Kingston Secondary School
IB Diploma Handbook

"There is only one way to eat an elephant, one bite at a time."

- Desmond Tutu

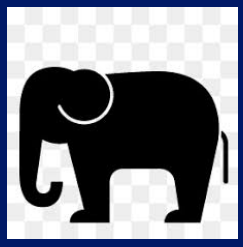

TABLE OF CONTENTS

Diploma Programme

Section A: The IB

* History and Mission Statement
* The IB Story
* The IB Learner Profile

Olli-Pekka Heinonen, Director General of the IBO

"The IB is a 4.0 education in a 1.0 world. The IB prepares students to be the creators of the algorithm rather than the consumers of the algorithm, so not be subjects without thinking."

- Siva Kumari, former IBO Director General, March 2019

THE INTERNATIONAL BACCALAUREATE - HISTORY

The International Baccalaureate (IB) Programme was developed in Geneva in the 1960s by the International Schools Association (ISA), an organization established in 1951 by UNESCO.

In 1965 the ISA created a specialized service entitled the "International Schools Examination Syndicate" and in 1967 this body assumed the status of a non-profit foundation entitled the International Baccalaureate Office.

Today, the IB programme is one of the fastest growing international curriculum programmes in the world. In 2002 there were 1000 schools offering the programme, in 2008 there were over 1600 IB schools, and, in 2013, 3,660 schools offered the programme to 1,132,000 students in 144 countries around the world. Approximately 120,000 students graduate every year with an IB diploma, and these graduates are routinely recognized by the world's leading universities for their outstanding academic preparedness.

"The IB is well known to us as an excellent preparation. Success in an IB programme correlates well with success at Harvard. We are pleased to see the credential of the IB Diploma Programme on the transcript."

- Marlyn McGrath Lewis,
ASSISTANT DEAN OF ADMISSIONS,
Harvard University, USA

The key objectives of the programme are clearly stated in the IBO Mission Statement:

The International Baccalaureate Organization 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 IBO 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.

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OUR STORY

In 1968, inspired by a spirit of hope in a time of instability and conflict, the IB pioneered a movement for international education. Our founders saw a need for an international approach to education which would bring young people together with the skills, values and knowledge necessary to build a more peaceful future. Our vision is to foster open and enlightened minds for all primary and secondary students, aged 3-19. We have been successfully doing this for five decades, and will continue to do so in a world where we face an unprecedented pace of change. IB students use the skills they've developed to help make the world a better place. Our founders' vision—of an education that can unite people, nations and cultures for a sustainable future—has never been more urgent.

OUR EDUCATIONAL APPROACH

Parents and educators recognize that the solutions of yesterday cannot solve the problems of today. We champion critical thinking and a flexibility for learning by crossing disciplinary, cultural and national boundaries. We design our curriculums so that students build a deep appreciation of how their studies fit into the wider context of our world. All of our programmes are driven by a commitment to multilingualism and international mindedness, and to action through service in the student's own community and beyond. We encourage the curiosity inherent in every child, developing an attitude of constant questioning and a hunger for knowledge and understanding.

OUR APPROACH TO ASSESSMENT

We create our own, internationally- recognised assessments to ensure that we consistently challenge students to think critically, rather than simply to recall knowledge. Our approach to assessment is highly respected: the best universities in the world actively seek out IB students, and we always stay true to our core mission—we assess what is important to measure, not what is easy to measure. We design curriculums that allow teachers to be passionate about their subjects and focus students not only on content, but also on how they think and learn. Our programmes and assessments evolve with the changing demands of information technology, global interconnectivity, higher education and employment.

The IB develops and sustains a worldwide community of students, educators and schools, with a shared mission to offer the best possible international education combined with an emphasis on human values.

We believe that open, enlightened minds, free from prejudice, are our best hope to create a better world. Grounded in a proven and continuously revitalized curriculums, we encourage deep inquiry and relentless curiosity to develop students who are caring, courageous risk takers and critical thinkers.

An IB education inspires young people to become lifelong learners, using their energy, conviction and positivity to engage with increasingly complex and interconnected global issues. Our foundational idea is that each one of us is responsible for the rest of us, and this understanding is a necessary basis for progress toward a more just and peaceful world.

A WORLDWIDE PROFESSIONAL ECOSYSTEM

We take a truly holistic approach to our education using a professional ecosystem made up of schools, educators and students. We co-create and co-develop curriculums with IB educators and other experts around the world. Our professional development programmes engage fellow teachers who train other teachers across the world, as part of a highly effective system of constant learning, development and sharing of best practice. IB teachers have the tools and flexibility to do more than just teach a course; they ignite passion and curiosity, and teach in a way that is best suited for them and their students. IB educators are part of what makes an IB education so purposeful and challenging—from Beijing to Brooklyn, from Brussels to Bogota, IB teachers inspire a passion for learning and the drive to make things better.

OUR ALUMNI

Our alumni are prepared with the skills and mindset to succeed in our fast-changing world. Their ability to think and collaborate across countries, cultures and disciplines allows them to approach challenges in ways that truly make a difference in their chosen field. From teachers to prime ministers, NGO executives to small-scale entrepreneurs, astronauts to award-winning actors, an IB education continues to develop generations of problem solvers with the boldness, creativity and belief in themselves to embrace their personal ambitions and their dreams for a better, more peaceful world. We are proud that so many of our students leave the IB with a commitment and the skills to address humanity's greatest challenges.

IB learner profile

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

As IB learners we strive to be:

INQUIRERS
We nurture our curiosity, developing skills for inquiry and research. We know how to learn independently and with others. We learn with enthusiasm and sustain our love of learning throughout life.

KNOWLEDGEABLE
We develop and use conceptual understanding, exploring knowledge across a range of disciplines. We engage with issues and ideas that have local and global significance.

THINKERS
We use critical and creative thinking skills to analyse and take responsible action on complex problems. We exercise initiative in making reasoned, ethical decisions.

COMMUNICATORS
We express ourselves confidently and creatively in more than one language and in many ways. We collaborate effectively, listening carefully to the perspectives of other individuals and groups.

PRINCIPLED
We act with integrity and honesty, with a strong sense of fairness and justice, and with respect for the dignity and rights of people everywhere. We take responsibility for our actions and their consequences.

OPEN-MINDED
We critically appreciate our own cultures and personal histories, as well as the values and traditions of others. We seek and evaluate a range of points of view, and we are willing to grow from the experience.

CARING
We show empathy, compassion and respect. We have a commitment to service, and we act to make a positive difference in the lives of others and in the world around us.

RISK-TAKERS
We approach uncertainty with forethought and determination; we work independently and cooperatively to explore new ideas and innovative strategies. We are resourceful and resilient in the face of challenges and change.

BALANCED
We understand the importance of balancing different aspects of our lives—intellectual, physical, and emotional—to achieve well-being for ourselves and others. We recognize our interdependence with other people and with the world in which we live.

REFLECTIVE
We thoughtfully consider the world and our own ideas and experience. We work to understand our strengths and weaknesses in order to support our learning and personal development.

The IB learner profile represents 10 attributes valued by IB World Schools. We believe these attributes, and others like them, can help individuals and groups become responsible members of local, national and global communities.

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Diploma Programme

Section B: DP Essentials

*DP Model at KSS
*IB Diploma Requirements & TOK/EE Points Matrix
*Key Terms
*IBSO Table of Equivalence
*IB Subject Briefs
*Academic Honesty

"Your IB learning experience is not about what information you can absorb, but what skills you can gain, and how the way you approach and exchange knowledge can alter your way of thinking and your personal world view."

- Anna, IB Graduate

The IB Diploma Programme at KSS:

All IB DP courses take place over the two years of grades 11 and 12; students also earn 16 Ontario Credits, including 10 grade 12 credits. Students select one course from each of the following groups.

Group 1: Studies in language and literature—English A: Literature HL

Group 2: Language acquisition—French B SL/HL, Spanish ab initio SL

Group 3: Individuals and societies—Business Management SL/HL, History SL/HL, Psychology SL/HL

Group 4: Sciences — Biology SL/HL, Physics SL/HL, Environmental Systems and Societies SL **Group 5**: Mathematics: Analysis and Approaches SL/HL, Mathematics: Applications and Interpretations SL **Group 6**: Arts and electives—Music SL/HL, Film SL/HL, Chemistry SL/HL

The IB Diploma Core: In addition to completing one subject from each of the above groups, students complete the Theory of Knowledge course, Creativity, Activity, Service (CAS), and the Extended Essay.

Summary of IB Diploma Requirements

IB Diploma Program Components and Possible Scores

Need one course from each of the six groups
Possible score of 1-7 in each subject

Theory of Knowledge (TOK) Grade: A-E

Extended Essay (EE) Grade: A-E

Theory of Knowledge and Extended Essay grades contribute to a possible 3 extra points toward the IB Diploma total score. See matrix below

Creativity, Activity Service (CAS) pass/fail

(*7 learning outcomes completed along with CAS project and ongoing experiences*)

*** If you are opting to do IB certificates only, you will not take TOK, EE, or CAS.**

Points and Conditions Necessary to Successfully Earn the IB Diploma

- ❏ An IB score must have been awarded for each of the six IB Diploma subjects, TOK, and EE
  (Student must not have any scores of 'N' due to malpractice or failure to submit an assessment)
- ❏ CAS requirements must be met
- ❏ Student must have a score of D or higher in both the TOK and EE (no E score)
- ❏ Student must earn at least 24 points
  (45 total possible points - 42 from IB subjects + 3 from TOK/EE)
- ❏ Student must earn a total of at least 12 points in HL subjects.
- ❏ Student must earn at least 9 points in SL subjects.
- ❏ There may be no more than two scores of 2, overall
- ❏ There may be no more than three scores of 3 or lower, overall

Results are available to students in early July. If unsuccessful in full diploma, students may still earn IB certificates and OSSD credits.

TOK/EE Points Matrix

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

Key Terms

HL "Higher Level" - denotes Higher Level (HL) courses. It refers to the number of instructional hours (240 minimum) not the quality or difficulty of the course. An HL course will earn 3 OSSD credits and a possible transfer credit in some post-secondary programs.

SL "Standard Level" - denotes Standard Level (SL) courses. It refers to the number of instructional hours (150 minimum) not the quality or difficulty of the course. An SL course will earn 2 OSSD credits. Two SL courses will be considered "Anticipated Courses" have their exams completed in May of year 1.

Internal Assessments (IA) - graded by the classroom teacher. Student samples are selected by IB and sent to be moderated by an external examiner. They will be compared to IB standards and changes may be made to the entire class if there is a consistent variance.

External Assessments (EA) - includes all work that is sent to an IB examiner to grade independently of the classroom teacher.

Ontario Grade Calculation (based on the IBSO Table of Equivalence)

DP Grade Level	OSSD %	Ministry of Education Level
1	Below 50%	
2	50–60%	1/2
3	61-71%	2/3
4	72-83%	3/4
5	84-92%	4
6	93-96%	4
7	97-100%	4

Did you know?

*- IB Diploma students will graduate with approximately **ten** 4U/M credits by the end of their grade 12 year.*
- Universities generally base their admissions on a student's six best 4U/M courses (which must include prerequisites, such as ENG 4U).

IB Fees

The IBO charges fees to affiliate schools based on the number of students enrolled and the number of exams written. All students in the IB Diploma Programme, whether taking individual certificates or the full DP, pay a total of $200.00 These fees are passed on to students according to the following schedule:

Limestone Pre-IB Programme (gr. 9):	$600.00
Limestone Pre-IB Programme (gr. 10):	$600.00
IBDP Year 1 (gr. 11):	$700.00
IBDP Year 2 (gr. 12):	$700.00

Bursaries are available, by annual application, for students in financial need.

All IB fees are non-refundable.

What do the IB fees cover at KSS?

- Annual fee as an authorized IB World School
- IB assessment fees (includes assessment by an international team of examiners and moderators, overseen by independent chief examiners)
- A dedicated IB coordinator in Student Services.
- Where appropriate, IB mandated inclusive access arrangements and consideration of individual special circumstances
- A printed diploma or certificate (depending on their results) from the IB
- IB official transmission of results to universties worldwide, upon request
- Annual fee as an active member of the IB Schools of Ontario (IBSO)
- Teacher professional development through IBSO Roundtables
- Required IB certified teacher training
- Approaches to Learning Workshop for all Grade 11 students
- IB specific textbooks
- Kognity platform of interactive digital textbooks
- Subscription to Managebac, a digital platform to support CAS, Extended Essay, and TOK
- Subject specific subscriptions for curriculum support
- General administration of the programme
- IB Global Conferences

IB Diploma Programme
Internal Assessments (IA)
External Assessments (EA)
(Class of 2024)

Group 1 Studies in Language and Literature

English A: Literature	SL	HL
IA IOP	30%	20%
EA Written Assignment	N/A	20%
Paper 1	35%	35%
Paper 2	35%	25%

Group 2 Language Acquisition

French B	SL	HL
IA Individual Oral	25%	25%
Paper 1	25%	25%
Paper 2	50%	50%

Spanish ab initio	SL
IA Individual Oral	25%
Paper 1	25%
Paper 2	50%

Group 3 Individuals & Societies

History	SL	HL
IA	25%	20%
Paper 1	30%	20%
Paper 2	45%	25%
Paper 3	N/A	35%

Psychology	SL	HL
IA Experiment	25%	20%
Paper 1	50%	40%
Paper 2	25%	20%
Paper 3	N/A	20%

Business & Man.	SL	HL
IA	25%	25%
Paper 1	30%	35%
Paper 2	45%	40%

Group 4 Sciences

Biology	SL	HL
IA Individual Investigation	20%	20%
Paper 1	20%	20%
Paper 2	40%	36%
Paper 3	20%	24%

Chemistry	SL	HL
IA Individual Investigation	20%	20%
Paper 1	20%	20%
Paper 2	40%	40%
Paper 3	20%	20%

Physics	SL	HL
IA Individual Investigation	20%	20%
Paper 1	20%	20%
Paper 2	40%	40%
Paper 3	20%	20%

Environmental Systems and Societies	SL
IA Individual Investigation	25%
Paper 1	25%
Paper 2	50%

CAS,
Theory of Knowledge
Presentation,
ToK Essay, and
Extended Essay =
3 Possible
Diploma Points (DP)

Group 5 Mathematics

Mathematics A & A	SL	HL
IA Mathematical Exploration	20%	20%
Paper 1	40%	30%
Paper 2	40%	30%
Paper 3	N/A	20%

Mathematics A & I	SL
IA Project	20%
Paper 1	40%
Paper 2	40%

Group 6 The Arts

Film	SL	HL
IA Portfolio	40%	25%
IA Collaborative Project *(HL only)*	N/A	35%
EA Textual Analysis	30%	20%
EA Comparative Study	30%	20%

Music	SL
IA Musical Experimentation	30%
EA Musical Presentation	40%
EA Portfolio	30%
IA Multimedia Presentation	N/A

All subjects are graded 1 – 7

6 subjects x max 7 points /subject +
3 DP points =
Max Score 45
Minimum score for IB Diploma = 24

*The term "Paper" refers to the IB externally assessed examinations written in May of the grade 12 year.

Are you completing your IB assignments honestly?

The IB expects Diploma Programme candidates to exercise academic honesty in all of their work, which includes acknowledging any sources used within an assignment.

The IB *General Regulations: Diploma Programme* defines malpractice as behaviour that results in, or may result in, the candidate or any other candidate gaining an unfair advantage in one or more assessment components.

