cell biology 2. Molecular biology 3. Genetics 4. Ecology 5. Evolution and biodiversity 6. Human physiology	**95**
Option	One of four is chosen- Human Physiology	**55**
Practical scheme of work		**40**
	▪ Group 4 Project	10
	▪ Individual investigation	10
	▪ Prescribed and other Practical activities	20
	Total Teaching time	**150**

III. Assessment model

Assessment in Biology Higher level

It is the intention of this course that students are able to fufill 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
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Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		**4.5**	**80**
Paper 1	30 multiple-choice questions	1	20
Paper 2	Data-based, short answer and extended response questions	1hr 15 mins	40
Paper 3	Data-based and practical based, short answer and extended response questions	1hour	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

Sample Questions:

Paper 1

- Cyclins were discovered by Timothy R. Hunt in 1982 while studying sea urchins. What is a function of cyclins

Paper 2

- Antibiotics can be used to treat bacterial infections in human tissues because of differences in cell structure between prokaryotes and eukaryotes.
  - o Distinguish between the structure of prokaryotes and eukaryotes.
  - o Evaluate the drug tests that Florey and Chain carried out on penicillin.
  - o Explain the reasons for the ineffectiveness of antibiotics in the treatment of viral diseases.

(Paper 3

- The company BASF produces a genetically modified potato called Amflora. Outline the purpose of modifying the potato.

POSSIBLE CAREER OPTIONS Biology HL/SL

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Agriculture – crop physiology
- Environmental consultant.
- Environmental Education officer
- Environmental Manager
- Environmental Engineer
- Nature conservation officer
- Microbiologist
- Marine Biologist
- Research and teaching
- Work for NGO's
- Food technology
- Nutritionist
- Forensic Sciences
- Criminology
- Geologist
- Environmentalist

Sciences: Chemistry—Higher Level

I. Course Description and aims

Chemistry combines academic study with the acquisition of practical and investigational skills. **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.

THE AIMS OF THE DP CHEMISTRY COURSE ARE TO ENABLE STUDENTS TO:

- Appreciate scientific study and creativity within a global context
- Acquire a body of knowledge, methods and techniques that characterize science and technology 3. Apply and use a body of knowledge, methods and techniques that characterize science and technology
- Develop an ability to analyse, evaluate and synthesize scientific information
- Develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
- Develop experimental and investigative scientific skills including the use of current technologies
- Develop and apply 21st century communication skills in the study of science
- Become critically aware, as global citizens, of the ethical implications of using science and technology
- Develop an appreciation of the possibilities and limitations of science and technology
- Develop an understanding of the relationships between scientific disciplines and their influence.

II. Curriculum model overview

Syllabus Component		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**
Additional HL content	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**
Option	One of four is chosen- Bio-Chemistry	**25**
Practical scheme of work	▪ Group 4 Project ▪ Individual investigation ▪ Prescribed and other Practical activities	**60** 10 10 40
	Total Teaching time	**240**

III. Assessment model

Assessment in Chemistry Higher level

It is the intention of this course that students are able to fufill 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.**

The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, 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. The emphasis is on interdisciplinary cooperation and the scientific processes

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final grade (%)**
External		4.5	80
Paper 1	40 multiple-choice questions	1	20
Paper 2	Data-based, short answer and extended response questions (CORE)	2hrs 15 mins	40
Paper 3	Data-based and practical based, short answer and extended response questions based on the option	1 hr 15 mins	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

Sample Questions:

Paper 1

- What is the sum of the coefficients when the equation for the combustion of ammonia is balanced using the smallest possible whole numbers? ___ NH3 (g) + ___ O2 (g) ___ N2 (g) + ___ H2 O (g)

A. 6 B. 12 C. 14 D. 15 (MCQ)

Paper 2

- The two isomers of [Pt(NH3) 2 Cl2] are crystalline. One of the isomers is widely used in the treatment of cancer.

i. Draw both isomers of the complex,

ii. ii. Explain the polarity of each isomer using a diagram of each isomer to support your answer,

iii. iii. State a suitable method (other than looking at dipole moments) to distinguish between the two isomers

iv. iv. Compare and contrast the bonding types formed by nitrogen in [Pt(NH3) 2 Cl2]

POSSIBLE CAREER OPTIONS Chemistry HL/SL

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Analytical Chemist
- Criminology
- Education
- Environmental consultant
- Environmental education officer
- Environmental manager
- Environmental Engineer
- Environmentalist Research and teaching
- Forensic Sciences
- Food technology
- Journalism- Scientific and technical magazines and journal
- Medicine and Surgery
- Nutritionist
- Pharmacology – Research, retail
- Process Development- Chemist
- Product Development- Chemist
- Work for NGO's
- Research – Laboratories, Food Processing, Foods Development

  Research Chemist

Sciences: Chemistry—Standard Level

I. Course Description and aims

Chemistry combines academic study with the acquisition of practical and investigational skills. **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.

