IB DP HANDBOOK FOR STUDENTS

Welcome to the International Baccalaureate Diploma Programme (IB DP) Handbook for Students at Prywatne Liceum Ogólnokształcące im.Melchiora Wańkowicza. This handbook is designed to provide you with important information and guidelines to support your journey through the IB DP. Please read it carefully and refer to it whenever you have questions or need guidance.

We hope that this handbook provides valuable information and guidance to support you throughout your IB Diploma Programme journey. Remember to consult your teachers, coordinators, and other school resources for specific information and assistance. We wish you a fulfilling and successful experience in your studies and personal growth.

IB Mission Statement

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

To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment.

These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right.

School Mission Statement

Our mission is to guide our students to develop their 21st-century competencies in order to become well-rounded citizens and leaders of the global community.

As members of our inclusive, multicultural and holistic educational institution, our learners, through reflection and interaction with their peers and teachers, become open-minded lifelong learners.

By providing them with a safe, educational environment that is open, tolerant, diverse and supportive, as well as encouraging our students to be an active part of the local, national and global community, we give them a space that allows them to grow, thrive and realise their full potential on their path to adulthood. (changed/revised August 2022).

IB Learner Profile

At Prywatne Liceum Ogólnokształcące im. Melchiora Wańkowicza, our school community embodies the IB Learner Profile, which shapes our character, actions, and attitudes. Inspired by the principles of the International Baccalaureate, we strive to be:

Knowledgeable - Our school seeks to develop a deep understanding across a range of subjects and disciplines. We foster a culture of academic excellence, encouraging students to actively engage in learning, acquire knowledge, and pursue intellectual growth.

Thinkers – We encourage critical and creative thinking among our students. Our school promotes an environment where students analyze complex problems, apply their knowledge, and develop innovative solutions.

Communicators – Effective communication is a vital skill we cultivate in our school. We encourage students to express themselves confidently and clearly, both verbally and in writing. We foster a supportive environment where students actively listen, collaborate, and engage in meaningful dialogue.

Principled – Integrity and ethical behavior are central to our school community. We instill in our students a sense of moral responsibility, encouraging them to act with honesty, fairness, and respect towards themselves and others.

Open-minded – Our school embraces diversity and promotes an open-minded approach. We encourage students to appreciate and respect different cultures, beliefs, and perspectives. We foster an inclusive environment where students actively seek to understand and learn from others.

Caring – At our school, we cultivate a culture of compassion and empathy. We encourage students to demonstrate care and concern for the well-being of others.

Through acts of kindness and service, we strive to make a positive impact in our school and local community.

Balanced – We emphasize the importance of a balanced lifestyle for our students. Our school encourages students to manage their time effectively, prioritize their well-being, and pursue a range of interests. We support their physical, emotional, and intellectual development.

Reflective – We promote reflective practices among our students. Our school encourages self-assessment, goal-setting, and personal growth. We provide opportunities for students to reflect on their learning experiences, identify areas for improvement, and develop a lifelong commitment to learning.

Risk-takers – We foster a supportive environment where students are encouraged to take risks and embrace challenges. Our school values resilience and perseverance, empowering students to step outside their comfort zones, explore new opportunities, and learn from both success and failure.

Inquirers – Curiosity and a thirst for knowledge are nurtured in our school. We inspire students to be active inquirers, encouraging them to ask questions, seek answers, and explore their interests. We promote a culture of inquiry-based learning that fosters intellectual curiosity.

As a school community, Prywatne Liceum Ogólnokształcące im. Melchiora Wańkowicza embraces these qualities of the IB Learner Profile. Together, we strive to cultivate well-rounded individuals who contribute positively to our school, local community, and the global society.

Our School's Unique Learning Environment

Located in the bustling city of Katowice, ranked as Poland's tenth most populous city, our school offers an exceptional learning experience at the heart of the vibrant Silesian Region. As a private institution, we pride ourselves on providing small class sizes ranging from 10 to 18 students, distinguishing us from state schools with typically larger classes regulated by local authorities. This intimate learning environment fosters strong teacher-student relationships, promoting independent learning and comprehensive academic coverage.

Personalized Attention for Enriched Learning

At our school, we believe in the power of individualized attention. With low student-to-teacher ratios, our dedicated teachers can provide personalized guidance and support to each student, resulting in a more enriched learning experience. This tailored approach equips our students with a broader scope of knowledge and fosters a deeper understanding of the subjects they study. Our commitment to individual attention sets the foundation for academic excellence and personal development, creating a safe and conducive atmosphere for student success.