EXAMPLES OF MALPRACTICE

- **Plagiarism -** the representation of the ideas or work of another person as your own.
- **Collusion -** supporting malpractice by another candidate, as in allowing your work to be copied or submitted for assessment by another candidate.
- **Duplication of work -** the presentation of the same work for different assessment components and/or IB diploma requirements.
- **Misconduct during an examination**, including the possession of unauthorized material.
- **Disclosing information** to another candidate, or **receiving information** from another candidate, about the content of an examination paper within 24 hours after the examination.

ASK FOR ADVICE

As a Diploma Programme candidate you are responsible for ensuring that all of the work you submit is authentic and that any sources used are appropriately acknowledged. If you have any doubts please ask for advice.

HOW TO AVOID PLAGIARISM

- **Credit all the sources you use, even if you have paraphrased or summarized.**
- **Clearly distinguish between your work and the source being used (using quotation marks, indentation or a similar method).**
- **Use a style of referencing that is appropriate for the subject.**

THINGS TO REMEMBER

- **IB students are principled and act with integrity and honesty.**
- **IB students should be content creators not content imitators.**
- **If you engage in any form of malpractice you may not be eligible for a grade in the subject concerned.**
- **Do it right, remember to cite! Credit where credit is due!**

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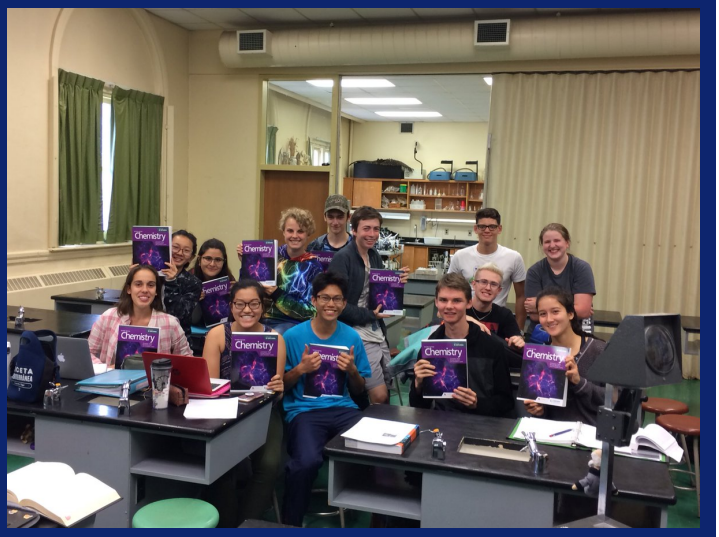
The IB takes academic honesty very seriously!

Diploma Programme

Section C:
IB Subject Briefs



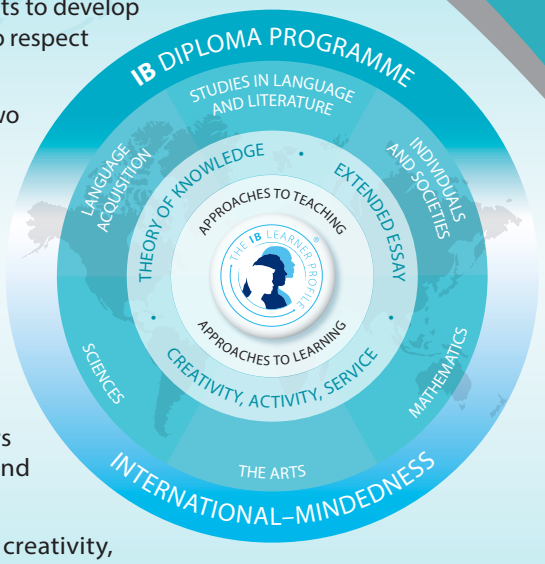
"If you think you can or think you can't, you're right."
- Henry Ford

International Baccalaureate Diploma Programme Subject Brief

Language A: literature

First assessments for SL and HL—2021

The Diploma Programme (DP) is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.



The course is presented as six academic areas enclosing a central core. Students study two modern languages (or a modern language and a classical language), a humanities or social science subject, an experimental science, mathematics and one of the creative arts. Instead of an arts subject, students can choose two subjects from another area. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.

Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL.

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.

This IB DP subject brief has three key components:
I. Course description and aims II. Curriculum model overview III. Assessment model

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
- communicate and collaborate in a confident and creative way
- foster a lifelong interest in and enjoyment of language and literature.

II. Curriculum model overview

Syllabus component	Recommended teaching hours	
	SL	HL
Readers, writers and texts	50	80
Time and space	50	80
Intertextuality: connecting texts	50	80
Total teaching hours	**150**	**240**

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
   - 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
   - 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

Type of assessment	Format of assessment	Time (hours)		Weighting of final grade (%)	
		SL	HL	SL	HL
External					
Paper 1: Guided literary analysis	Guided analysis of unseen literary passage/ passages from different text types.	1.25	2.25	35	35
Paper 2: Comparative essay	Comparative essay based on two literary works written in response to a choice of one out of four questions.	1.75	1.75	35	25
HL essay	Written coursework component: 1,200–1,500 word essay on one work studied.				20
Internal					
Individual oral	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.			30	20

International Baccalaureate Diploma Programme Subject Brief

Language B

First assessment 2020

The Diploma Programme (DP) is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.

The course is presented as six academic areas enclosing a central core. Students study two modern languages (or a modern language and a classical language), a humanities or social science subject, an experimental science, mathematics and one of the creative arts. Instead of an arts subject, students can choose two subjects from another area. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.

Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL.

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.

This IB DP subject brief has four key components:

I. Course description and aims II. Curriculum model overview III. Assessment model IV. Content outline

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.

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 following 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.

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- 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

The curriculum is organized around five prescribed themes with which the students engage though written, audio, visual and audio-visual texts.

Students develop into successful, effective communicators by considering the conceptual understandings of context, audience, purpose, meaning and variation.

Communication is evidenced through receptive, productive and interactive skills.

III. Assessment model

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.

Assessment at a glance

Language B SL and HL assessment outline		Weighting
External 75%	**Paper 1** (productive skills) One writing task from a choice of three Writing—30 marks	**25%**
	Paper 2 (receptive skills) Separate sections for listening and reading Listening—25 marks Reading—40 marks	**25%** **25%**
Internal 25%	**Individual oral assessment** 30 marks	**25%**

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.

IV. Content outline

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?

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International Baccalaureate Diploma Programme Subject Brief

Language ab initio

First assessment 2020

The Diploma Programme (DP) is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.

The course is presented as six academic areas enclosing a central core. Students study two modern languages (or a modern language and a classical language), a humanities or social science subject, an experimental science, mathematics and one of the creative arts. Instead of an arts subject, students can choose two subjects from another area. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.

Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL.

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.

This IB DP subject brief has four key components:

I. Course description and aims II. Curriculum model overview III. Assessment model IV. Content outline

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 following 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

The curriculum is organized around five prescribed themes and 20 prescribed topics with which the students engage though written, audio, visual and audio-visual texts.

Students develop into successful, effective communicators by considering the conceptual understandings of context, audience, purpose, meaning and variation.

Communication is evidenced through receptive, productive and interactive skills.

III. Assessment model

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.

Assessment at a glance

Language ab initio SL assessment outline		Weighting
External 75%	**Paper 1** (productive skills) Two written tasks—each from a choice of three Writing—30 marks	**25%**
	Paper 2 (receptive skills) Separate sections for listening and reading Listening—25 marks Reading—40 marks	**25%** **25%**
Internal 25%	**Individual oral assessment** 30 marks	**25%**

For the individual oral internal assessment, the stimulus at language ab initio SL is a visual image that is clearly relevant to one (or more) of the themes of the course.

IV. Content outline

Theme	Guiding principle	Prescribed topics	Possible questions
Identities	Explore the nature of the self and how we express who we are.	• Personal attributes • Personal relationships • Eating and drinking • Physical well-being	• How do I present myself to others? • How do I express my identity? • How do I achieve a balanced and healthy lifestyle?
Experiences	Explore and tell the stories of the events, experiences and journeys that shape our lives.	• Daily routine • Leisure • Holidays • Festivals and celebrations	• How does travel broaden our horizons? • How would my life be different if I lived in another culture? • What are the challenges of being a teenager? • How are customs and traditions similar or different across cultures?
Human ingenuity	Explore the ways in which human creativity and innovation affect our world.	• Transport • Entertainment • Media • Technology	• How do science and technology affect my life? • How do I use media in my daily life? • What can I learn about a culture through entertainment?
Social organization	Explore the ways in which groups of people organize themselves, or are organized, through common systems or interests.	• Neighbourhood • Education • The workplace • Social issues	• What purpose do rules and regulations have in society? • What is my role in society? • What options do I have in the world of work?
Sharing the planet	Explore the challenges and opportunities faced by individuals and communities in the modern world.	• Climate • Physical geography • The environment • Global issues	• What can I do to help the environment? • How do my surroundings affect the way I live? • What can I do to make the world a better place?

International Baccalaureate Diploma Programme Subject Brief

Individuals and societies:

Business management— Standard level

First assessments 2016 – Last assessments 2022

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) within the DP 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 at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

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

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

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

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Unit 1: Business organization and environment 1.1 Introduction to business management 1.2 Types of organizations 1.3 Organizational objectives 1.4 Stakeholders 1.5 External environment 1.6 Growth and evolution	**40**
Unit 2: Human resource management 2.1 Functions and evolution of human resource management 2.2 Organizational structure 2.3 Leadership and management 2.4 Motivation	**15**

Unit 3: Finance and accounts 3.1 Sources of finance 3.2 Costs and revenues 3.3 Break-even analysis 3.4 Final accounts (some HL only) 3.5 Profitability and liquidity ratio analysis 3.6 Cash flow 3.7 Investment appraisal (some HL only)	**35**
Unit 4: Marketing 4.1 The role of marketing 4.2 Marketing planning (including introduction to the four Ps) 4.3 Market research 4.4 The four Ps (product, price, promotion, place) 4.5 E-commerce	**35**
Unit 5: Operations management 5.1 The role of operations management 5.2 Production methods 5.3 Location	**10**
Internal assessment	**15**

III. Assessment model

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

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

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		3	75
Paper 1	Structured questions	1.25	35
Paper 2	Structured and extended response questions	1.75	40
Internal		15	25
Written commentary	Students produce a written commentary based on three to five supporting documents about a real issue or problem facing a particular organization. Maximum 1,500 words.	15	25

IV. Sample questions

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

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International Baccalaureate Diploma Programme Subject Brief

Individuals and societies: Business management—Higher level

First assessments 2016 – Last assessments 2022

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) within the DP 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 at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

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

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

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

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Unit 1: Business organization and environment 1.1 Introduction to business management 1.2 Types of organizations 1.3 Organizational objectives 1.4 Stakeholders 1.5 External environment 1.6 Growth and evolution 1.7 Organizational planning tools	**50**

Unit 2: Human resource management 2.1 Functions and evolution of human resource management 2.2 Organizational structure 2.3 Leadership and management 2.4 Motivation 2.5 Organizational (corporate) culture 2.6 Industrial/employee relations	**30**
Unit 3: Finance and accounts 3.1 Sources of finance 3.2 Costs and revenues 3.3 Break-even analysis 3.4 Final accounts 3.5 Profitability and liquidity ratio analysis 3.6 Efficiency ratio analysis 3.7 Cash flow 3.8 Investment appraisal 3.9 Budgets	**50**
Unit 4: Marketing 4.1 The role of marketing 4.2 Marketing planning (including introduction to the four Ps) 4.3 Sales forecasting 4.4 Market research 4.5 The four Ps (product, price, promotion, place) 4.6 The extended marketing mix of seven Ps 4.7 International marketing 4.8 E-commerce	**50**
Unit 5: Operations management 5.1 The role of operations management 5.2 Production methods 5.3 Lean production and quality management 5.4 Location 5.5 Production planning 5.6 Research and development 5.7 Crisis management and contingency planning	**30**
Internal assessment	**30**

III. Assessment model

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

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

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		4.5	75
Paper 1	Structured and extended response questions	2.25	35
Paper 2	Structured and extended response questions	2.25	40
Internal		30	25
Research project	Students research and report on an issue facing an organization or a decision to be made by an organization (or several organizations). Maximum 2,000 words.	30	25

IV. Sample questions

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

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International Baccalaureate Diploma Programme Subject Brief

Individuals and societies: History—standard level

First assessments 2017—last assessments 2025

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To ensure both breadth and depth of knowledge and understanding, students must choose six 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.

These DP subject briefs illustrate four key course components.
I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

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 subjects ***One of the following, using two case studies, each taken from a different region of the world:*** 1. Military leaders 2. Conquest and its impact 3. The move to global war 4. Rights and protest 5. Conflict and intervention	**40**

World history topics ***Two of the following, using topic examples from more than one region of the world:*** 1. Society and economy (750–1400) 2. Causes and effects of medieval wars (750–1500) 3. Dynasties and rulers (750–1500) 4. Societies in transition (1400–1700) 5. Early Modern states (1450–1789) 6. Causes and effects of Early Modern wars (1500–1750) 7. Origins, development and impact of industrialization (1750–2005) 8. Independence movements (1800–2000) 9. Evolution and development of democratic states (1848–2000) 10. Authoritarian states (20th century) 11. Causes and effects of 20th-century wars 12. The Cold War: Superpower tensions and rivalries (20th century)	**90**
Internal assessment Historical investigation	**20**

III. Assessment model

There are four assessment objectives for the DP history course. Having followed the course at standard level (SL), students will be expected to meet the following objectives.

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.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		2.5	75
Paper 1	Source-based paper based on the five prescribed subjects	1	30
Paper 2	Essay paper based on the 12 world history topics	1.5	45
Internal			
Historical investigation	A historical investigation into a topic of the student's choice.	20	25

IV. Sample questions

Paper 2 (HL and SL)

- Examine the impact of industrialization on standards of living and working conditions in one country.
- Compare and contrast the impact on women of the policies of two authoritarian states, each chosen from a different region.
- Compare and contrast the role of technology in determining the outcome of two 20th-century wars.
- Examine the impact of the US policy of containment on superpower relations between 1947 and 1964.

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International Baccalaureate Diploma Programme Subject Brief

Individuals and societies: History—higher level

First assessments 2017—last assessments 2025

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 six 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.

These DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

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 subjects ***One of the following, using two case studies, each taken from a different region of the world:*** 1. Military leaders 2. Conquest and its impact 3. The move to global war 4. Rights and protest 5. Conflict and intervention	**40**

World history topics ***Two of the following, using topic examples from more than one region of the world:*** 1. Society and economy (750–1400) 2. Causes and effects of medieval wars (750–1500) 3. Dynasties and rulers (750–1500) 4. Societies in transition (1400–1700) 5. Early Modern states (1450–1789) 6. Causes and effects of Early Modern wars (1500–1750) 7. Origins, development and impact of industrialization (1750–2005) 8. Independence movements (1800–2000) 9. Evolution and development of democratic states (1848–2000) 10. Authoritarian states (20th century) 11. Causes and effects of 20th-century wars 12. The Cold War: Superpower tensions and rivalries (20th century)	**90**
HL options: Depth studies ***One of the following:*** 1. History of Africa and the Middle East 2. History of the Americas 3. History of Asia and Oceania 4. History of Europe	**90**
Internal assessment Historical investigation	**20**

III. Assessment model

There are four assessment objectives for the DP history course. Having followed the course at higher level (HL), students will be expected to meet the following objectives.

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.

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 12 world history topics	1.5	25
Paper 3	Essay paper based on one of the four regional options	2.5	35
Internal			
Historical investigation	A historical investigation into a topic of the student's choice.	20	20

IV. 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
- 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.

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International Baccalaureate Diploma Programme Subject Brief

Individuals and societies: Psychology

First assessment 2019

The Diploma Programme (DP) is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.