THE AIMS OF THE DP CHEMISTRY COURSE ARE TO ENABLE STUDENTS TO:

- Appreciate scientific study and creativity within a global context
- Acquire a body of knowledge, methods and techniques that characterize science and technology 3. Apply and use a body of knowledge, methods and techniques that characterize science and technology
- Develop an ability to analyse, evaluate and synthesize scientific information
- Develop a critical awareness of the need for, and the value of, effective collaboration and communication during scientific activities
- Develop experimental and investigative scientific skills including the use of current technologies
- Develop and apply 21st century communication skills in the study of science
- Become critically aware, as global citizens, of the ethical implications of using science and technology
- Develop an appreciation of the possibilities and limitations of science and technology
- Develop an understanding of the relationships between scientific disciplines and their influence.

II. Curriculum model overview

Syllabus Component		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**
Option	One of four is chosen- Bio-Chemistry	**25**
Practical scheme of work		**40**
	▪ Group 4 Project	10
	▪ Individual investigation	10
	▪ Prescribed and other Practical activities	20
	Total Teaching time	**150**

III. Assessment model

Assessment in Chemistry level

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

5. **DEMONSTRATE KNOWLEDGE AND UNDERSTANDING OF:**
   - Facts, concepts, and terminology
   - Methodologies and techniques
   - Communicating scientific information.
6. **APPLY:**
   - Facts, concepts, and terminology
   - Methodologies and techniques
   - Methods of communicating scientific information.
7. **FORMULATE, ANALYSE AND EVALUATE:**
   - Hypotheses, research questions and predictions
   - Methodologies and techniques
   - Primary and secondary data
   - Scientific explanations.
8. **DEMONSTRATE THE APPROPRIATE RESEARCH, EXPERIMENTAL, AND PERSONAL SKILLS NECESSARY TO CARRY OUT INSIGHTFUL AND ETHICAL INVESTIGATIONS.**

The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, 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. The emphasis is on interdisciplinary cooperation and the scientific processes

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		4.5	**80**
Paper 1	30 multiple-choice questions	45 minutes	20
Paper 2	Data-based, short answer and extended response questions (CORE)	1hrs 15 mins	40
Paper 3	Data-based and practical based, short answer and extended response questions based on the option	1 hr	20
Internal		10	**20**
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

Sample Questions:

Paper 1

• What is the total number of atoms in 0.50 mol of 1,4-diaminobenzene, H2 NC6 H4 NH2 ?

A. 16.0 x 1023 B. 48.0 x 1023 C. 96.0 x 1023 D. 192.0 x 1023

(Avogadro's constant (L or NA) = 6.0 × 1023 mol–1 .)

Paper 2

• 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)+2H2 O(g) 2H2 (g)+CO2 (g) Using information from section 12 of the data booklet, calculate the change in enthalpy, ΔH, in kJ mol–1, for this reaction.

POSSIBLE CAREER OPTIONS Chemistry HL/SL

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Analytical Chemist
- Criminology
- Education
- Environmental consultant
- Environmental education officer
- Environmental manager
- Environmental Engineer
- Environmentalist Research and teaching
- Forensic Sciences
- Food technology
- Journalism- Scientific and technical magazines and journal
- Medicine and Surgery
- Nutritionist
- Pharmacology – Research, retail
- Process Development- Chemist
- Product Development- Chemist
- Work for NGO's

Sciences: Physics—higher 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. 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 characterizes the subject.

THE AIMS OF THE DP PHYSICS COURSE ARE TO ENABLE STUDENTS TO:

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

II. Curriculum model overview

Syllabus Component		Hours
Core	8 compulsory topics- 1. Measurements and uncertainties 2. Mechanics 3. Thermal physics 4. Waves 5. Electricity and magnetism 6. Circular motion and gravitation 7. Atomic, nuclear and particle physics 8. Energy production	**95**
Extension	9. Wave phenomena 10.Fields 11.Electromagnetic induction 12.Quantum and nuclear physics	**60**
Option	One of four is chosen- Astrophysics	**25**
Practical scheme of work	▪ Group 4 Project ▪ Individual investigation ▪ Prescribed and other Practical activities	**60** 10 10 20
	Total Teaching time	**240**

III. Assessment model

Assessment in Physics Higher level

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.**

The group 4 project

The group 4 project is a collaborative activity where students from different group 4 subjects, 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. The emphasis is on interdisciplinary cooperation and the scientific processes

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		4.5	80
Paper 1	40 multiple-choice questions	1	20
Paper 2	Data-based, short answer and extended response questions (CORE)	2hrs 15 mins	40
Paper 3	Data-based and practical based, short answer and extended response questions based on the option	1 hr 15 mins	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

Sample Questions:

Paper 1 MCQ

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 2

• 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 3

- 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)

POSSIBLE CAREER OPTIONS PHYSICS HL/SL

Students who choose to study Physics HL/SL have a range of available career options:

- Geophysicist/field seismologist
- Metallurgist
- Nanotechnologist
- Radiation protection practitioner
- Research scientist (physical sciences)
- Secondary school teacher OR Higher education lecturer
- Investment analyst
- Meteorologist
- Nuclear engineer
- Operational researcher
- Patent attorney
- PPC specialist
- Systems developer
- Aerospace engineering
- Energy and power provision
- Environmental consultancy
- Manufacturing (including computers, electronics, medical equipment)
- Medical technologies
- Patent work
- Research and development
- Scientific publishing
- Telecommunications
- Water and environmental control.
- Teaching
- Work for international agencies

Sciences: Physics—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. 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 characterizes the subject.