Embracing Diversity and Cultural Awareness

Celebrating diversity is a core value at our school. We take immense pride in being the sole educational institution in the region that offers English-medium education for both primary and secondary levels, enabling non-Polish speaking children to seamlessly continue their education without any language barriers. Our school community consists of students and staff from various nationalities and cultures, and we actively promote cultural awareness and sensitivity throughout the learning environment. By using English as a common language of communication within the school, we foster a multicultural environment where students become more sensitive to cultural issues. We organize special events, such as International Day, providing opportunities for students to celebrate and learn about different cultures and traditions.

A Commitment to International Education

Since our establishment in 2000 by Jolanta Kałuża, our school has been at the forefront of promoting international education and fostering a deep understanding among individuals. We were the first educational

institution in the region to introduce the International Baccalaureate Diploma Programme in 2007, alongside other renowned programs such as the Cambridge Primary Years Programme, Checkpoint, and IGCSE (Cambridge Assessment International Education). This commitment to international education has attracted a diverse student body, enriching our community and providing a global perspective within our curriculum.

Engaging with the Local Community

Our school occupies two purpose-built buildings located in a peaceful residential area of Katowice, situated 6 km from the city center. Embracing our surroundings, we actively engage with the local community and the city as a whole. Through various charity initiatives and educational collaborations with esteemed institutions like the Silesian University and the Music Academy, we strive to make a positive impact beyond our school walls. By embracing these connections, we offer our students unique opportunities for growth and learning, both inside and outside the classroom.

Nurturing a Safe and Drug-Free Environment

Maintaining a safe and secure environment is of utmost importance to us. Our school's selective nature plays a pivotal role in creating a safe and drug-free atmosphere, essential for student success. By carefully choosing students who are committed to academic excellence and personal development, we foster a positive and secure atmosphere conducive to learning and positive social interactions. Our focus on a safe environment ensures that students can thrive academically and personally during their time at our school.

School based pre-IB Diplom Programme

Students can achieve the IB level by following either the Polish curriculum or the Cambridge International Programme. For those following the Polish curriculum, the

Pre-IB years align with the first two grades of high school, referred to as 1LO and 2LO. On the other hand, students pursuing the Cambridge International Programme are not required to complete the Pre-IB years, as they continue with the final years of the IGCSE Programme.

Teaching year	Polish system	IB (int. path)	Cambridge (int. path)
Year 9	1 LO	pre-DP1 *school based*	IGCSE 2
Year 10	2 LO	pre-DP 2 *school based*	IGCSE 3
Year 11	3 LO	DP 1	
Year 12	4 LO	DP 2	

School based pre-IB Diploma Program (Years 9&10) offered at our School is aimed at students intending to commence their IB Diploma in two following academic years. It provides a solid foundation for their academic preparation and helps them build confidence for their future IB studies.

Years 9 and 10 subjects offered:

- Polish First Language
- Polish as a foreign language (for non-native students)
- English B, German B, Spanish B
- English Literature
- Humanities: History, Geography
- Science: Biology, Chemistry, Physics

- Mathematics
- IB Essentials
- Arts / Drama / Music / ICT
- Tutor period / CAS
- PE

IB Diploma Programme

The International Baccalaureate Diploma Programme (IB DP) is an academically rigorous and internationally recognized educational framework designed to prepare students for success in higher education and beyond. As IB DP students at our school, students engage in a challenging and comprehensive curriculum that promotes intellectual growth, critical thinking, and global perspectives.

The IB DP centers around six subject groups, ensuring a balanced education across various disciplines: Language and Literature, Language Acquisition, Individuals and Societies, Sciences, Mathematics, and The Arts. Within these subjects, students explore topics in-depth, develop research skills, and engage in independent inquiry.

In addition to the subject groups, the IB DP emphasizes the development of important skills and attributes through the core elements: Theory of Knowledge (TOK), Extended Essay (EE), and Creativity, Activity, Service (CAS). TOK encourages critical thinking about knowledge and its application in different contexts, while the EE provides an opportunity to undertake independent research on a topic of personal interest. CAS encourages students to engage in creative, physical, and service-oriented activities to foster personal growth, a sense of community, and social responsibility.

At the end of the IB DP, students are assessed through a combination of internally and externally conducted examinations, as well as coursework, essays, and projects. These assessments aim to evaluate understanding, analytical skills, and the ability to apply knowledge effectively.