The course is presented as six academic areas enclosing a central core. Students study two modern languages (or a modern language and a classical language), a humanities or social science subject, an experimental science, mathematics and one of the creative arts. Instead of an arts subject, students can choose two subjects from another area. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.

Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL.

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.

This IB DP subject brief has four key components:

I. Course description and aims II. Curriculum model overview III. Assessment model IV. Sample questions

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 interaction of these approaches to studying psychology forms the basis of a holistic and integrated approach to understanding mental processes and behaviour as a complex, dynamic phenomenon, allowing students to appreciate the diversity as well as the commonality between their own behaviour and that of others.

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 socio-cultural 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
- 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	Teaching hours SL	Teaching hours HL
Core • Biological approach to understanding behaviour • Cognitive approach to understanding behaviour • Sociocultural approach to understanding behaviour • Approaches to researching behaviour	90 20	120 60
Options • Abnormal psychology • Developmental psychology • Health psychology • Psychology of human relationships	20	40
Internal assessment Experimental study	20	20
Total teaching hours	150	240

III. Assessment model

By the end of the psychology course at SL or 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
     - a range of psychological theories and studies
     - the biological, cognitive and sociocultural approaches to mental processes and behaviour
     - 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
     - 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
     - research to understanding human psychology
     - 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) SL	Time (hours) HL	Weighting of final grade (%) SL	Weighting of final grade (%) HL
External		3	5	75	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	2	50	40
Paper 2	**SL:** one question from a choice of three on one option. **HL:** two questions; one each from a choice of three on two options.	1	2	25	20
Paper 3	Three short answer questions on approaches to research.		1		20
Internal		20	20	25	20
Experimental study	A report on an experimental study undertaken by the student.	20	20	25	20

IV. 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.

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International Baccalaureate Diploma Programme Subject Brief

Sciences:

Biology—Standard level

First assessments 2016 – Last assessments 2022

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To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

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

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

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Core	**95**
1. Cell biology	15
2. Molecular biology	21
3. Genetics	15
4. Ecology	12
5. Evolution and biodiversity	12
6. Human physiology	20
Option (choice of 1 out of 4)	**15**
1. Neurobiology and behaviour	15
2. Biotechnology and bioinformatics	15
3. Ecology and conservation	15
4. Human physiology	15

Practical scheme of work	**40**
Prescribed and other practical activities	20
Individual investigation	10
Group 4 project	10

The group 4 project

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

III. Assessment model

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

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	0.75	20
Paper 2	Data-based, short answer and extended response questions	1.25	40
Paper 3	Data-based, short answer and extended response questions	1	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

- Cyclins were discovered by Timothy R. Hunt in 1982 while studying sea urchins. What is a function of cyclins? (Paper 1)

- Antibiotics can be used to treat bacterial infections in human tissues because of differences in cell structure between prokaryotes and eukaryotes.
  - 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 2)

- The company BASF produces a genetically modified potato called Amflora. Outline the purpose of modifying the potato. (Paper 3)

International Baccalaureate Diploma Programme Subject Brief

Sciences:

Biology—Higher level

First assessments 2016 – Last assessments 2022

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To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.
I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

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

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

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Core	**95**
1. Cell biology	15
2. Molecular biology	21
3. Genetics	15
4. Ecology	12
5. Evolution and biodiversity	12
6. Human physiology	20
Additional higher level	**60**
7. Nucleic acids	9
8. Metabolism, cell respiration and photosynthesis	14
9. Plant biology	13
10. Genetics and evolution	8
11. Animal physiology	16

Option (Choice of one out of four)	**25**
A. Neurobiology and behaviour	25
B. Biotechnology and bioinformatics	25
C. Ecology and conservation	25
D. Human physiology	25
Practical scheme of work	**60**
Prescribed and other practical activities	40
Individual investigation	10
Group 4 project	10

The group 4 project

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

III. Assessment model

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

1. Demonstrate knowledge and understanding of:
   - facts, concepts, and terminology
   - methodologies and techniques
   - communicating scientific information.
2. Apply:
   - facts, concepts, and terminology
   - methodologies and techniques
   - methods of communicating scientific information.
3. Formulate, analyse and evaluate:
   - hypotheses, research questions and predictions
   - methodologies and techniques
   - primary and secondary data
   - scientific explanations.
4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	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	2.25	36
Paper 3	Data-based, short answer and extended response questions	1.25	24
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

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

- The species is the basis for naming and classifying organism.
  - o Explain how new species can emerge by
    - directional selection
    - disruptive selection
    - polyploidy.
  - o 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 2)

- 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. (Paper 3)

International Baccalaureate Diploma Programme Subject Brief

Sciences:

Chemistry—Standard level

First assessments 2016 – Last assessments 2022

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These IB DP subject briefs illustrate four key course components.
I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

Chemistry is an experimental science that combines academic study with the acquisition of practical and investigational skills. Chemical principles underpin both the physical environment in which we live and all biological systems. Chemistry is often a prerequisite for many other courses in higher education, such as medicine, biological science and environmental science.

Both theory and practical work should be undertaken by all students as they complement one another naturally, both in school and in the wider scientific community. The DP chemistry course allows students to develop a wide range of practical skills and to increase facility in the use of mathematics. It also allows students to develop interpersonal and information technology skills, which are essential to life in the 21st century.

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

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Core	**95**
1. Stoichiometric relationships	13.5
2. Atomic structure	6
3. Periodicity	6
4. Chemical bonding and structure	13.5
5. Energetics/thermochemistry	9
6. Chemical kinetics	7
7. Equilibrium	4.5
8. Acids and bases	6.5
9. Redox processes	8
10. Organic chemistry	11
11. Measurement and data processing	10

Option (choice of one out of four)	**15**
A. Materials	15
B. Biochemistry	15
C. Energy	15
D. Medicinal chemistry	15
Practical scheme of work	**40**
Prescribed and other practical activities	20
Individual investigation (internally assessed)	10
Group 4 project	10

The group 4 project

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

III. Assessment model

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

1. Demonstrate knowledge and understanding of:
   - facts, concepts, and terminology
   - methodologies and techniques
   - communicating scientific information.
2. Apply:
   - facts, concepts, and terminology
   - methodologies and techniques
   - methods of communicating scientific information.
3. Formulate, analyse and evaluate:
   - hypotheses, research questions and predictions
   - methodologies and techniques
   - primary and secondary data
   - scientific explanations.
4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		3	80
Paper 1	30 multiple-choice questions (Core)	0.75	20
Paper 2	Short answer and extended response questions (Core)	1.25	40
Paper 3	Data- and practical-based questions, plus short answer and extended response questions on the option	1	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

- What is the total number of atoms in 0.50 mol of 1,4-diaminobenzene, $H_2NC_6H_4NH_2$?
  A. 16.0×10^{23}
  B. 48.0×10^{23}
  C. 96.0×10^{23}
  D. 192.0×10^{23}

  (Avogadro's constant (L or N_A) = 6.0×10^{23} mol^{-1}.) (Paper 1)
- Many automobile manufacturers are developing vehicles that use hydrogen as a fuel.
  1. Suggest why such vehicles are considered to cause less harm to the environment than those with internal combustion engines.
  2. Hydrogen can be produced from the reaction of coke with steam: $C(s)+2H_2O(g) \rightarrow 2H_2(g)+CO_2(g)$

  Using information from section 12 of the data booklet, calculate the change in enthalpy, ΔH, in kJ mol^{-1}, for this reaction. (Paper 2)

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International Baccalaureate Diploma Programme Subject Brief

Sciences:

Chemistry—Higher level

First assessments 2016 – Last assessments 2022

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II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

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Both theory and practical work should be undertaken by all students as they complement one another naturally, both in school and in the wider scientific community. The DP chemistry course allows students to develop a wide range of practical skills and to increase facility in the use of mathematics. It also allows students to develop interpersonal and information technology skills, which are essential to life in the 21st century.

By studying chemistry students should become aware of how scientists work and communicate with each other. While the scientific method may take on a wide variety of forms, it is the emphasis on a practical approach through experimental work that characterizes the subject.

Teachers provide students with opportunities to develop manipulative skills, design investigations, collect data, analyse results and evaluate and communicate their findings.

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Core	**95**
1. Stoichiometric relationships	13.5
2. Atomic structure	6
3. Periodicity	6
4. Chemical bonding and structure	13.5
5. Energetics/thermochemistry	9
6. Chemical kinetics	7
7. Equilibrium	4.5
8. Acids and bases	6.5
9. Redox processes	8
10. Organic chemistry	11
11. Measurement and data processing	10

Additional higher level (AHL)	**60**
12.Atomic structure	2
13.The periodic table—the transition metals	4
14.Chemical bonding and structure	7
15.Energetics/thermochemistry	7
16.Chemical kinetics	6
17.Equilibrium	4
18.Acids and bases	10
19.Redox processes	6
20.Organic chemistry	12
21.Measurement and analysis	2
Option (Choice of one out of four)	**25**
A. Materials	25
B. Biochemistry	25
C. Energy	25
D. Medicinal chemistry	25
Practical scheme of work	**60**
Prescribed and other practical activities	40
Individual investigation (internally assessed)	10
Group 4 project	10

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III. Assessment model

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

1. Demonstrate knowledge and understanding of:
   - facts, concepts, and terminology
   - methodologies and techniques
   - communicating scientific information.
2. Apply:
   - facts, concepts, and terminology
   - methodologies and techniques
   - methods of communicating scientific information.
3. Formulate, analyse and evaluate:
   - hypotheses, research questions and predictions
   - methodologies and techniques
   - primary and secondary data
   - scientific explanations.
4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		4.5	80
Paper 1	40 multiple-choice questions (Core and AHL)	1	20
Paper 2	Short answer and extended response questions (Core and AHL)	2.25	36
Paper 3	Data- and practical –based questions, plus short answer and extended response questions on the option	1.25	24
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

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

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

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

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

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For further information on the IB Diploma Programme, and a complete list of DP subject briefs, visit: ***http://www.ibo.org/diploma/****.*

Complete subject guides can be accessed through the IB online curriculum centre (OCC) or purchased through the IB store: ***http://store.ibo.org****.*

For more on how the DP prepares students for success at university, visit: ***www.ibo.org/recognition*** *or email:* ***recognition@ibo.org****.*

International Baccalaureate Diploma Programme Subject Brief

Sciences:

Physics—Standard level

First assessments 2016 – Last assessments 2022

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) within the DP 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 at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

Physics is the most fundamental of the experimental sciences as it seeks to explain the universe itself, from the very smallest particles to the vast distances between galaxies. Despite the exciting and extraordinary development of ideas throughout the history of physics, observations remain essential to the very core of the subject. Models are developed to try to understand observations, and these themselves can become theories that attempt to explain the observations.

Besides helping us better understand the natural world, physics gives us the ability to alter our environments. This raises the issue of the impact of physics on society, the moral and ethical dilemmas, and the social, economic and environmental implications of the work of physicists.

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

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Core	**95**
1. Measurements and uncertainties	5
2. Mechanics	22
3. Thermal physics	11
4. Waves	15
5. Electricity and magnetism	15
6. Circular motion and gravitation	5
7. Atomic, nuclear and particle physics	14
8. Energy production	8

Option (Choice of one out of four)	**15**
A. Relativity	15
B. Engineering physics	15
C. Imaging	15
D. Astrophysics	15
Practical scheme of work	**40**
Prescribed and other practical activities	20
Individual investigation (internally assessed)	10
Group 4 project	10

The group 4 project

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

III. Assessment model

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

1. Demonstrate knowledge and understanding of:
   - facts, concepts, and terminology
   - methodologies and techniques
   - communicating scientific information.
2. Apply:
   - facts, concepts, and terminology
   - methodologies and techniques
   - methods of communicating scientific information.
3. Formulate, analyse and evaluate:
   - hypotheses, research questions and predictions
   - methodologies and techniques
   - primary and secondary data
   - scientific explanations.
4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		3	80
Paper 1	30 multiple-choice questions	0.75	20
Paper 2	Short answer and extended response questions (Core)	1.25	40
Paper 3	Data- and practical-based questions plus, short answer and extended response questions on the option	1	20
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

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

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

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

International Baccalaureate Diploma Programme Subject Brief

Sciences:

Physics—Higher level

First assessments 2016 – Last assessments 2022

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) within the DP 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 at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

Physics is the most fundamental of the experimental sciences, as it seeks to explain the universe itself, from the very smallest particles to the vast distances between galaxies. Despite the exciting and extraordinary development of ideas throughout the history of physics, observations remain essential to the very core of the subject. Models are developed to try to understand observations, and these themselves can become theories that attempt to explain the observations.

Besides helping us better understand the natural world, physics gives us the ability to alter our environments. This raises the issue of the impact of physics on society, the moral and ethical dilemmas, and the social, economic and environmental implications of the work of physicists.

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

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

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

II. Curriculum model overview

Component	Recommended teaching hours
Core	**95**
1. Measurements and uncertainties	5
2. Mechanics	22
3. Thermal physics	11
4. Waves	15
5. Electricity and magnetism	15
6. Circular motion and gravitation	5
7. Atomic, nuclear and particle physics	14
8. Energy production	8

Additional higher level	**60**
9. Wave phenomena	17
10.Fields	11
11.Electromagnetic induction	16
12.Quantum and nuclear physics	16
Option (Choice of one out of four)	**25**
A. Relativity	25
B. Engineering physics	25
C. Imaging	25
D. Astrophysics	25
Practical scheme of work	**60**
Prescribed and other practical activities	40
Individual investigation (internally assessed)	10
Group 4 project	10

The group 4 project

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

III. Assessment model

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

1. Demonstrate knowledge and understanding of:
   - facts, concepts, and terminology
   - methodologies and techniques
   - communicating scientific information.
2. Apply:
   - facts, concepts, and terminology
   - methodologies and techniques
   - methods of communicating scientific information.
3. Formulate, analyse and evaluate:
   - hypotheses, research questions and predictions
   - methodologies and techniques
   - primary and secondary data
   - scientific explanations.
4. Demonstrate the appropriate research, experimental, and personal skills necessary to carry out insightful and ethical investigations.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		4.5	80
Paper 1	40 multiple-choice questions	1	20
Paper 2	Short answer and extended response questions (Core and AHL)	2.25	36
Paper 3	Data- and practical-based questions plus, short answer and extended response questions on the option	1.25	24
Internal		10	20
Individual investigation	Investigation and write-up of 6 to 12 pages	10	20

IV. Sample questions

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

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

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

International Baccalaureate Diploma Programme Subject Brief

Interdisciplinary course:

Environmental systems and societies—standard level

First assessments 2017—last assessments 2023

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 six 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.

These DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

Environmental systems and societies (ESS) is an interdisciplinary course offered only at standard level (SL). This course can fulfill either the individuals and societies or the sciences requirement. Alternatively, this course enables students to satisfy the requirements of both subjects groups 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. As a result of studying this course, students will become equipped with the ability to recognize and evaluate the impact of our complex system of societies on the natural world.

The interdisciplinary nature of the DP course requires a broad skill set from students, including the ability to perform research and investigations, participation in philosophical discussion and problem-solving. The course requires a systems approach to environmental understanding and promotes holistic thinking about environmental issues. Teachers explicitly teach thinking and research skills such as comprehension, text analysis, knowledge transfer and use of primary sources. They encourage students to develop solutions at the personal, community and global levels.

The aims of the DP **environmental systems and 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 environmental issues by engaging actively in local and global contexts.