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- Develop an appreciation of the possibilities and limitations of science and technology
- Develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge.

II. Curriculum model overview

Syllabus Component			Hours
Core	1. Measurements and uncertainties 3. Thermal physics 5. Electricity and magnetism 7. Atomic, nuclear and particle physics	2. Mechanics 4. Waves 6. Circular motion and gravitation 8. Energy production	**95**
Option	One of four is chosen- Astrophysics		**15**
Practical scheme of work			**40**
	▪ Group 4 Project		10
	▪ Individual investigation		10
	▪ Prescribed and other Practical activities		20
		Total Teaching time	**150**

III. Assessment model

Assessment in Physics standard level

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

5. **DEMONSTRATE KNOWLEDGE AND UNDERSTANDING OF:**
   - Facts, concepts, and terminology
   - Methodologies and techniques
   - Communicating scientific information.
6. **APPLY:**
   - Facts, concepts, and terminology
   - Methodologies and techniques
   - Methods of communicating scientific information.
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The group 4 project is a collaborative activity where students from different group 4 subjects, 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. The emphasis is on interdisciplinary cooperation and the scientific processes

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		**3**	**80**
Paper 1	30 multiple-choice questions	45 mins	20
Paper 2	Data-based, short answer and extended response questions (CORE)	1hr 15 minutes	40
Paper 3	Data-based and practical based, short answer and extended response questions based on the option	1 hour	20
Internal		10	**20**
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

Sample Questions:

Paper 1 MCQ

• 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?

A. 9.778ms-2
B. 9.780ms-2
C. 9.78ms-2
D. 9.8ms-2

Paper 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 3

• 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

POSSIBLE CAREER OPTIONS Physics HL/SL

Students who choose to study Social and Cultural Anthropology HL/SL have a range of available career options:

- Geophysicist/field seismologist
- Metallurgist
- Nanotechnologist
- Radiation protection practitioner
- Research scientist (physical sciences)
- Secondary school teacher OR Higher education lecturer
- Investment analyst
- Meteorologist
- Nuclear engineer
- Operational researcher
- Patent attorney
- PPC specialist
- Systems developer
- Aerospace engineering
- Energy and power provision
- Environmental consultancy
- Manufacturing (including computers, electronics, medical equipment)
- Medical technologies
- Patent work
- Research and development
- Scientific publishing
- Telecommunications
- Water and environmental control.
- Teaching
- Work for international agencies

CURRICULUM GROUP 5:

Mathematics

CURRICULUM OUTLINE FOR IB MATHEMATICS

(Guidelines from the IBO published in 2019)

Some new developments are underway in the IB Diploma Programme (DP) mathematics curriculum. We expect to be ready for educators to start teaching the new courses in 2019.

Developments in DP mathematics mean that it remains relevant and rigorous while addressing the needs of mathematics students from 2019 until 2028, at which point the next development cycle will complete and the succeeding new version of the course will be released. We believe the changes to DP mathematics offers more choice to a greater number of students as well as offering schools greater flexibility in the way they group students, schedule lessons and teach the skills and content.

Critical thinking

For employers and universities alike, critical thinking in mathematics is becoming an increasingly valued skill, especially as technology advances making some traditional skills redundant.

Critical thinking in the context of mathematical learning is the ability to recognize where the subject can be used, understand and synthesize technical documents, apply relevant mathematical approaches to familiar and unfamiliar situations, structure logical arguments, be risk aware, understand that technology and mathematics can go hand-in-hand, and interpret the meaning and relevance of solutions. These are all becoming increasingly important and sought-after skills.

How will DP mathematics address this from 2019 onwards?

DP mathematics will focus on developing the skills of analysis, abstraction and generalization, risk awareness and statistical literacy, algorithmic thinking, modelling and inquiry. The aim is to meet the diverse needs, interests and motivations of all our students within the DP.

We have designed two mathematics subjects/routes that will each be offered at standard level (SL) and higher level (HL):

1. **Mathematics: Analysis and approaches course** will be offered at both SL and HL. It is designed for students who enjoy developing their mathematics to become fluent in the construction of mathematical arguments and develop strong skills in mathematical thinking. They will explore real and abstract applications, sometimes with technology, and will enjoy the thrill of mathematical problem solving and generalization.

2. **Mathematics: Applications and interpretation course** will be offered at both SL and HL for students who are interested in developing their mathematics for describing our world, modelling and solving practical problems using the power of technology. Students who take Mathematics: Applications and interpretation will be those who enjoy mathematics best when seen in a practical context.