Through the IB DP, students develop not only academic excellence but also essential skills such as communication, research, and time management. Furthermore, the program fosters an appreciation for different cultures, global issues, and intercultural understanding.

By embracing the IB DP, students choose a pathway that challenges them to become active, lifelong learners, critical thinkers, and responsible global citizens. Our school is committed to supporting students on this journey, providing guidance, resources, and a supportive learning environment that enables them to excel academically and personally.

Students are encouraged to make the most of their IB DP experience, embrace the opportunities for growth, and strive for excellence in all aspects of their education.

Years 11 and 12 subjects offered:

Students have the opportunity to pursue a dual educational path that is customized to meet their individual academic requirements for the future.

IB Diploma Programme	IB Diploma Course Programme
3 x HL subject	Individual IB Diploma Courses
3 x SL subject	Minimum of three and maximum of six
TOK EE CAS	Individual combination of subjects to meet the university admission requirements
	Recommended: Mathematics, English B, German or Spanish B

During the two-year IB Diploma Programme, students will engage in a comprehensive curriculum that encompasses various components. They will undertake the study of six subjects from the six subject groups, complete an extended essay, participate in a theory of knowledge (TOK) and academic writing course, and actively engage in creativity, action, and service (CAS) activities.

When selecting subjects, students must choose one subject from each subject group. Furthermore, they need to specify whether they wish to study each subject at the standard level (SL) or the higher level (HL). It is mandatory to choose at least three and no more than four subjects at the higher level. For HL subjects, students will have six lessons per week, resulting in a total of 240 teaching hours. On the other hand, for SL subjects, students will have four lessons per week, amounting to 150 teaching hours.

Our school offers a wide range of subjects to cater to the diverse interests and academic needs of our students. **Subjects available include** (see appendix for more details). When choosing IB subjects, considering your interests, strengths, and future aspirations.

Group 1 Studies in language and literature	**Group 2** Language acquisition	**Group 3** Individuals and societies	**Group 4** Sciences	**Group 5** Mathematics	**Group 6** The arts
Polish A: Literature **English A: Literature** **Language A: Literature self taught (SL only)**	**English B** **Spanish B** **German B**	**Geography** **History** **Business Management** **Psychology**	**Biology** **Chemistry** **Physics** **Computer Science**	**Mathematics: Applications and Interpretations** **Mathematics: Analysis and Approaches**	**Any additional subject from groups1-5**
HL or SL	**HL or SL or ab**	**HL or SL**	**HL or SL**	**HL or SL**	**HL or SL**

Extended Essay:

The Extended Essay (EE) is an independent research project that culminates in a 4,000-word paper. It serves as valuable preparation for undergraduate research and offers students an opportunity to explore a topic of personal interest related to one of their six DP subjects or take an interdisciplinary approach with a World Studies extended essay.

Through the EE, students develop essential skills, including:

- Formulating relevant research questions
- Engaging in a personal exploration of the chosen topic
- Effectively communicating ideas
- Constructing and presenting a well-developed argument

Active participation in this process enhances students' abilities to analyze, synthesize, and evaluate knowledge. Throughout the research and writing stages, students receive guidance and support from a supervisor, typically a teacher from the school.

All extended essays undergo external assessment by IB-appointed examiners, who evaluate them on a scale from 0 to 34.

Theory of Knowledge (TOK):

Theory of Knowledge (TOK) is a fundamental component of the IB DP Programme, encouraging students to reflect on the nature and acquisition of knowledge. It is obligatory for all students and plays a central role in the DP's educational philosophy.

TOK explores diverse ways of knowing and various types of knowledge through inquiry-driven questioning. Key questions include:

- How do we determine what constitutes evidence?
- How do we assess the validity of different models?
- What is the practical significance of theoretical concepts?

Through engaging discussions, students gain self-awareness of their own assumptions and cultural perspectives, fostering an appreciation for diverse viewpoints.

Assessment in TOK involves an oral presentation and a 1,600-word essay. The presentation evaluates the application of TOK thinking to real-life situations, while the essay takes a more conceptual approach.

TOK aims to make students conscious of the interpretative nature of knowledge and their own ideological biases, allowing them to reassess and refine their perspectives. It also establishes connections between academic disciplines, providing coherence to students' educational experience.