II. Curriculum model overview

Component	Recommended teaching hours
Core content	**120**
1. Foundations of environmental systems and societies	16
2. Ecosystems and ecology	25
3. Biodiversity and conservation	13
4. Water and aquatic food production systems and societies	15
5. Soil systems and terrestrial food production systems and societies	12
6. Atmospheric systems and societies	10
7. Climate change and energy production	13
8. Human systems and resource use	16
Practical scheme of work	**30**
Practical activities	20
Individual investigation	10

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.

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

III. Assessment model

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			
Individual investigation	Written report of a research question designed and implemented by the student.	10	25

IV. 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]

International Baccalaureate Diploma Programme Subject Brief

Mathematics: analysis and approaches

First assessments for SL and HL—2021

The Diploma Programme (DP) is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.

The course is presented as six academic areas enclosing a central core. Students study two modern languages (or a modern language and a classical language), a humanities or social science subject, an experimental science, mathematics and one of the creative arts. Instead of an arts subject, students can choose two subjects from another area. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.

Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL. 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.

This IB DP subject brief has three key components:

I. Course description and aims II. Curriculum model overview III. Assessment model

I. Course description and aims

Individual students have different needs, aspirations, interests and abilities. For this reason 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. Both courses are offered at SL and HL.

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.

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II. Curriculum model overview

Mathematics: analysis and approaches and Mathematics: applications and interpretation share 60 hours of common SL content.

Syllabus component	Recommended teaching hours	
	SL	HL
• Number and algebra • Functions • Geometry and trigonometry • Statistics and probability • Calculus	19 21 25 27 28	39 32 51 33 55
Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics	30	30
Total teaching hours	150	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, 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.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)		Weighting of final grade (%)	
		SL	HL	SL	HL
External					
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.	1.5	2	40	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.	1.5	2	40	30
Paper 3	Technology allowed. Two compulsory extended-response problem-solving questions.		1		20
Internal					
Exploration		15	15	20	20

About the IB: For over 50 years, the IB has built a reputation for high-quality, challenging programmes of education that develop internationally minded young people who are well prepared for the challenges of life in the 21st century and are able to contribute to creating a better, more peaceful world.

For further information on the IB Diploma Programme, visit: **www.ibo.org/en/dp**.

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For more on how the DP prepares students for success at university, visit: **www.ibo.org/en/university-admission**.

International Baccalaureate Diploma Programme Subject Brief

Mathematics: applications and interpretation

First assessments for SL and HL—2021

The Diploma Programme (DP) is a rigorous pre-university course of study designed for students in the 16 to 19 age range. It is a broad-based two-year course that aims to encourage students to be knowledgeable and inquiring, but also caring and compassionate. There is a strong emphasis on encouraging students to develop intercultural understanding, open-mindedness, and the attitudes necessary for them to respect and evaluate a range of points of view.

The course is presented as six academic areas enclosing a central core. Students study two modern languages (or a modern language and a classical language), a humanities or social science subject, an experimental science, mathematics and one of the creative arts. Instead of an arts subject, students can choose two subjects from another area. It is this comprehensive range of subjects that makes the Diploma Programme a demanding course of study designed to prepare students effectively for university entrance. In each of the academic areas students have flexibility in making their choices, which means they can choose subjects that particularly interest them and that they may wish to study further at university.

Normally, three subjects (and not more than four) are taken at higher level (HL), and the others are taken at standard level (SL). The IB recommends 240 teaching hours for HL subjects and 150 hours for SL. Subjects at HL are studied in greater depth and breadth than at SL. 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.

This IB DP subject brief has three key components:

I. Course description and aims II. Curriculum model overview III. Assessment model

I. Course description and aims

Individual students have different needs, aspirations, interests and abilities. For this reason 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. Both courses are offered at SL and HL.

The IB DP Mathematics: applications and interpretation course recognizes the increasing role that mathematics and technology play in a diverse range of fields in a data-rich world. As such, it emphasizes the meaning of mathematics in context by focusing on topics that are often used as applications or in mathematical modelling. To give this understanding a firm base, this course includes topics that are traditionally part of a pre-university mathematics course such as calculus and statistics. Students are encouraged to solve real-world problems, construct and communicate this mathematically and interpret the conclusions or generalizations.

Students should expect to develop strong technology skills, and will be intellectually equipped to appreciate the links between the theoretical and the practical concepts in mathematics. All external assessments involve the use of technology. 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.

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II. Curriculum model overview

Mathematics: applications and interpretation and Mathematics: analysis and approaches share 60 hours of common content.

Syllabus component	Recommended teaching hours	
	SL	HL
• Number and algebra • Functions • Geometry and trigonometry • Statistics and probability • Calculus	16 31 18 36 19	29 42 46 52 41
Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics	30	30
Total teaching hours	150	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: applications and interpretation and to Mathematics: analysis and approaches.

- **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, 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.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)		Weighting of final grade (%)	
		SL	HL	SL	HL
External					
Paper 1	Technology allowed. Compulsory short-response questions based on the syllabus.	1.5	2	40	30
Paper 2	Technology allowed. Compulsory extended-response questions based on the syllabus.	1.5	2	40	30
Paper 3	Technology allowed. Two compulsory extended-response problem-solving questions.		1		20
Internal					
Exploration		15	15	20	20

About the IB: For over 50 years, the IB has built a reputation for high-quality, challenging programmes of education that develop internationally minded young people who are well prepared for the challenges of life in the 21st century and are able to contribute to creating a better, more peaceful world.

For further information on the IB Diploma Programme, visit: **www.ibo.org/en/dp**.

Complete subject guides can be accessed through the programme resource centre or purchased through the IB store: **store.ibo.org**.

For more on how the DP prepares students for success at university, visit: **www.ibo.org/en/university-admission**.

International Baccalaureate Diploma Programme Subject Brief

The Arts: Film

First assessments 2019

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 at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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.

These IB DP subject briefs illustrate the following key course components
I. Course description and aims
II. Curriculum model overview
III. Assessment model

I. Course description and aims

The DP film course aims to develop students as proficient interpreters and makers of film texts. Through the study and analysis of film texts, and practical exercises in film production, students develop critical abilities and appreciation of artistic, cultural, historical and global perspectives in film. They examine concepts, theories, practices and ideas from multiple perspectives, challenging their own views to understand and value those of others. Students are challenged to acquire and develop critical thinking, reflective analysis and the imaginative synthesis through practical engagement in the art, craft and study of film.

Students experiment with film and multimedia technology, acquiring the skills and creative competencies required to successfully communicate through the language of the medium. They develop an artistic voice and learn how to express personal perspectives through film. The course emphasizes the importance of working collaboratively, international and intercultural dynamics, and an appreciation of the development of film across time and culture.

The film syllabus allows for greater breadth and depth in teaching and learning at HL through an additional assessment task, requiring HL students to reflect on the core syllabus areas to formulate their own intentions for a completed film. They work collaboratively as a core production team in order to effectively communicate on screen.

The aims of the Film course are to enable students to:

- explore the various contexts of film and make links to, and between, films, filmmakers and filmmaking techniques **(inquiry)**
- acquire and apply skills as discerning interpreters of film and as creators of film, working both individually and collaboratively **(action)**
- develop evaluative and critical perspectives on their own film work and the work of others **(reflection)**.

II. Curriculum model overview

Syllabus component	Teaching hours	
	SL	HL
Reading film Examine film as an art form, studying a broad range of film texts from a variety of **cultural contexts** and analysing how **film elements** combine to create meaning.	45	45
Contextualizing film Explore the evolution of film across time and culture. Examine various areas of **film focus** in order to recognize the similarities and differences that exist between films from contrasting **cultural contexts**.	45	45
Exploring film production roles Explore various **film production roles** through engagement with all phases of the filmmaking process. Acquire, develop and apply skills through filmmaking exercises, experiments and completed films.	60	60
HL only: Collaboratively producing film Focus on the collaborative aspects of filmmaking and experience working in **core production teams** to fulfill shared artistic intentions. Work in chosen **film production roles** and contribute to all phases of the filmmaking process to collaboratively create original completed films.		90
Total teaching hours	150	240

III. Assessment model

It is expected that by the end of the film course, students at SL or HL will be able to demonstrate the following.

1. Knowledge and understanding of specified contexts and processes

- Identify the film elements associated with conveying meaning in a variety of film texts.
- Formulate personal intentions for work, which arise from both research and artistic endeavour.
- Identify informative moments and examples from their own filmmaking work to support analysis.
- Present ideas, discoveries and learning that arise from both research and practical engagement with films, filmmakers and techniques.

2. Application and analysis of knowledge and understanding

- Analyse film from various cultural contexts and explain links between areas of film focus and film elements employed by filmmakers.
- Demonstrate knowledge and understanding of films, filmmakers and their various cultural contexts in order to influence, inform and impact the creation of film work.
- Explore and experiment with a variety of film-production roles in order to understand the associated skills, techniques and processes employed by filmmakers.

3. Synthesis and evaluation

- Critically interpret various sources of information in order to support analysis.
- Compare and contrast filmmakers, their films and their various cultural contexts in order to further the understanding of particular areas of film focus.
- Evaluate films created by themselves and others and articulate an informed personal response using appropriate cinematic language and vocabulary.
- Reflect on the process of collaboration and on the successes and challenges encountered as a member of a core production team.

4. Select, use and apply a variety of appropriate skills and techniques

- Make appropriate choices in the selection of words, images, sounds and techniques when assembling their own work for presentation.
- Experiment in a variety of film-production roles in order to produce film work that conveys meaning on screen.
- Collaborate effectively with others in the creation of film work.

Assessment at a glance

Type of assessment	Format of assessment	Weighting of final grade (%)	
		SL	HL
External		60	40
Textual analysis	Textual analysis (max 1,750 words) of a prescribed film text based on a chosen extract (max 5 mins), and list of sources.	30	20
Comparative study	Recorded multimedia comparative study (max 10 mins), and list of sources.	30	20
Internal		40	60
Film portfolio	Portfolio pages (max 9 pages: 3 pages per production role) and list of sources. A film reel (max 9 mins: 3 mins per production role, including 1 completed film).	40	25
Collaborative film project (HL only)	Completed film (max 7 mins). Project report (max 2,000 words) and list of sources.		35

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For further information on the IB Diploma Programme, and a complete list of DP subject briefs, visit: ***http://www.ibo.org/diploma/.***

Complete subject guides can be accessed through the IB online curriculum centre (OCC) or purchased through the IB store: ***http://store.ibo.org.***

For more on how the DP prepares students for success at university, visit: ***www.ibo.org/recognition or email: recognition@ibo.org.***

International Baccalaureate Diploma Programme Subject Brief

The arts:

Theatre—Standard level

First assessments 2016 – Last assessments 2022

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) within the DP 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 at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate three key course components.
I. Course description and aims II. Curriculum model overview III. Assessment model

I. Course description and aims

Theatre is a practical subject that encourages discovery through experimentation, risk-taking and the presentation of ideas. The IB DP theatre course is multifaceted and gives students the opportunity to actively engage in theatre as creators, designers, directors and performers. It emphasizes working both individually and collaboratively as part of an ensemble. The teacher's role is to create opportunities that allow students to explore, learn, discover and collaborate to become autonomous, informed and skilled theatre-makers.

Students learn to apply research and theory to inform and to contextualize their work. Through researching, creating, preparing, presenting and critically reflecting on theatre, they gain a richer understanding of themselves, their community and the world. Students experience the course from contrasting artistic and cultural perspectives. They learn about theatre from around the world, the importance of making theatre with integrity, and the impact that theatre can have on the world. It enables them to discover and engage with different forms of theatre across time, place and culture, promoting international-mindedness and an appreciation of the diversity of theatre.

The aims of all DP arts subjects are to enable students to:

1. enjoy lifelong engagement with the arts
2. become informed, reflective and critical practitioners in the arts
3. understand the dynamic and changing nature of the arts
4. explore and value the diversity of the arts across time, place and cultures
5. express ideas with confidence and competence
6. develop perceptual and analytical skills.

In addition, the aims of the SL theatre course are to enable students to:

7. explore theatre in a variety of contexts and understand how these contexts inform practice (theatre in context)
8. understand and engage in the processes of transforming ideas into action (theatre processes)
9. develop and apply theatre production, presentation and performance skills, working both independently and collaboratively (presenting theatre)

II. Curriculum model overview

Component	Recommended teaching hours
Theatre in context • Research and examine the various contexts of at least one published play text and reflect on live theatre. • Research and examine the various contexts of at least one world theatre tradition. • Reflect on personal approaches, interests and skills in theatre. Research and examine at least one starting point and the approaches employed by one appropriate professional theatre company, and consider how this might influence personal approaches.	**50**

Theatre processes • Take part in the practical exploration of at least two contrasting published play texts and engage with the process of transforming a play text into action. • Practically examine the performance conventions of at least one world theatre tradition and apply this to the staging of a moment of theatre. • Respond to at least one starting point and engage with the process of transforming it collaboratively into an original piece of theatre.	**50**
Presenting theatre • Direct at least one scene or section from one published play text which is presented to others. • Present a moment of theatre to others which demonstrates the performance convention(s) of at least one world theatre tradition. • Participate in at least one production of a collaboratively created piece of original theatre, created from a starting point, which is presented to others.	**50**

From the beginning of the course, and at regular intervals, students are required to maintain a theatre journal. Although elements of the journal may be selected, adapted and presented for assessment, the journal itself is not directly assessed or moderated. It is, however, regarded as a fundamental activity of the course.

III. Assessment model

Having followed the theatre course students are expected to:

1. Demonstrate knowledge and understanding of specified content
   - Describe the relationship between theatre and its contexts
   - Identify appropriate and valuable information from research for different specialist theatre roles
   - Present ideas, discoveries and learning, gained through research and practical exploration to others
2. Demonstrate application and analysis of knowledge and understanding
   - Explain the relationship and significance of the integration of production, performance and research elements
   - Explore and demonstrate different ways through which ideas can be presented and transformed into action
   - Explain what has informed, influenced and had impact on their work
3. Demonstrate synthesis and evaluation
   - Evaluate their work and the work of others
   - Discuss and justify choices
   - Examine the impact their work has had on others
4. Select, use and apply a variety of appropriate skills and techniques
   - Demonstrate appropriate skills and techniques in the creation and presentation of theatre in different specialist theatre roles
   - Demonstrate organization of material including use and attribution of sources
   - Demonstrate the ability to select, edit and present work appropriately

Assessment at a glance

Type of assessment	Format of assessment	Weighting of final grade (%)
External		65
Director's notebook	Develop ideas regarding how a play text could be staged for an audience.	35
Research presentation	Deliver an individual presentation (15 minutes maximum) that outlines and physically demonstrates research into a convention of a theatre tradition.	30
Internal		35
Collaborative project	Collaboratively create and present an original piece of theatre (lasting 13–15 minutes) for and to a specified target audience.	35

The theatre course is structured for the assessment tasks to be ongoing with skills being developed throughout the course and the material for assessment developed throughout the latter part of the course.

International Baccalaureate Diploma Programme Subject Brief

The arts:

Theatre—Higher level

First assessments 2016 – Last assessments 2022

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) within the DP are deliberate strategies, skills and attitudes that permeate the teaching and learning environment. 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 at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate three key course components.
I. Course description and aims II. Curriculum model overview III. Assessment model

I. Course description and aims

Theatre is a practical subject that encourages discovery through experimentation, risk-taking and the presentation of ideas. The IB DP theatre course is multifaceted and gives students the opportunity to actively engage in theatre as creators, designers, directors and performers. It emphasizes working both individually and collaboratively as part of an ensemble. The teacher's role is to create opportunities that allow students to explore, learn, discover and collaborate to become autonomous, informed and skilled theatre-makers.