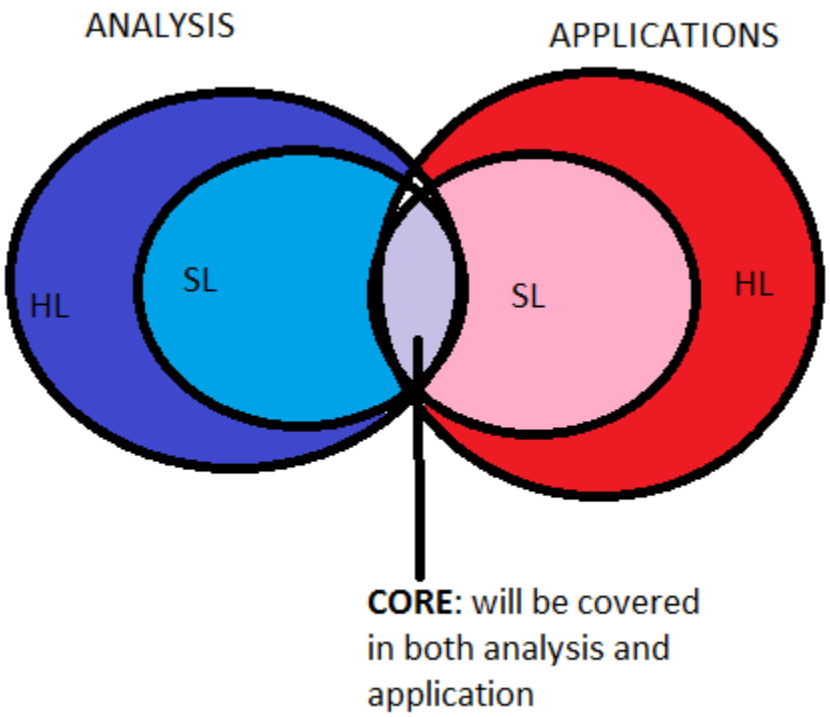

Diagram Model of the two courses for Group 5 Mathematics. The CORE is covered in BOTH the courses.

Group 5 Mathematics Analysis and Approaches – higher level

I. Course Description and aims

There are two different DP subjects in mathematics, Mathematics: analysis and approaches and Mathematics: applications and interpretation. Each course is designed to meet the needs of a particular group of students. The IB DP Mathematics: analysis and approaches course recognizes the need for analytical expertise in a world where innovation is increasingly dependent on a deep understanding of mathematics. The focus is 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 abstract problems as well as those set in a variety of meaningful contexts. Mathematics: analysis and approaches has a strong emphasis on the ability to construct, communicate and justify correct mathematical arguments. 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. Students are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments. The internally assessed exploration allows students to develop independence in mathematical learning. Throughout the course students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas.

THE AIMS OF ALL DP MATHEMATICS COURSES ARE TO ENABLE STUDENTS TO:

- develop a curiosity and enjoyment of mathematics, and appreciate its elegance and power
- develop an understanding of the concepts, principles and nature of mathematics
- communicate mathematics clearly, concisely and confidently in a variety of contexts
- develop logical and creative thinking, and patience and persistence in problem solving to instil confidence in using mathematics
- employ and refine their powers of abstraction and generalization
- take action to apply and transfer skills to alternative situations, to other areas of knowledge and to future developments in their local and global communities
- appreciate how developments in technology and mathematics influence each other
- appreciate the moral, social and ethical questions arising from the work of mathematicians and the applications of mathematics
- appreciate the universality of mathematics and its multicultural, international and historical perspectives
- appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course
- develop the ability to reflect critically upon their own work and the work of others independently and collaboratively extend their understanding of mathematics.

II. Curriculum model overview

Syllabus Component		Hours
Core	Number and algebra Functions Geometry and trigonometry Statistics and probability Calculus	**210**
Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics		**30**
	Total Teaching time	**240**

III. Assessment model

Problem-solving is central to learning mathematics and involves the acquisition of mathematical skills and concepts in a wide range of situations, including non-routine, open-ended and real-world problems. The assessment objectives are common to Mathematics: analysis and approaches and to Mathematics: applications and interpretation.

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 abstract and real-world 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; use appropriate notation and terminology. **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 from the real world, involving organizing and analyzing information, making conjectures, drawing conclusions, and testing their validity. The exploration is an integral part of the course and its assessment,

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final grade (%)**
External		**5**	**80**
Paper 1	No technology allowed. Section A: compulsory short-response questions based on the syllabus. Section B: compulsory extended-response questions based on the syllabus.	2hrs	30
Paper 2	Technology allowed. Section A: compulsory short-response questions based on the syllabus. Section B: compulsory extended-response questions based on the syllabus	2 hours	30
Paper 3	Technology allowed. Two compulsory extended-response problem-solving questions.	1 hour	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

and is compulsory for both SL and HL students. It enables students to demonstrate the application of their skills and knowledge, and to pursue their personal interests, without the time limitations and other constraints that are associated with written examinations.