Students learn to apply research and theory to inform and to contextualize their work. Through researching, creating, preparing, presenting and critically reflecting on theatre, they gain a richer understanding of themselves, their community and the world. Students experience the course from contrasting artistic and cultural perspectives. They learn about theatre from around the world, the importance of making theatre with integrity, and the impact that theatre can have on the world. It enables them to discover and engage with different forms of theatre across time, place and culture, promoting international-mindedness and an appreciation of the diversity of theatre.

The aims of all DP arts subjects are to enable students to:

1. enjoy lifelong engagement with the arts
2. become informed, reflective and critical practitioners in the arts
3. understand the dynamic and changing nature of the arts
4. explore and value the diversity of the arts across time, place and cultures
5. express ideas with confidence and competence
6. develop perceptual and analytical skills

In addition, the aims of the HL theatre course are to enable students to:

7. explore theatre in a variety of contexts and understand how these contexts inform practice (theatre in context)
8. understand and engage in the processes of transforming ideas into action (theatre processes)
9. develop and apply theatre production, presentation and performance skills, working both independently and collaboratively (presenting theatre)
10. understand and appreciate the relationship between theory and practice (theatre in context, theatre processes, presenting theatre).

II. Curriculum model overview

Component	Recommended teaching hours
Theatre in context • Research and examine the various contexts of: o at least one theatre theorist o at least one published play text and reflect on live theatre o at least one world theatre tradition. • Reflect on personal approaches, interests and skills in theatre. Research and examine at least one starting point and the approaches employed by an appropriate professional theatre company, and consider how this might influence personal approaches.	**80**

Theatre processes • Explore at least one theorist and collaboratively engage in creating theatre based on their theory. • Take part in the practical exploration of at least two contrasting published play texts and engage with the process of transforming a play text into action. • Practically examine the performance conventions of at least one world theatre tradition and apply this to the staging of a moment of theatre. • Respond to at least one starting point and engage with the process of transforming it collaboratively into an original piece of theatre.	**80**
Presenting theatre • Create, present and evaluate at least one theatre piece based on an aspect of a theatre theorist's work. • Direct and present at least one scene or section from one published play text. • Present a moment of theatre which demonstrates the performance convention(s) of at least one world theatre tradition. • Participate in at least one production of a collaboratively created piece of original theatre, created from a starting point, which is presented to others.	**80**

From the beginning of the course, and at regular intervals, students are required to maintain a theatre journal. Although elements of the journal may be selected, adapted and presented for assessment, the journal itself is not directly assessed or moderated. It is, however, regarded as a fundamental activity of the course.

III. Assessment model

Having followed the theatre course students are expected to:

1. Demonstrate knowledge and understanding of specified content
   - Describe the relationship between theatre and its contexts
   - Identify appropriate and valuable information from research for different specialist theatre roles
   - Present ideas, discoveries and learning, gained through research and practical exploration to others
2. Demonstrate application and analysis of knowledge and understanding
   - Explain the relationship and significance of the integration of production, performance and research elements
   - Explore and demonstrate different ways through which ideas can be presented and transformed into action
   - Explain what has informed, influenced and had impact on their work
3. Demonstrate synthesis and evaluation
   - Evaluate their work and the work of others
   - Discuss and justify choices
   - Examine the impact their work has had on others
4. Select, use and apply a variety of appropriate skills and techniques
   - Demonstrate appropriate skills and techniques in the creation and presentation of theatre in different specialist theatre roles
   - Demonstrate organization of material including use and attribution of sources
   - Demonstrate the ability to select, edit and present work appropriately

Assessment at a glance

Type of assessment	Format of assessment	Weighting of final grade (%)
External		75
Solo theatre piece	Create and present a solo theatre piece (4–8 minutes) based on an aspect(s) of theatre theory.	35
Director's notebook	Develop ideas regarding how a play text could be staged for an audience.	20
Research presentation	Deliver an individual presentation (15 minutes maximum) that outlines and physically demonstrates research into a convention of a theatre tradition.	20
Internal		25
Collaborative project	Collaboratively create and present an original piece of theatre (lasting 13–15 minutes) for and to a specified target audience.	25

The theatre course is structured for the assessment tasks to be ongoing with skills being developed throughout the course and the material for assessment developed throughout the latter part of the course.

International Baccalaureate Diploma Programme Subject Brief

Diploma Programme core: Theory of knowledge

First assessments 2015 – Last assessments 2021

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.

To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. 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, action, service—are compulsory and central to the philosophy of the programme.

These IB DP subject briefs illustrate four key course components.

I. Course description and aims
II. Curriculum model overview
III. Assessment model
IV. Sample questions

I. Course description and aims

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

The aims of the TOK course are to:

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

II. Curriculum model overview

Component
Knowing about knowing TOK examines how we know what we claim to know, by encouraging students to analyse knowledge claims and explore knowledge questions. A knowledge claim is the assertion that "I/we know X" or "I/we know how to Y", or a statement about knowledge; a knowledge question is an open question about knowledge. The distinction between shared knowledge and personal knowledge is intended to help teachers construct their TOK course and to help students explore the nature of knowledge.
Ways of knowing While there are arguably many ways of knowing (WOKs), TOK identifies eight specific WOKs: language, sense perception, emotion, reason, imagination, faith, intuition, and memory. Students must explore a range of ways of knowing, and it is suggested to study four of these in depth.
Areas of knowledge Areas of knowledge are specific branches of knowledge, each of which can be seen to have a distinct nature and different methods of gaining knowledge. TOK distinguishes between eight areas of knowledge: mathematics, the natural sciences, the human sciences, the arts, history, ethics, religious knowledge systems, and indigenous knowledge systems. Students must explore a range of areas of knowledge, and it is suggested to study six of these eight.

III. Assessment model

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

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

Assessment at a glance

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

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

Theatre processes • Take part in the practical exploration of at least two contrasting published play texts and engage with the process of transforming a play text into action. • Practically examine the performance conventions of at least one world theatre tradition and apply this to the staging of a moment of theatre. • Respond to at least one starting point and engage with the process of transforming it collaboratively into an original piece of theatre.	**50**
Presenting theatre • Direct at least one scene or section from one published play text which is presented to others. • Present a moment of theatre to others which demonstrates the performance convention(s) of at least one world theatre tradition. • Participate in at least one production of a collaboratively created piece of original theatre, created from a starting point, which is presented to others.	**50**

From the beginning of the course, and at regular intervals, students are required to maintain a theatre journal. Although elements of the journal may be selected, adapted and presented for assessment, the journal itself is not directly assessed or moderated. It is, however, regarded as a fundamental activity of the course.

III. Assessment model

Having followed the theatre course students are expected to:

1. Demonstrate knowledge and understanding of specified content
   - Describe the relationship between theatre and its contexts
   - Identify appropriate and valuable information from research for different specialist theatre roles
   - Present ideas, discoveries and learning, gained through research and practical exploration to others
2. Demonstrate application and analysis of knowledge and understanding
   - Explain the relationship and significance of the integration of production, performance and research elements
   - Explore and demonstrate different ways through which ideas can be presented and transformed into action
   - Explain what has informed, influenced and had impact on their work
3. Demonstrate synthesis and evaluation
   - Evaluate their work and the work of others
   - Discuss and justify choices
   - Examine the impact their work has had on others
4. Select, use and apply a variety of appropriate skills and techniques
   - Demonstrate appropriate skills and techniques in the creation and presentation of theatre in different specialist theatre roles
   - Demonstrate organization of material including use and attribution of sources
   - Demonstrate the ability to select, edit and present work appropriately

Assessment at a glance

Type of assessment	Format of assessment	Weighting of final grade (%)
External		65
Director's notebook	Develop ideas regarding how a play text could be staged for an audience.	35
Research presentation	Deliver an individual presentation (15 minutes maximum) that outlines and physically demonstrates research into a convention of a theatre tradition.	30
Internal		35
Collaborative project	Collaboratively create and present an original piece of theatre (lasting 13–15 minutes) for and to a specified target audience.	35

The theatre course is structured for the assessment tasks to be ongoing with skills being developed throughout the course and the material for assessment developed throughout the latter part of the course.

International Baccalaureate Diploma Programme Subject Brief

Creativity, activity, service

For students graduating in 2017 and after

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 six 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 chooseto 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.

These DP subject briefs illustrate four key course components.
I. Description and aims
II. Programme overview
III. Learning outcomes
IV. Sample projects

I. Description and aims

Creativity, activity, service (CAS) is at the heart of the DP. With its holistic approach, CAS is designed to strengthen and extend students' personal and interpersonal learning from the Primary Years Programme (PYP) and Middle Years Programme (MYP).

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.

II. Programme overview

The CAS programme formally begins at the start of the DP and continues regularly for at least 18 months with a reasonable balance between creativity, activity and service.

A CAS experience must:

- fit within one or more of the CAS strands
- be based on a personal interest, skill, talent or opportunity for growth
- provide opportunities to develop the attributes of the IB learner profile
- not be used or included in the student's DP course requirements.

CAS students have guidance at the school level through a variety of resources including the school's CAS handbook, information sessions and meetings. In addition, students have three formal interviews with the school's CAS coordinator/adviser.

Typically, students' service experiences involve the following stages.

- Investigation, preparation and action that meets an identified need.
- Reflection on significant experiences throughout to inform problem-solving and choices.
- Demonstration allowing for sharing of what has taken place.

All CAS students are expected to maintain and complete a CAS portfolio as evidence of their engagement with CAS. The CAS portfolio is a collection of evidence that showcases CAS experiences and student reflections; it is not formally assessed.

A school's CAS programme is evaluated as part of the school's regular programme evaluation and self-study process that assesses the overall implementation of the DP.

III. Learning outcomes

Completion of CAS is based on student achievement of the seven CAS learning outcomes. Through their CAS portfolio, students provide the school with evidence demonstrating achievement of each learning outcome. Some learning outcomes may be achieved many times, while others may be achieved less frequently. In their CAS portfolio, students provide the school with evidence of having achieved each learning outcome at least once through their CAS programme.

Learning outcome	Descriptor
Identify own strengths and develop areas for growth.	Students are able to see themselves as individuals with various abilities and skills, of which some are more developed than others.
Demonstrate that challenges have been undertaken, developing new skills in the process.	A new challenge may be an unfamiliar experience or an extension of an existing one. The newly acquired or developed skills may be shown through new experiences or through increased expertise in an established area.
Demonstrate how to initiate and plan a CAS experience.	Students can articulate the stages from conceiving an idea to executing a plan for individual or collaborative CAS experiences. Students may show their knowledge and awareness by building on a previous experience or by launching a new idea or process.
Show commitment to, and perseverance in, CAS experiences.	Students demonstrate regular involvement and active engagement in CAS.
Demonstrate the skills and recognize the benefits of working collaboratively.	Students are able to identify, demonstrate and critically discuss the benefits and challenges of collaboration gained through CAS experiences.
Demonstrate engagement with issues of global significance.	Students are able to identify and demonstrate their understanding of global issues, make responsible decisions and take appropriate action in response to the issue either locally, nationally or internationally.
Recognize and consider the ethics of choices and actions.	Students show awareness of the consequences of choices and actions in planning and carrying out CAS experiences.

IV. Sample projects

- Creativity: A student group plans, designs and creates a mural.
- Activity: Students organize and participate in a sports team including training sessions and matches against other teams.
- Service: Students set up and conduct tutoring for people in need.
- Service and activity: Students plan and participate in the planting and maintenance of a garden with members of the local community.
- Creativity, activity and service: Students rehearse and perform a dance production for a community retirement home.

About the IB: For nearly 50 years, the IB has built a reputation for high-quality, challenging programmes of education that develop internationally minded young people who are well prepared for the challenges of life in the 21st century and are able to contribute to creating a better, more peaceful world.

For further information on the IB Diploma Programme, visit: ***www.ibo.org/en/programmes/diploma-programme/****.*

Complete subject guides can be accessed through the IB online curriculum centre (OCC) or purchased through the IB store: ***http://store.ibo.org****.*

For more on how the DP prepares students for success at university, visit: ***www.ibo.org/en/university-admission*** *or email:* ***recognition@ibo.org****.*

International Baccalaureate Diploma Programme Subject Brief

Diploma Programme Core:
Extended essay, including the world studies option

First assessment 2018

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) within the DP 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 six 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.

These DP subject briefs illustrate four key course components.
I. Course description and aims
II. Overview of the extended essay process
III. Assessment model
IV. Sample extended essay topics

I. Course description and aims

The extended essay is a compulsory, externally assessed piece of independent research into a topic chosen by the student and presented as a formal piece of academic writing. The extended essay is intended to promote high-level research and writing skills, intellectual discovery and creativity while engaging students in personal research. This leads to a major piece of formally presented, structured writing of up to 4,000 words in which ideas and findings are communicated in a reasoned, coherent and appropriate manner.

Students are guided through the process of research and writing by an assigned supervisor (a teacher in the school). All students undertake three mandatory reflection sessions with their supervisor, including a short interview, or viva voce, following the completion of the extended essay.

Extended essay topics may be chosen from a list of approved DP subjects—normally one of the student's six chosen subjects for the IB diploma or the world studies option. World studies provides students with the opportunity to carry out an in-depth interdisciplinary study of an issue of contemporary global significance, using two IB disciplines.

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

- engage in independent research with intellectual initiative and rigour
- develop research, thinking, self-management and communication skills
- reflect on what has been learned throughout the research and writing process.

II. Overview of the extended essay process

The extended essay process

The research process

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

Writing and formal presentation

The required elements of the final work to be submitted are as follows.

- Title page
- Contents page
- Introduction
- Body of the essay
- Conclusion
- References and bibliography

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

Reflection process

As part of the supervision process, students undertake three mandatory reflection sessions with their supervisor. These sessions form part of the formal assessment of the extended essay and research process. The purpose of these sessions is to provide an opportunity for students to reflect on their engagement with the research process and is intended to help students consider the effectiveness of their choices, re-examine their ideas and decide on whether changes are needed. The final reflection session is the viva voce.

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

- a check on plagiarism and malpractice in general
- an opportunity to reflect on successes and difficulties
- an opportunity to reflect on what has been learned
- an aid to the supervisor's report.

III. Assessment model

The extended essay, including the world studies option, is assessed against common criteria and is interpreted in ways appropriate to each subject. Students are expected to:

- provide a logical and coherent rationale for their choice of topic
- review what has already been written about the topic
- formulate a clear research question
- offer a concrete description of the methods used to investigate the question
- generate reasoned interpretations and conclusions based on their reading and independent research in order to answer the question
- reflect on what has been learned throughout the research and writing process.

Assessment at a glance

Assessment criteria	Description
Focus and method	The topic, the research question and the methodology are clearly stated.
Knowledge and understanding	The research relates to the subject area/discipline used to explore the research question, and knowledge and understanding is demonstrated through the use of appropriate terminology and concepts.
Critical thinking	Critical-thinking skills have been used to analyse and evaluate the research undertaken.
Presentation	The presentation follows the standard format expected for academic writing.
Engagement	The student's engagement with their research focus and the research process.

The extended essay contributes to the student's overall score for the diploma 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.

IV. Sample extended essay topics

- What is the relationship between the length of an exhaust pipe and the frequency of the sound it emits?
- How far was the Christian Democrat victory in the Italian elections of 1948 influenced by Cold War tensions?
- How effective is Friedrich Dürrenmatt's use of colour to convey his message in the play *Der Besuch der alten Dame*?