POSSIBLE CAREER OPTIONS Mathematics HL/SL

- Air Traffic Controller
- Animator
- Architect
- Astronaut
- Statistician
- Biologist
- Biostatistician
- Budget Analyst
- Cartographer
- Chemical Engineer
- Chartered Accountant
- Climatologist
- Stockbroker
- Computational Biologist
- Computer Scientist
- Cost Estimator
- Cryptanalyst
- Geologist
- High-School Math Teacher $8
- Hydrologist
- Inventory Control Specialist
- Market Research Analyst
- Mathematical Biophysicist
- Mathematical Physicist
- Mathematician
- Mechanical Engineer
- National Security Analyst
- Nuclear Engineer
- Operations Research
- Petroleum Engineer
- Economist
- Urban Planner
- psychometrician
- Purchasing agent

Group 5 Mathematics Analysis and Approaches – standard level

I. Course Description and aims

There are two different DP subjects in mathematics, Mathematics: analysis and approaches and Mathematics: applications and interpretation. Each course is designed to meet the needs of a particular group of students. The IB DP Mathematics: analysis and approaches course recognizes the need for analytical expertise in a world where innovation is increasingly dependent on a deep understanding of mathematics. The focus is 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 abstract problems as well as those set in a variety of meaningful contexts. Mathematics: analysis and approaches has a strong emphasis on the ability to construct, communicate and justify correct mathematical arguments. 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. Students are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments. The internally assessed exploration allows students to develop independence in mathematical learning. Throughout the course students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas.

THE AIMS OF ALL DP MATHEMATICS COURSES ARE TO ENABLE STUDENTS TO:

- develop a curiosity and enjoyment of mathematics, and appreciate its elegance and power
- develop an understanding of the concepts, principles and nature of mathematics
- communicate mathematics clearly, concisely and confidently in a variety of contexts
- develop logical and creative thinking, and patience and persistence in problem solving to instil confidence in using mathematics
- employ and refine their powers of abstraction and generalization
- take action to apply and transfer skills to alternative situations, to other areas of knowledge and to future developments in their local and global communities
- appreciate how developments in technology and mathematics influence each other
- appreciate the moral, social and ethical questions arising from the work of mathematicians and the applications of mathematics
- appreciate the universality of mathematics and its multicultural, international and historical perspectives
- appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course
- develop the ability to reflect critically upon their own work and the work of others independently and collaboratively extend their understanding of mathematics.

II. Curriculum model overview

Syllabus Component		Hours
Core	Number and algebra Functions Geometry and trigonometry Statistics and probability Calculus	**120**
Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics		**30**
	Total Teaching time	**150**

III. Assessment model

Problem-solving is central to learning mathematics and involves the acquisition of mathematical skills and concepts in a wide range of situations, including non-routine, open-ended and real-world problems. The assessment objectives are common to Mathematics: analysis and approaches and to Mathematics: applications and interpretation.

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 abstract and real-world 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; use appropriate notation and terminology. **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 from the real world, involving organizing and analyzing information, making conjectures, drawing conclusions, and testing their validity. The exploration is an integral part of the course and its assessment,

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final grade (%)**
External		**5**	**80**
Paper 1	No technology allowed. Section A: compulsory short-response questions based on the syllabus. Section B: compulsory extended-response questions based on the syllabus.	1.5hrs	40
Paper 2	Technology allowed. Section A: compulsory short-response questions based on the syllabus. Section B: compulsory extended-response questions based on the syllabus	1.5 hours	40
Internal		10	**20**
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

and is compulsory for both SL and HL students. It enables students to demonstrate the application of their skills and knowledge, and to pursue their personal interests, without the time limitations and other constraints that are associated with written examinations.	

POSSIBLE CAREER OPTIONS Mathematics HL/SL

- Air Traffic Controller
- Animator
- Architect
- Astronaut
- Statistician
- Biologist
- Biostatistician
- Budget Analyst
- Cartographer
- Chemical Engineer
- Chartered Accountant
- Climatologist
- Stockbroker
- Computational Biologist
- Computer Scientist
- Cost Estimator
- Cryptanalyst
- Geologist
- High-School Math Teacher $8
- Hydrologist
- Inventory Control Specialist
- Market Research Analyst
- Mathematical Biophysicist
- Mathematical Physicist
- Mathematician
- Mechanical Engineer
- National Security Analyst
- Nuclear Engineer
- Operations Research
- Petroleum Engineer
- Economist
- Urban Planner
- psychometrician
- Purchasing agent

Group 5: Mathematics Applications & Interpretations- higher level

I. Course Description and aims

There are two different DP subjects in mathematics, Mathematics: analysis and approaches and Mathematics: applications and interpretation. Each course is designed to meet the needs of a particular group of students. The IB DP Mathematics: analysis and approaches course recognizes the need for analytical expertise in a world where innovation is increasingly dependent on a deep understanding of mathematics. The focus is 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 abstract problems as well as those set in a variety of meaningful contexts. Mathematics: analysis and approaches has a strong emphasis on the ability to construct, communicate and justify correct mathematical arguments. 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. Students are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments. The internally assessed exploration allows students to develop independence in mathematical learning. Throughout the course students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas.

THE AIMS OF ALL DP MATHEMATICS COURSES ARE TO ENABLE STUDENTS TO:

- develop a curiosity and enjoyment of mathematics, and appreciate its elegance and power
- develop an understanding of the concepts, principles and nature of mathematics
- communicate mathematics clearly, concisely and confidently in a variety of contexts
- develop logical and creative thinking, and patience and persistence in problem solving to instil confidence in using mathematics
- employ and refine their powers of abstraction and generalization
- take action to apply and transfer skills to alternative situations, to other areas of knowledge and to future developments in their local and global communities
- appreciate how developments in technology and mathematics influence each other
- appreciate the moral, social and ethical questions arising from the work of mathematicians and the applications of mathematics
- appreciate the universality of mathematics and its multicultural, international and historical perspectives
- appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course
- develop the ability to reflect critically upon their own work and the work of others independently and collaboratively extend their understanding of mathematics.

II. Curriculum model overview

Syllabus Component		Hours
Core	Number and algebra Functions Geometry and trigonometry Statistics and probability Calculus	**210**

Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics	**30**
Total Teaching time	**240**

III. Assessment model

Problem-solving is central to learning mathematics and involves the acquisition of mathematical skills and concepts in a wide range of situations, including non-routine, open-ended and real-world problems. The assessment objectives are common to Mathematics: analysis and approaches and to Mathematics: applications and interpretation.

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 abstract and real-world 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; use appropriate notation and terminology. **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:

Assessment at a glance			
Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final grade (%)**
External		**5**	**80**
Paper 1	Technology allowed. Compulsory short-response questions based on the syllabus.	2 hrs.	30
Paper 2	Technology allowed. Compulsory extended-response questions based on the syllabus.	2hours	40
Paper 3	Technology allowed. Two compulsory extended-response problem-solving questions	1 hour	
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

Investigate unfamiliar situations, both abstract and from the real world, involving organizing and analyzing information, making conjectures, drawing conclusions, and testing their validity. The exploration is an integral part of the course and its assessment, and is compulsory for both SL and HL students. It enables students to demonstrate the application of their skills and knowledge, and to pursue their personal interests, without the time limitations and other constraints that are associated with written examinations.	

POSSIBLE CAREER OPTIONS Mathematics HL/SL

- Air Traffic Controller
- Animator
- Architect
- Astronaut
- Statistician
- Biologist
- Biostatistician
- Budget Analyst
- Cartographer
- Chemical Engineer
- Chartered Accountant
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- Mathematical Physicist
- Mathematician
- Mechanical Engineer
- National Security Analyst
- Nuclear Engineer
- Operations Research
- Petroleum Engineer
- Economist
- Urban Planner
- Psychometrician
- Purchasing agent

Group 5 Mathematics Applications and Interpretations – standard level

I. Course Description and aims

There are two different DP subjects in mathematics, Mathematics: analysis and approaches and Mathematics: applications and interpretation. Each course is designed to meet the needs of a particular group of students. The IB DP Mathematics: analysis and approaches course recognizes the need for analytical expertise in a world where innovation is increasingly dependent on a deep understanding of mathematics. The focus is 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 abstract problems as well as those set in a variety of meaningful contexts. Mathematics: analysis and approaches has a strong emphasis on the ability to construct, communicate and justify correct mathematical arguments. 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. Students are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments. The internally assessed exploration allows students to develop independence in mathematical learning. Throughout the course students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas.

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II. Curriculum model overview

Syllabus Component		Hours
Core	Number and algebra Functions Geometry and trigonometry Statistics and probability Calculus	**120**

Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics	**30**
Total Teaching time	**150**

III. Assessment model

Problem-solving is central to learning mathematics and involves the acquisition of mathematical skills and concepts in a wide range of situations, including non-routine, open-ended and real-world problems. The assessment objectives are common to Mathematics: analysis and approaches and to Mathematics: applications and interpretation.

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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 from the real world, involving organizing and analyzing information, making conjectures,

Assessment at a glance

Type of assessment	**Format of assessment**	**Time (hours)**	**Weighting of final grade (%)**
External		**5**	**80**
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Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

drawing conclusions, and testing their validity. The exploration is an integral part of the course and its assessment, and is compulsory for both SL and HL students. It enables students to demonstrate the application of their skills and knowledge, and to pursue their personal interests, without the time limitations and other constraints that are associated with written examinations.	