Diploma Programme

Section D: Appendix

* FAQ about the Diploma
* IB World Facts & Figures
* KCVI IB Alumni Comments
* 10 Reasons Why the IBDP is the Ideal Prep. for University
* UBC Study of the IBDP
* How to make your IB credential stand out in the university application process

"Happiness doesn't come from doing easy work, but from the afterglow of satisfaction that comes after the achievement of a difficult task that demanded our best."

- Isaac Rubin

IBDP FAQ

Diploma Programme

Frequently asked questions about the Diploma Programme

What is the Diploma Programme?

The Diploma Programme (DP) is a curriculum framework designed by the International Baccalaureate (IB) for students in the last two years of high school.

IB students graduating with the IB diploma are able to study at universities all around the world, often with advanced credit. Students report that their involvement with the IB has given them the tools needed to succeed at college. In particular, students comment on their sense of preparedness, self-confidence, research skills and their ability to manage their time. Even more important, they have developed a sense of the world around them and their responsibility to it.

Diploma Programme students study six subjects (three at standard level and three at higher level) over two years and complete three additional requirements: the theory of knowledge (TOK), the extended essay and at least 150 hours of CAS—creativity, activity and service tasks outside of the classroom. In addition to these requirements, students must earn a minimum of 24 points out of a possible 45 points on the final assessments which are externally marked and moderated by the IB, in order to receive an IB diploma.

Theory of knowledge (TOK)
TOK is an interdisciplinary course designed to help students question and understand how they know what they know. Students study how individuals from various disciplines view the world in order to develop their own ways of thinking. By stimulating analysis of knowledge across disciplines, TOK seeks to help students make sense of school and the world.

Creativity, activity, service (CAS)
CAS is an experiential learning component of the DP. Students complete a wide variety of extracurricular, community service and athletic options to fulfill this requirement.

Extended essay
The extended essay introduces students to the demands and rewards of independent work. Emphasis is placed on doing personal research and communicating ideas effectively in order to write a 4,000-word essay in an area of personal interest.

How do colleges and universities view the Diploma Programme?

The DP is internationally recognized as representing one of the highest standards in university preparatory education. More than 1,000 colleges and universities in North America have recognition policies on how they weigh it in admissions, advanced standing, college credit and scholarships.

A list of colleges and universities that grant credit, scholarships and/or advanced standing for DP diplomas and certificates is available at *www.ibo.org*.

What kind of student is a good candidate for the DP?

The DP is a rigorous course of study for motivated students. That said, prior academic success is less an indicator of ability to earn the diploma than are a student's determination to do his or her best, willingness to be organized in order to complete the work while leading a full, balanced life, and a strong commitment to learning in and beyond the classroom.

Do DP students have time for anything beyond academics?

Absolutely. Most successful Diploma Programme students lead very full lives. They are often members of athletic teams and involved in a wide range of activities. Time management and organization are key skills the IB develops in students.

Are IB programmes considered "gifted" programmes?

The IB does not control how schools designate their Diploma Programme. In some instances, schools choose to designate the programme as selective enrolment via application or as a magnet programme. In other cases, the programme is open to any student.

Do DP teachers receive special training?

All DP teachers receive professional development in the IB's approaches to teaching and approaches to learning from certified IB workshop leaders. This is a requirement for IB World Schools implementing the DP.

Does implementing an IB programme mean my child's school will not teach local or national standards such as the Common Core?

The IB is committed to making sure that students in IB programmes meet and exceed local or national standards. With the implementation of any IB programme, schools are required to examine their curriculum carefully to ensure that there is alignment with local, state or national standards. More information on the IB and the Common Core is available at *www.ibo.org*.

What's the difference between the diploma and certificates?

Not all students choose to take the full course load leading to a diploma. Instead, some take a few DP courses in areas where they have a particular interest or strength, similar to honours and Advanced Placement classes. Certificates are awarded on a course-by-course basis to students who choose not to do the full programme. Students who satisfactorily complete a DP course earn a certificate and may be eligible for university credit.

How does the IB DP differ from other university-preparatory programs such as Advanced Placement and Cambridge?

The IB DP is a two-year comprehensive curriculum with a culminating set of externally graded final exams. IB, Advanced Placement (AP) and other college-preparatory curriculums like Cambridge are all university preparatory, academically rigorous programmes. There are important differences, however, in the content and exams. The DP is a cohesive and comprehensive programme, not a collection of individual courses as is the case with Advanced Placement. The most important distinguishing factor is the core of the Diploma Programme (CAS, TOK and extended essay).

Can you give a specific example of how the DP prepared students for college?

A 2012 study by the Consortium for Chicago School Research found that Diploma Programme students who graduated from 12 Chicago public schools were more likely to attend college, attend a selective college and persist in college for 2 years than a matched comparison group. Additional studies on programme impact are available at *www.ibo.org/research*

How can I learn more about the IB and DP?

- Visit the IB website at *www.ibo.org*
- Attend school meetings and events
- Speak with your school's DP coordinator
- Speak with your child's DP classroom teachers.

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Baccalauréat International
Bachillerato Internacional

Facts & Figures:

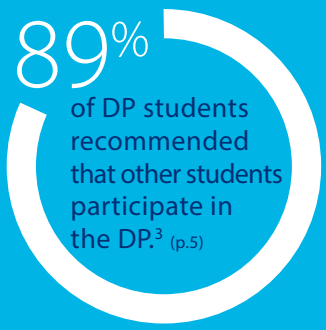
The Diploma Programme Around the World

1.3 million* DP graduates

140+ countries

*as of May 2015

In a recent DP study at the University of Oregon's Honors College,



of DP students recommended that other students participate in the DP.[3] (p.5)

sample size: 18 students

Alumni of the Diploma Programme attend top-ranking universities, studies find.[1]

DP students not only do well academically while in high school, but also go on to perform well at the university level.[2]

79% of DP graduates in China attended universities in the US, UK, Hong Kong, Singapore and Canada.[4]

DP students in the US who enrolled in post-secondary education immediately after high school **enrolled in and graduated from four-year institutions at much higher rates than the national average.**

95% of DP cohort

60% national cohort

enrollment at four-year institutions (public and private)

79% of DP cohort

39% national cohort

average graduation rate at four-year institutions (public and private)

A+ University admissions officials say the **DP is the best qualification** for developing students' non-academic skills and preparing them for further education and careers.[5]

Encouraging independent inquiry

Developing workplace skills

Nurturing an open mind

Developing self-management skills

Developing global awareness and connectivity

DP alumni report the IB has profound, long-lasting effects on students' lives. It helps them **develop critical thinking, analytical and writing skills and a broader world view**. In addition, they point out that they earned advanced credits for university.[6]

International-mindedness means having the opportunity to have doors opened in other countries and widely renowned universities.[7]

(DP student, p.38).

A recent study among DP schools in Australia, China and India found that international-mindedness can be categorized as a tool for individual gain, an orientation towards shared understanding and a way to push boundaries for change.

1. http://ibo.org/globalassets/publications/ib-research/dp/chinasummaryinenglishweb.pdf
   http://ibo.org/contentassets/d74675437b4f4ab38312702599a432f1/mexicodpresearchsummary_e.pdf
   http://ibo.org/contentassets/d74675437b4f4ab38312702599a432f1/ibstudentsstudyingatukhighereducationinstitution showdotheyfare2011.pdf
2. http://ibo.org/globalassets/publications/ib-research/dp/dp-student-enrollment-outcomes-us-brief-en.pdf
3. http://www.ibo.org/globalassets/publications/ib-research/dp/collegereadinesssummaryeng.pdf
4. http://ibo.org/globalassets/publications/ib-research/dp/chinasummaryinenglishweb.pdf
5. http://www.acs-schools.com/University-Admissions-Officers-Report-2015
6. http://ibo.org/globalassets/publications/ib-research/continuum/longer-term-outcomes-summary-en.pdf
7. http://www.ibo.org/globalassets/publications/ib-research/dp/international-mindedness-summary-en.pdf

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Learn more about the IB at ibo.org

KCVI/KSS INTERNATIONAL BACCALAUREATE DIPLOMA

ALUMNI COMMENTS

IB was a **fantastic preparation** for university…The greatest benefit, though, was being prepared for the workload — so many first years get overwhelmed and don't know how to manage everything they need to do in shorter time periods, and really struggle (regardless of program).

In general, having done IB will probably help your first year GPA quite a bit. (Bonus — because of my **transfer credits**, it opened up **more options** for electives I can take, since I've already satisfied several humanities and writing requirements that non-IB students have not.)

— Jasmyn C., KC IB Class of '12 (Diploma Graduate); Dalhousie University, Integrated Science Program

I feel **very prepared**. In some ways I was kind of spoiled in the IB programme. Nowhere in university do you get the one-on-one attention that I got…**my essay writing, presentation, exam-preparation and time management skills** I attribute almost entirely to IB. I feel more prepared for university than most of my peers.

— Grace M., KC IB Class of '12 (Certificate Graduate), Trent University, English and History Major

My fondest Memories of the programme:

- Becoming such **close friends** with the other IB students
- Forming stronger relationships with **teachers**
- The **hilarity** that comes with late nights working with friends to finish projects
- The **pride** I felt after completing the programme

Advice: IB can be stressful, but it's worth it. You won't regret it!

— Bret F., KC IB Class of '11(Diploma Graduate), U.B.C., Major in Applied Animal Biology

- I really appreciated the depth that IB went into for every subject, I find myself adequately prepared for university and already in the academic mindset that our professors are expecting from the students.
- I also liked the inquiry-like in-class discussions, in particular those we had in English, because they were focused and used class time effectively. I find they are an effective way to think critically and also diversify my critical thinking because I am exposed to others' rationale and ways of thinking.
- I would go as far as to say that IB could substitute for my current first year science courses because the level of depth and the amount of critical thinking that IB required is similar to the standards that my professors expect. I was quite comfortable in all my first year courses and I find that a majority of the material we are discussing has already been introduced to me or has been covered.

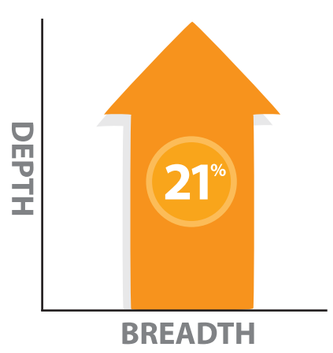
— Muhammad S., KC IB Class of '12 (Diploma Graduate), McMaster University in Life Sciences I

10 REASONS

WHY THE IB DIPLOMA PROGRAMME IS IDEAL PREPARATION FOR UNIVERSITY

1 IT OFFERS ACADEMIC BREADTH & DEPTH

IB Diploma Programme students are 21% more likely to be admitted into 10 of the most prestigious universities, including Harvard, Princeton, Yale and Stanford.

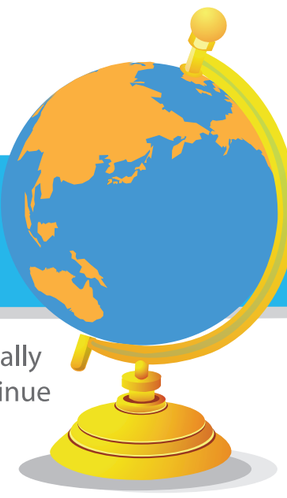


2 COLLEGES VALUE STUDENTS WITH MEANINGFUL EXPERIENCES BEYOND THE CLASSROOM

Creativity, action, service (CAS) encourages learning through direct experience.

3 IT'S A QUALIFICATION RECOGNIZED BY UNIVERSITIES AROUND THE

The IB Diploma Programme is internationally benchmarked, allowing graduates to continue their studies anywhere in the world.



4 IT CREATES INDEPENDENT LEARNERS & STRONG WRITERS

The extended essay requires independent research through an in-depth study and a 4,000 word essay.

5 IT CULTIVATES AN INTERNATIONAL MINDSET

An international mindset is a key 21st century learning skill. Second language learning—an IB requirement—has been linked to higher achievement in school and university.

6 IT ASSESSES MORE THAN EXAMINATION TECHNIQUES

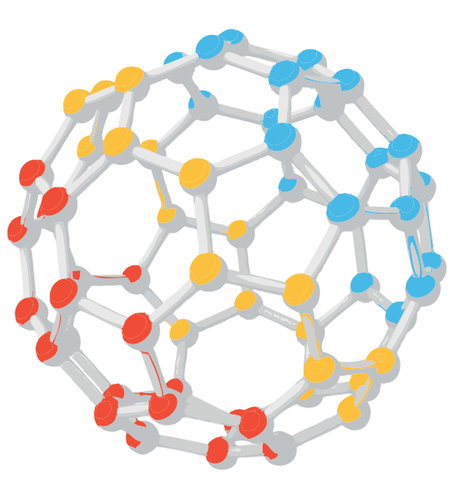
IB never teaches to the test—exams are externally assessed with no grade inflation for more than 30 years.

7 IB STUDENTS HAVE PROVEN TIME MANAGEMENT SKILLS

Research has found that IB students develop strong study habits and critical time management skills, key indicators of college readiness.

8 THE IB ENCOURAGES CRITICAL THINKING

Inquisitiveness and interpretation are among the key cognitive properties of an IB education.



9 SUBJECTS AREN'T TAUGHT IN ISOLATION

Theory of knowledge classes encourage students to make connections between subjects and gain the skills they need to be critical thinkers.

AND HERE ARE 10 MORE REASONS...

The IB learner profile offers 10 qualities underpinning the Diploma Programme—from open-minded to risk-taker to balanced, they form a framework for an international education that meets the needs of a changing world.