POSSIBLE CAREER OPTIONS Mathematics HL/SL

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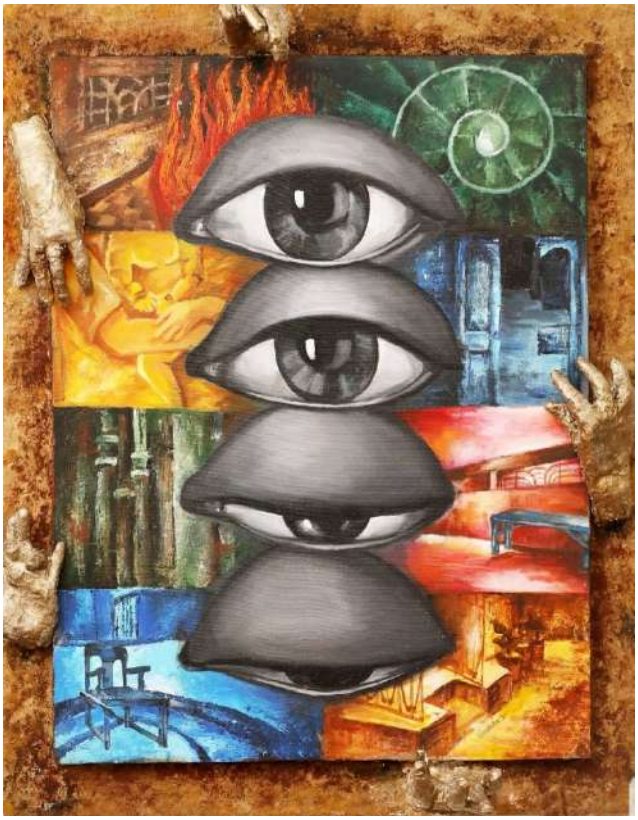
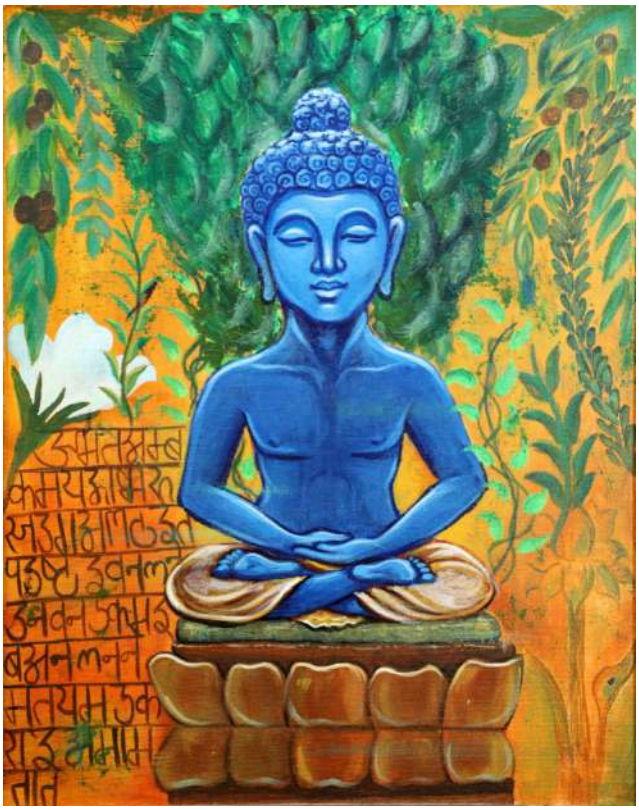
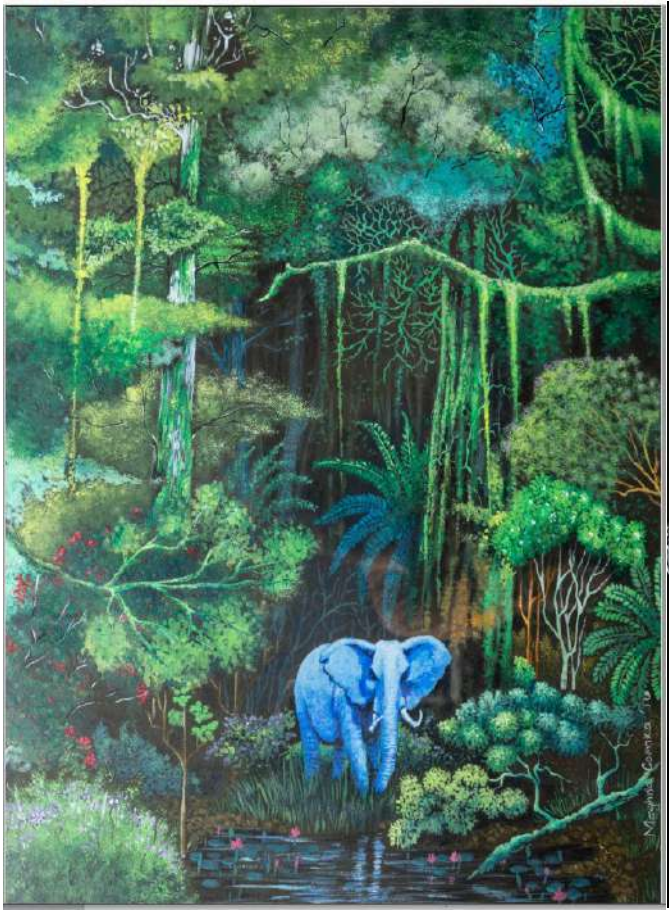
- Hydrologist
- Inventory Control Specialist
- Market Research Analyst
- Mathematical Biophysicist
- Mathematical Physicist
- Mathematician
- Mechanical Engineer
- National Security Analyst
- Nuclear Engineer
- Operations Research
- Petroleum Engineer
- Economist
- Urban Planner
- psychometrician
- Purchasing agent