For source attribution of any data contained herein, please refer to http://www.ibo.org/research/

www.ibo.org

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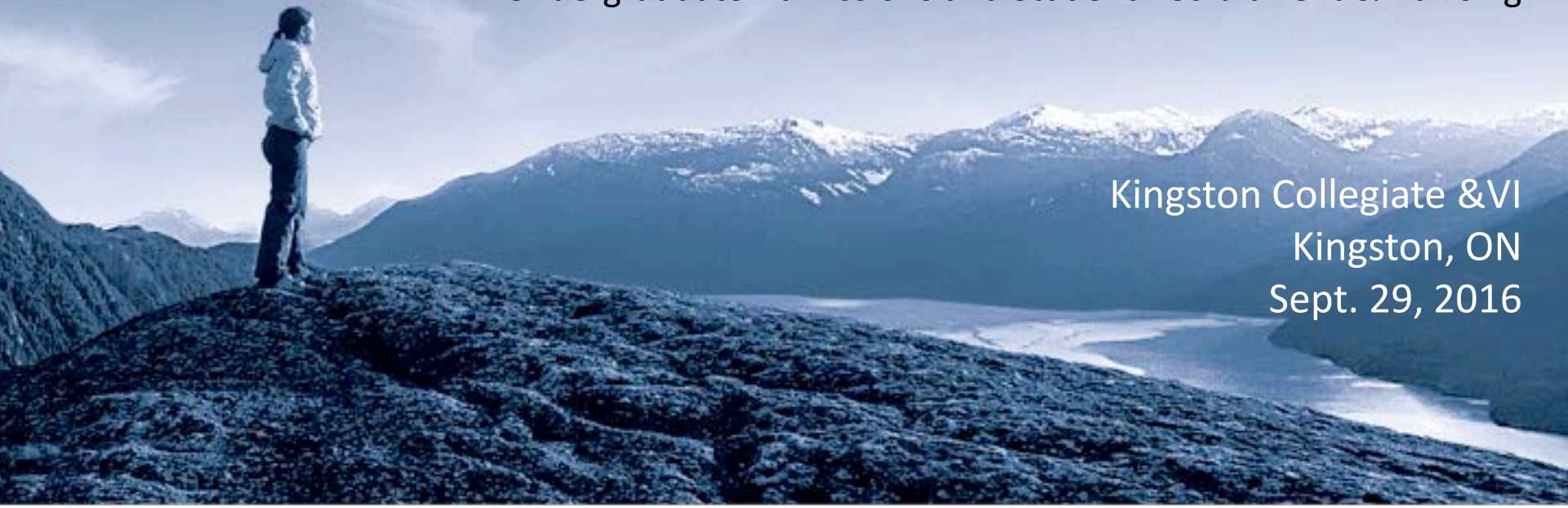
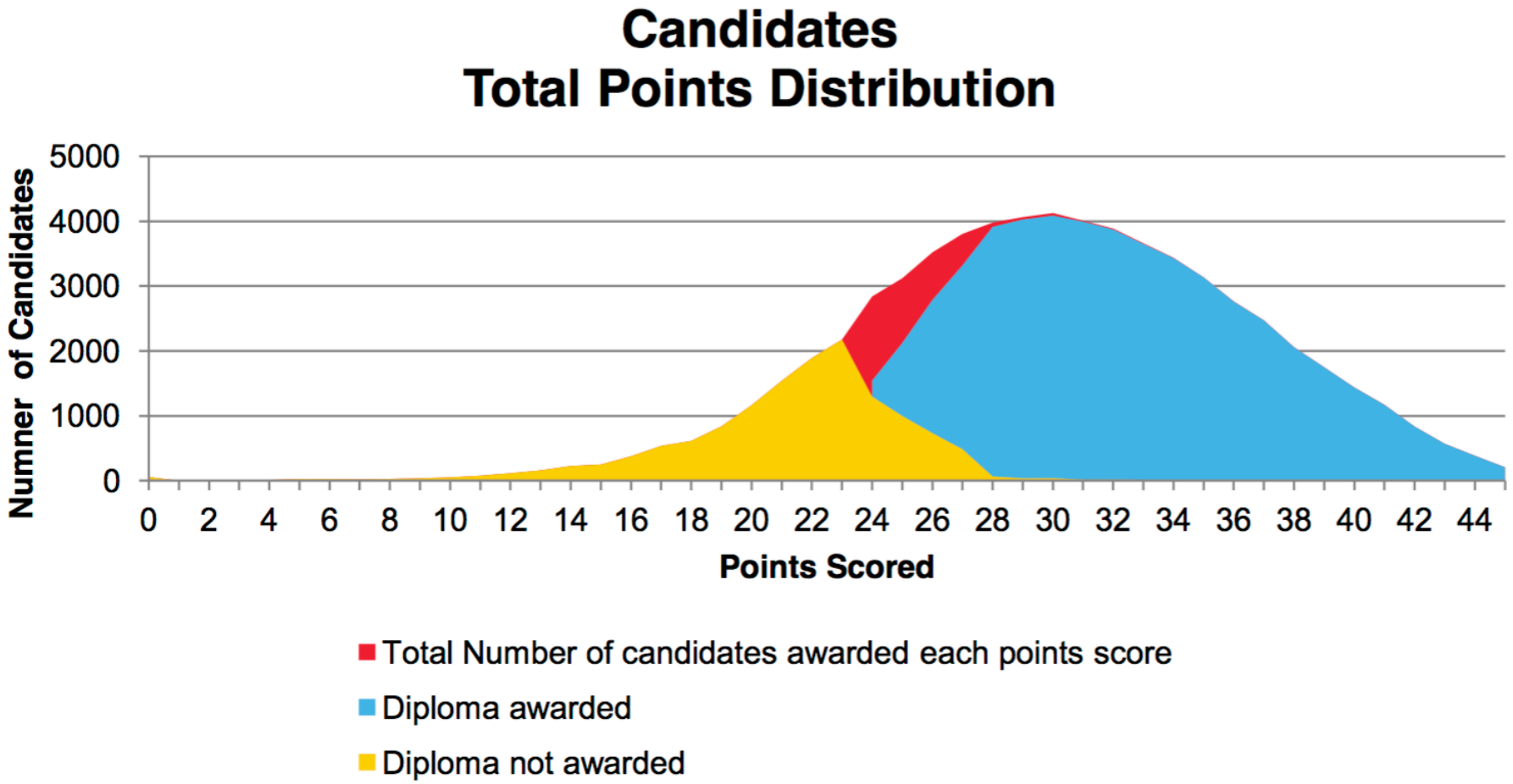
IB students & first-year university performance:
The UBC undergraduate admissions model

Excerpt

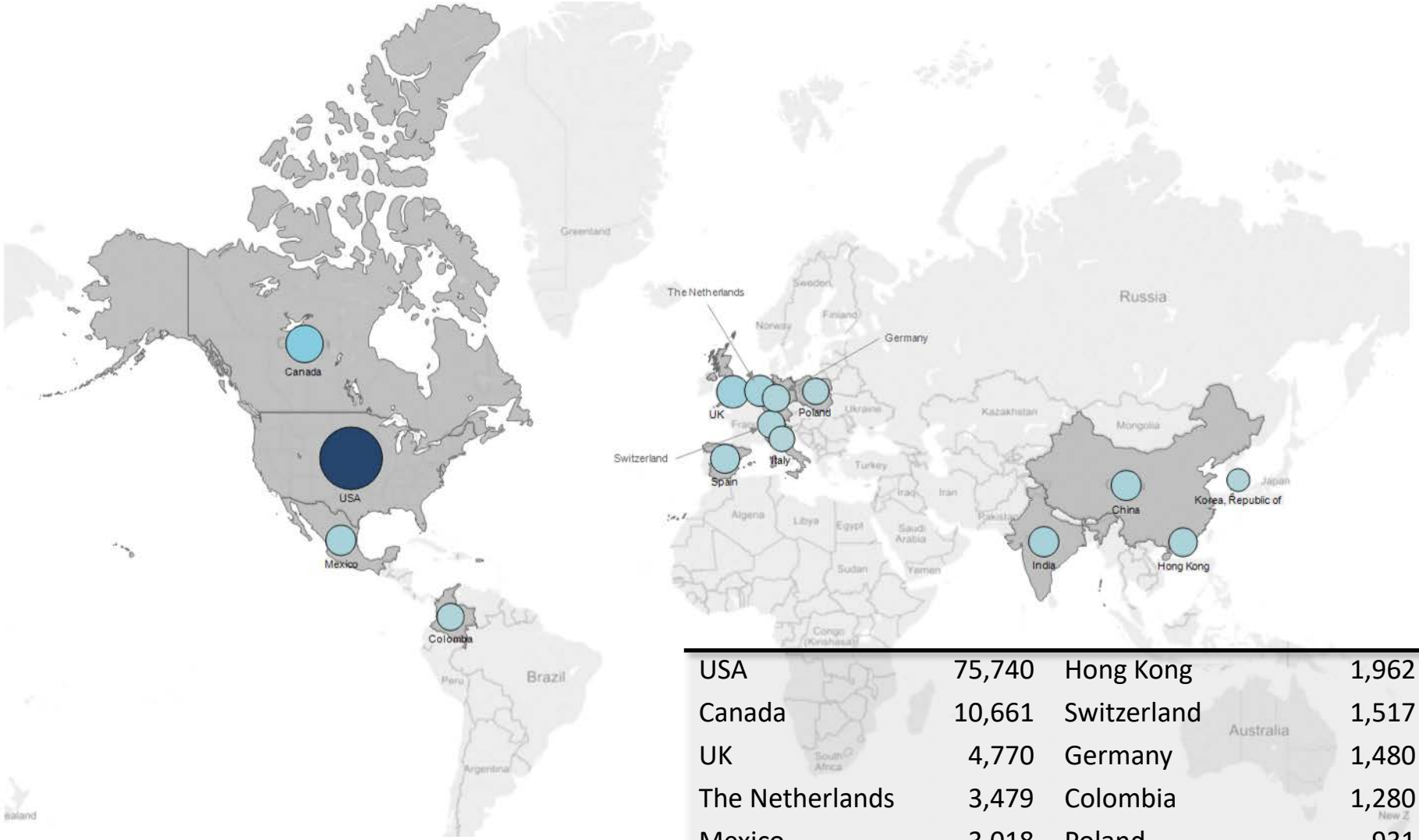
Andrew Arida
Associate Registrar & Director,
Undergraduate Admissions and Student Recruitment & Advising



Kingston Collegiate &VI
Kingston, ON
Sept. 29, 2016


Candidates
Total Points Distribution
Numner of Candidates
5000
4000
3000
2000
1000
0
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 42 44
Points Scored
Total Number of candidates awarded each points score
Diploma awarded
Diploma not awarded

Top 15 locations of IB students by school location, 2014



USA	75,740	Hong Kong	1,962
Canada	10,661	Switzerland	1,517
UK	4,770	Germany	1,480
The Netherlands	3,479	Colombia	1,280
Mexico	3,018	Poland	931
China	2,912	Italy	718
India	2,902	Korea, Republic of	359
Spain	2,297		

Why IB?

1. Strong presence in local school system
2. Diversity: 87 nationalities represented in 2016 first-year class
3. Straightforward, reliable method of assessment for admission

A reliable method of assessment

UBC Admission Decision Based Upon…	Correlation with first year performance
N. America IB, anticipated grades	$R^2 = .29$, $p < .001$
N. America IB, final grades	$R^2 = .44$, $p < .001$
Ontario secondary school admit avg (final)	$R^2 = .27$, $p < .001$
Alberta secondary school admit avg (final)	$R^2 = .35$, $p < .001$
BC secondary school admit avg (final)	$R^2 = .29$, $p < .001$
US secondary school grade-point average, SAT I, SAT II, and parental / SES combined **	$R^2 = .25$, $p < .001$

** From: Geiser, S., & Santelices, M. (2007). *Validity of high-school grades in predicting student success beyond the freshman year: High-school record vs. standardized tests as indicators of four-year college outcomes*. Berkeley: Center for Studies in Higher Education, University of California, Berkeley.

Why IB?

4. Data on university performance
   - IB Impact Studies (US, UK, Australia, Mexico, Ecuador); first-year performance, retention rates, graduation rates
   - UBC: Mean first year average of N. American IB students is 4.35% higher than other N. American secondary school students

Why IB?

5. IB students are prepared and engaged

    - IB Impact Studies:
        - Chicago Public School studies
        - HSSSE, Indiana University-Bloomington
        - U of Virginia study on IB Extended Essay
    - UBC: New to UBC Survey Data

New to UBC Survey – start of first semester

SKILL/ABILITY	IB	Non-IB
Research skills	35%	9%
Library skills	24%	9%
Ability to read and comprehend academic material	43%	21%
Ability to prepare and make a presentation	47%	22%
Analytical and critical thinking skills	38%	21%
Ability to be clear and effective when writing	40%	20%
Ability to take personal social responsibility	55%	47%
Ability to work as a team member	50%	40%
Ability to motivate and lead others toward a goal (leadership skills)	38%	28%
Ability to speak clearly and effectively in English	72%	60%
Quantitative (mathematical and statistical) skills	31%	27%
Ability to appreciate racial and ethnic diversity	76%	63%

New to UBC Survey – end of first semester

Skill/Ability	IB	Non-IB
Library skills	48%	27%
Research skills	53%	37%
Ability to prepare and make a presentation	43%	29%
Ability to read and comprehend academic material	62%	43%
Analytical and critical thinking skills	51%	41%
Quantitative (mathematical and statistical) skills	34%	31%
Ability to appreciate cultural and global diversity	84%	72%
Ability to take personal social responsibility	65%	58%
Ability to be clear and effective when writing	46%	37%
Ability to understand and appreciate aboriginal cultures	32%	38%
Ability to speak clearly and effectively in English	77%	66%

New to UBC – first year experience

In which of the following activities have you participated in at UBC?	IB	non-IB
participate in a conference	24%	19%
student leadership activities	30%	16%
research with a faculty member	7%	5%
volunteer work	54%	30%
community service as part of a class	12%	9%
student government	6%	3%
political activities (e.g. local, municipal, provincial, federal other than student government)	9%	4%
tutoring or teaching other students (paid or voluntary)	21%	11%
attend special lectures	38%	29%
join an intramural team	15%	15%
mentoring programs (student to student, alumni to student)	11%	8%
student club or organization	63%	46%

IB Diploma anticipated scores calibrated to BC/Canada secondary school grades

Anticipated IBDP without additional points

BC/Canada Sec. School	B 75% - 79%	B+ 80%- 85%	A 86% - 89%	A+ >=90%
Alberta Sec School (approx.)		~75% - 79%	~ 80% - 85%	~>= 86%
North America IB		24 - 26	27 - 30	>= 31

Final IBDP with additional points

BC/Canada Sec. School	B 75% - 79%	B+ 80%- 85%	A 86% - 89%	A+ >=90%
Alberta Sec School (approx.)		~75% - 79%	~ 80% - 85%	~>= 86%
North America		24 - 27	28 - 30	>= 31

Conclusions

- IB students tend to be academically strong, highly engaged first-year students.
- IB diploma is a very strong predictor of first-year success.
- The vast majority of IB students perform in first year at the same level as an A- student (in the Canadian system) or better.
- Even with some over-anticipation in anticipated grades, assessments are very reliable.
- IB students with transfer credit succeed when entering directly into upper year classes.

IB & Uni Applications

How to make your IB credentials stand out in the university application process

As an International Baccalaureate (IB) student, you are distinctive and will bring a unique set of attributes to whatever university or college that you ultimately attend. The challenge is to how to bring those qualities, in addition to grades and standardized test scores, to the attention of admissions officers. Have you considered how best to describe your high school achievements in your university application?

IB Diploma (DP) and Career-related Programme (CP) students:

- know how to do independent research
- have a demonstrated foreign language skill
- contribute a global perspective to current events
- have given back to their communities through volunteerism and community service
- study the language, history and arts of diverse cultures, and approach problems from multiple perspectives
- have above-average time management skills and are exceedingly well-prepared for the rigour of college-level coursework.

Additionally, DP students take a year-long course to develop critical thinking, analysis, and explore ways of knowing (theory of knowledge (TOK)), while CP students bring work-related experience and a career-specific set of skills to their university application or resume.

Five more ways to emphasize your IB strengths:

1. **Highlight your advanced writing skills:** Completing multiple essays comes easily to IB students given the emphasis the programme places on self-reflection and written expression. IB students can capitalize further on this by using the interdisciplinary model of learning to respond to admissions questions from multiple perspectives.
2. **Consider universities that accept individual portfolios:** Some universities allow students to submit individual portfolios of work. The DP and CP programmes place emphasis on the development of a student's abilities over time. IB students will have amassed a significant body of work in their personal portfolios and in the MYP personal project. Portfolio-based applications allow admission officers to understand how an IB student is reflective and critical in their work.
3. **Nail the interview:** DP students give multiple presentations over their two-year course work. The confidence and experience they develop in these public speaking opportunities will translate into a big advantage when interviewing for university admission, internships and work. Don't forget to mention your creativity, activity, service (CAS) project in addition to your academic credentials.
4. **Recommendation letters that pack a punch:** The recommendation letter remains a pivotal component of the application package. When soliciting recommendation letters that stand out, consider providing your teachers with an easy-to-reference profile of your high school history beyond academics. Include your extended essay topic, your personal project topic, your CAS project, foreign language abilities, participation in any international programmes of study, extra-curricular activities and course workload.
5. **Show your global perspective:** IB students have a strong sense of their cultural identity, and respect the values and differences of other cultures. Trained to think globally and act locally, IB students are required to participate in civic engagement through a community service project that ties into some aspect of their coursework.

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Diploma Programme

Key findings from research on the impact of the Diploma Programme

The International Baccalaureate (IB) Global Research department collaborates with universities and independent research organizations worldwide to produce rigorous studies examining the impact and outcomes of the IB's four programmes: the Primary Years Programme (PYP), the Middle Years Programme (MYP), the Diploma Programme (DP) and the Career-related Programme (CP). The findings below come from internal and IB-commissioned research relating to the DP.

Examining the higher education outcomes of students in the **UK**, researchers explored the university **enrollment and achievement** of matched cohorts of DP and A level students.[1] Results showed that DP students were significantly more likely than their A level peers to attend a top twenty university in the UK and to receive a first-class honours degree. DP and A level students were about equally likely to persist in their university studies (from the first to second year), however, DP alumni were somewhat more likely to engage in further studies after completing university (HESA 2016).

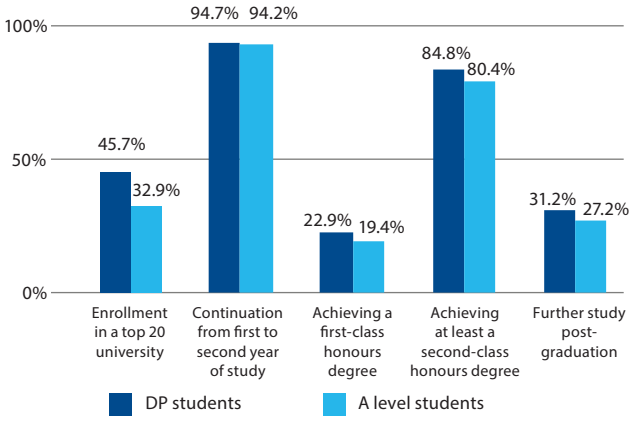

Figure 1. University enrollment and outcomes for DP and A level students

A study in **Turkey** investigated the **higher education outcomes** of DP graduates and their non-IB peers at Turkish universities. At university, DP graduates generally had higher subject grades (in all five subject areas examined), overall grade point averages and graduation rates than their non-IB counterparts. DP alumni also reported feeling well-prepared for university studies, particularly with regard to the use of English language skills and academic skills, such as writing and managing independent work (Ateşkan et al 2015).

Researchers in a **global** study conducted a curricular comparison of four DP **mathematics courses** along with five mathematics qualifications from around the world (Alberta Diploma, Advanced Placement, GCE A levels, Singapore-Cambridge GCE A Levels and Gāokǎo). Of the curriculums investigated in this study, the DP offered the greatest number of mathematical course options for students with different needs. Additionally, based on the criteria used in this analysis, the IB's further mathematics HL was determined to be the most cognitively demanding course of the curriculums examined, followed by A level Further Mathematics and Singapore H3 Mathematics respectively (Alcántara 2016 and UK NARIC 2016).

A study conducted by the IB Research department examined the **university pathways of low-income and under-represented minority students** in Title I[2] schools in the **United States** (*n* = 20,403). Findings indicated that low-income DP students in Title I schools enrolled in college at similar rates to all DP students in US public schools (79% compared to 82% respectively) and at much higher rates than the national average for low-income students (46%). Additionally, African-American DP students from Title I schools enrolled in college at higher rates (87%) than any other racial or ethnic group in the study (Gordon, VanderKamp and Halic 2015).

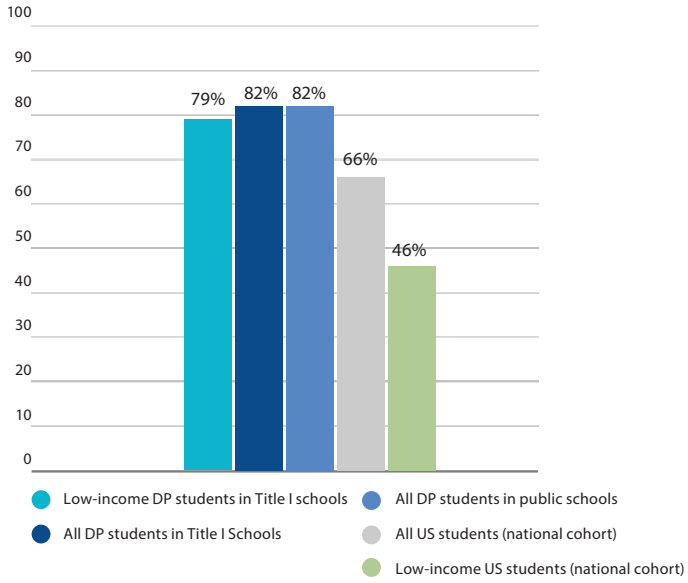

Figure 2. Immediate postsecondary enrollment at four-year and two-year institutions (Source for national averages: NCES 2015)

In 2011, the Japanese government announced its plans to introduce the DP in 200 Japanese secondary schools. This study examined the implementation of the **dual language DP** (Japanese and English) in **Japan**. Compared to non-DP students, DP students had higher self-ratings for being "internationally-minded" and had higher expectations of acquiring problem-solving and leadership skills while in high school (Yamamoto et al 2016).

[1] This study used propensity score matching in order to compare IB students with similar non-IB students. The idea behind this technique is to take an IB student and find a non-IB student that has similar background characteristics (such as, socio-economic status, race/ethnicity, gender and so on). This allows the researchers to better isolate and identify the impacts of the IB programme specifically, as the two groups are similar otherwise.

[2] US schools with a high proportion of low-income students are eligible to become Title I schools, which allows for the allotment of federal resources to attempt to close the achievement gap (US Department of Education 2014).

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A study at the University of Oregon's Honors College in the **United States** explored the academic and social-emotional **university preparedness** of DP and non-DP graduates. Although researchers found no difference in university grade point averages between the two groups, DP graduates were significantly more likely to persist and to complete college than their non-DP counterparts. Qualitative data also indicated that DP graduates were better able to adjust to the rigors of university coursework; students specifically highlighted a number of skills gained through participation in the DP, including critical-thinking, time management and research skills (Conley, McGaughy, Davis-Molin, Farkas and Fukuda, 2014).

To examine the **critical-thinking skills** of DP students in **Australia**, researchers used two different measures of critical-thinking skills. For both measures, quantitative findings revealed gains in critical-thinking skills between the two successive years of the DP (years 11 and 12). Furthermore, students completing their second year of the DP reported a higher likelihood of using an array of critical-thinking skills (Cole, Gannon, Ullman & Rooney 2014).

A large-scale quantitative study (n = 13,555) investigated the **higher education outcomes** of DP students in the **United States** (2008–2014). Findings showed that 92% of DP students who graduated from high school in 2008 enrolled in university within a six-year period, while 78% of students enrolled immediately after high school. DP students also had high four-year (79%) and six-year university graduation rates (83% for DP students, compared to 56% nationally) (Bergeron 2015).

Researchers explored the **academic persistence** of DP students (n = 226) in five **Eastern and Central European countries** in comparison with non-DP students from top-ranking Romanian high schools (n = 328). The study found that the DP fosters students' academic persistence to a higher degree than does the traditional education system (at least the Romanian system). The DP supports academic persistence both directly, through the curriculum, and indirectly, through the development of psychological traits supporting academic persistence. Lastly, DP students' academic persistence further stimulates their academic performance and decreases their intention to drop out of school (Holman et al 2016).

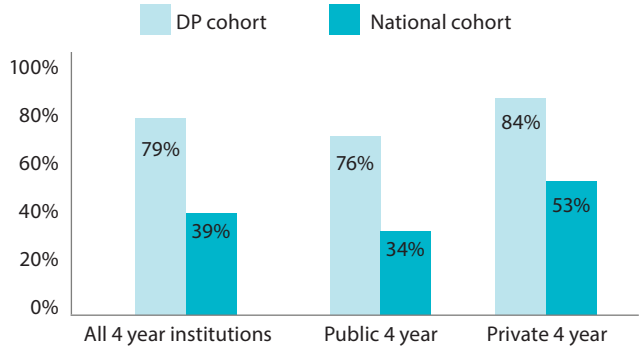

Figure 3. Four-year graduation rates by institution type
Note. National data only available for 2007 (NCES 2014)

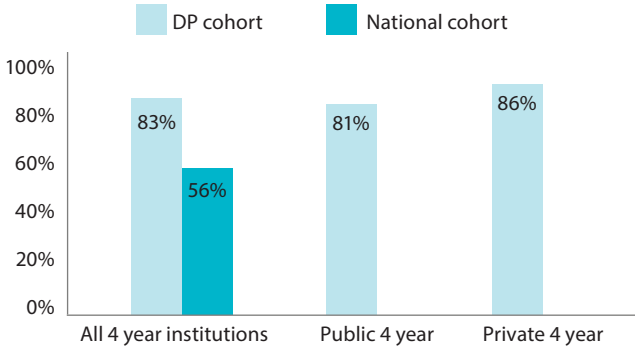

Figure 4. Six-year graduation rates by institution type
Note. National data only available for 2007 (NCES 2014)

References

Alcántara, A. 2016. *International Baccalaureate mathematics comparability study: Curriculum and assessment comparison.* Bethesda, MD, USA. International Baccalaureate Organization.

Ateşkan, A, Onur, J, Sagun, S, Sands, M and Çorlu, MS. 2015. *Alignment between the DP and MoNEP in Turkey and the effects of these programmes on the achievement and development of university students.* Bethesda, MD, USA. International Baccalaureate Organization.

Bergeron, L. 2015. *Diploma Programme students' enrollment and outcomes at US postsecondary institutions 2008–2014.* Bethesda, MD, USA. International Baccalaureate Organization.

Cole, DR, Gannon, S, Ullman, J and Rooney, P. 2014. *Theory of knowledge (TOK): Exploring learning outcomes, benefits and perceptions.* Bethesda, MD, USA. International Baccalaureate Organization.

Conley, D, McGaughy, C, Davis-Molin, W, Farkas, R and Fukuda, E. 2014. *International Baccalaureate Diploma Programme: Examining college readiness.* Bethesda, MD, USA. International Baccalaureate Organization.

Gordon, M, VanderKamp, E and Halic, O. 2015. *International Baccalaureate programmes in Title I schools in the United States: Accessibility, participation and university enrollment.* Bethesda, MD, USA. International Baccalaureate Organization.

Higher Education Statistics Agency (HESA). 2016. *International Baccalaureate students studying at UK higher education institutions: How do they perform in comparison with A level students?* Bethesda, MD, USA. International Baccalaureate Organization.

Holman, A, Pascal, EA, Bostan, C, Hoşbotă, AM and Constantin, T. 2016. *Developing academic persistence in the International Baccalaureate Diploma Programme: Educational strategies and associated personality traits.* Bethesda, MD, USA. International Baccalaureate Organization.

National Center for Education Statistics. 2014. "Table 326.10. Graduation rate from first institution attended for first-time …" Retrieved from https://nces.ed.gov/programs/digest/d14/tables/dt14_326.10.asp

National Center for Education Statistics. 2015. *The Condition of Education.* Retrieved from http://nces.ed.gov/programs/coe/indicator_cpa.asp

The National Recognition Information Centre for the United Kingdom. 2016. *Assessment in upper secondary mathematics: A comparison between the International Baccalaureate Diploma Programme and international qualifications.* Bethesda, MD, USA. International Baccalaureate Organization.

US Department of Education (DOE). 2014. *Improving basic programs operated by local educational agencies* (Title I, part A). Retrieved from http://www2.ed.gov/programs/titleiparta/index.html

Yamamoto, BA, Saito, T, Shibuya, M, Ishikura, Y, Gyenes, A, Kim, V, Mawer, K and Kitano, C. 2016. *Implementation and impact of the dual language International Baccalaureate Diploma Programme (DP) in Japanese secondary schools.* Bethesda, MD, USA. International Baccalaureate Organization.

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Ten tips for acting with integrity

Always act with honesty and in a responsible and ethical manner—being conscious of the influence that you have on those around you can set a great example to others.

Familiarise yourself with the school's rules and ensure that you understand what academic integrity means and consists of.

Don't try to gain an **unfair** advantage in coursework, mock examinations, or assessments by copying someone else's answers or using a mobile phone during an exam, for example.

Always reference and cite other people's work that you have used in your essays—be **proud** of explaining that you understood someone else's ideas and thought that they were good. **Seek help** if you are struggling or are not sure of expectations.

Stand up for what is **right**—alert a member of staff at your school if you suspect that someone has cheated.

Learn to **accept** your strengths and weaknesses and do the best that you can.

Take responsibility for your own actions and their consequences.

Know how to **safely collaborate** and share work when using social media and digital collaborative platforms.

Be mindful of maintaining academic integrity during group work/projects and keep track of what each group member is contributing.

Try to **overcome procrastination**. Managing your time wisely will reduce stress-induced, last-minute work which increases the likelihood of cheating.

THE IB AND **ARTIFICIAL INTELLIGENCE** (AI) TOOLS

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WHY IS THE IB ALLOWING STUDENTS TO USE AI TOOLS?

Students at IB World Schools are provided with a unique, challenging and diverse education. They are encouraged to drive their own learning and to think critically and challenge assumptions.

The IB understands that there will be many reservations about allowing the use of Chat GPT and other artificial intelligence tools in IB World Schools. However, we believe that these tools can provide great opportunities to enhance the skills of IB learners. Critical thinking, for example, is a skill that will grow in importance when using artificial intelligence tools. We therefore need to work with these tools, rather than against them, and embrace what the technology is capable of. The IB strongly believes that we should find appropriate ways to include such tools in teaching and assessment, which are complementary with learning aims.

HOW CAN STUDENTS MAINTAIN ACADEMIC INTEGRITY WHEN USING AI TOOLS?

Opportunities created by AI tools reinforce that academic integrity is an ethical choice that students must make. Students cannot learn about acting with integrity by being given a list of rules for the examination room or learning a particular format for referencing. They learn by talking about what it means to act with academic integrity and seeing it role-modelled around them.

The goal of academic integrity is to make knowledge, understanding and thinking transparent. Students must understand how to correctly reference and ethically use any external information in their work, including text/images obtained from artificial intelligence (AI) tools.

For the IB, **transparency** is the key, and we expect students to give full credit to any source/material that they have used when writing and creating their own work.

HOW DO STUDENTS CORRECTLY REFERENCE AI TOOLS?

In any type of work where an external source has been used, a citation must be included at the point of use. The inclusion of a reference at the end of the paper is not enough. The citation in a text should link to a full reference in the bibliography.

Students should be clear that if they use the text (or any other product) produced by an AI tool—by copying or paraphrasing that text or modifying an image—they must clearly reference it in the body of their work and add the reference in the bibliography.

The in-text citation should contain quotation marks using the referencing style already in use by the school, for example: *"the development of the tools and variables required for……"* (text taken/paraphrased from ChatGPT, 2023).

The reference in the bibliography should also contain the prompt given to the AI tool and the date it generated the text, for example: OpenAI. (23 February 2023). ChatGPT response to *example* prompt about *example* topic.

HOW ARE ARTIFICIAL INTELLIGENCE TOOLS ADDRESSED IN THE UPDATED ACADEMIC INTEGRITY POLICY?

The Academic Integrity policy has been updated and is now available on the Programme Resource Centre. There is a new appendix (6) – *Guidance on the use of artificial intelligence tools*. This section will help schools to support their students on how to use these tools ethically, in line with the IB's principles of academic integrity.

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