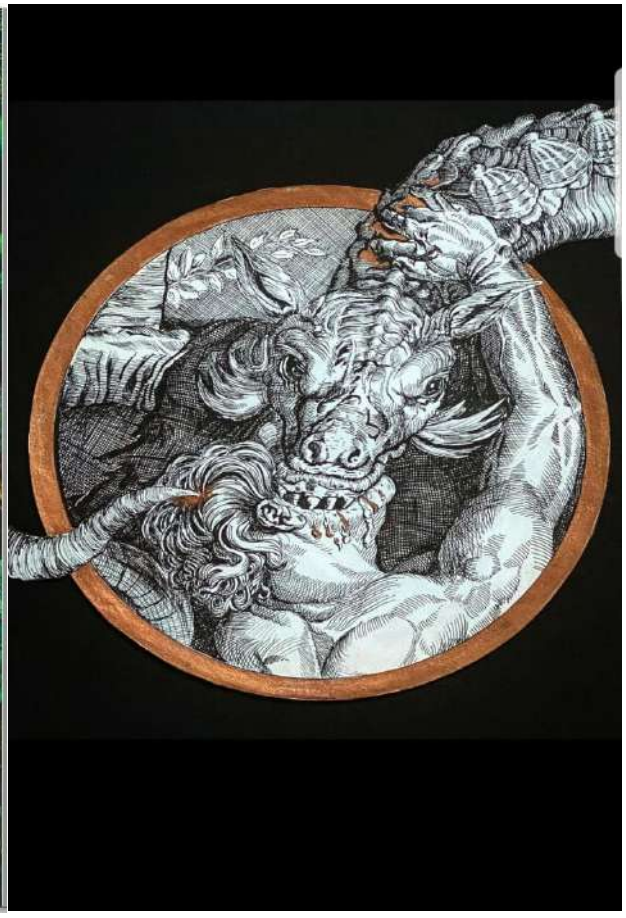
CURRICULUM GROUP 6:

The Arts









The Arts:

Visual Arts—Higher 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 organize 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:

- Enjoy lifelong engagement with the arts
- Become informed, reflective and critical practitioners in the arts
- Understand the dynamic and changing nature of the arts
- Explore and value the diversity of the arts across time, place and cultures
- Express ideas with confidence and competence
- Develop perceptual and analytical skills. In addition, the aims of the Visual Arts course at SL and HL are to enable students to:
- Make artwork that is influenced by personal and cultural contexts
- 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

Syllabus Component	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.	**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.	80

• Consider the nature of "exhibition", and think about the process of selection and the potential impact of their work on different audiences.	
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.	**80**
Total teaching time	**240 hours**

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
   • Recognize 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

Assessment at a glance

Type of assessment	Format of assessment	Weighting of final grade (%)
External		**60**
Comparative study	10–15 screens which examine and compare at least 3 artworks, at least 2 of which need to be by different artists • 3–5 screens which analyse the extent to which the student's work and practices have been influenced by the art and artists examined • A list of sources used	20
Process portfolio	13–25 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 700 words • 8–11 artworks • Exhibition text (stating the title, medium, size and intention) for each artwork.	40

• 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	

POSSIBLE CAREER OPTIONS Visual Arts HL/ SL

- Art Director
- Books/Magazine/Publications Illustrator
- Designer
- Photographer
- Artist/Sculptor/Painter
- Graphic Designer- various fields
- Computer animation
- 3 D modelling
- Artist in residence
- Education- teaching at schools and colleges
- Fashion designer
- Museum- Curatorial
- Art Auction Houses – Christies Sothebys
- Criminal investigation organizations
- Arts valuers/buyers

The Arts:

Visual Arts—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 organize 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:

- Enjoy lifelong engagement with the arts
- Become informed, reflective and critical practitioners in the arts
- Understand the dynamic and changing nature of the arts
- Explore and value the diversity of the arts across time, place and cultures
- Express ideas with confidence and competence
- Develop perceptual and analytical skills. In addition, the aims of the Visual Arts course at SL and HL are to enable students to:
- Make artwork that is influenced by personal and cultural contexts
- Become informed and critical observers and makers of visual culture and media
- Develop skills, techniques and processes in order to communicate concepts and ideas.

II. Curriculum model overview

Syllabus Component	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.	**50**
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.	50

• 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.	
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.	**50**
Total teaching time	**150 hours**

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
   - Recognize 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

Assessment at a glance

Type of assessment	Format of assessment	Weighting of final grade (%)
External		**60**
Comparative study	10–15 screens which examine and compare at least 3 artworks, at least 2 of which need to be by different artists • A list of sources used	20
Process portfolio	9-18 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 400 words • 4-7 artworks • Exhibition text (stating the title, medium, size and intention) for each artwork.	40

• 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	

POSSIBLE CAREER OPTIONS Visual Arts HL/ SL

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Acknowledgements:

Diploma subject briefs

http://www.ibo.org/globalassets/publications/recognition/core_2011.pdf date accessed 13/01/2018

Photographs

Taken during the CAS trip by the IB 1 students.