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				

CAS (Creativity, Activity, Service):

CAS is a core component of the International Baccalaureate (IB) programme. It is designed to encourage students to actively engage in a balanced range of activities beyond their academic studies. CAS involves three essential elements:

1. Creativity: Students are encouraged to explore and develop their creative abilities through activities such as visual arts, music, drama, writing, and other artistic pursuits.
2. Action: Students participate in physical activities and sports, promoting an active and healthy lifestyle. This can include team sports, individual fitness pursuits, outdoor expeditions, and more.
3. Service: Students engage in meaningful community service projects that address social, environmental, or humanitarian needs. This involves volunteering, contributing to local initiatives, and making a positive impact on society.

CAS encourages students to develop new skills, foster personal growth, demonstrate leadership, and cultivate a sense of responsibility towards others and the community. It plays a crucial role in promoting holistic development and character building within the IB programme.

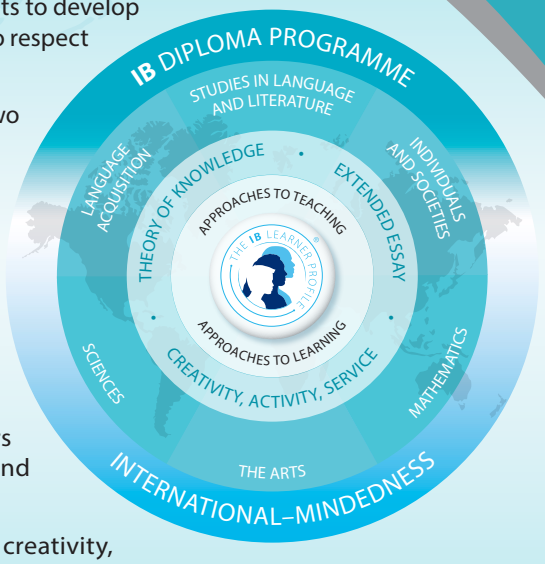
Appendix 1

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?

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

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 2024—last assessments 2031

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.

I. Course description and aims

The business management course is designed to meet the current and future needs of students who want to develop their knowledge of business content, concepts and tools to assist with business decision-making. Future employees, business leaders, entrepreneurs or social entrepreneurs need to be confident, creative and compassionate as **change agents** for business in an increasingly interconnected global marketplace. The business management course is designed to encourage the development of these attributes.

Through the exploration of four interdisciplinary concepts: **creativity, change, ethics** and **sustainability**, this course empowers students to explore these concepts from a business perspective. Business management focuses on business functions, management processes and decision-making in contemporary contexts of strategic uncertainty.

Students examine how business decisions are influenced by factors that are internal and external to an organization and how these decisions impact upon a range of internal and external stakeholders. Emphasis is placed on strategic decision-making and the operational business functions of human resource management, finance and accounts, marketing, and operations management.

Business management is a challenging and dynamic discipline that more than meets the needs of our students growing and developing in a complex business environment. This course prepares students to be global citizens ready to face up to the challenges and opportunities awaiting them in our ever-changing world.

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The aims of the DP **business management course** are to enable students to:

1. develop as confident, creative and compassionate business leaders, entrepreneurs, social entrepreneurs and as change agents
2. foster an informed understanding of ethical and sustainable business practices
3. explore the connections between individuals, businesses and society
4. engage with decision-making as a process and a skill.

II. Curriculum model overview

Component	Recommended teaching hours
Unit 1: Introduction to business management 1.1 What is a business? 1.2 Types of business entities 1.3 Business objectives 1.4 Stakeholders 1.5 Growth and evolution 1.6 Multinational companies (MNCs)	**20**
Unit 2: Human resource management 2.1 Introduction to human resource management 2.2 Organizational structure 2.3 Leadership and management 2.4 Motivation and demotivation 2.5 Organizational (corporate) culture (HL only) 2.6 Communication 2.7 Industrial/employee relations (HL only)	**20**
Unit 3: Finance and accounts 3.1 Introduction to finance 3.2 Sources of finance 3.3 Costs and revenues 3.4 Final accounts 3.5 Profitability and liquidity ratio analysis 3.6 Debt/equity ratio analysis (HL only) 3.7 Cash flow 3.8. Investment appraisal 3.9 Budgets (HL only)	**30**
Unit 4: Marketing 4.1 Introduction to marketing 4.2 Marketing planning 4.3 Sales forecasting (HL only) 4.4 Market research 4.5 The seven Ps of the marketing mix 4.6 International marketing (HL only)	**30**

Unit 5: Operations management 5.1 Introduction to operations management 5.2 Operations methods 5.3 Lean production and quality management (HL only) 5.4 Location 5.5 Break-even analysis 5.6 Production planning (HL only) 5.7 Crisis management and contingency planning (HL only) 5.8 Research and development (HL only) 5.9 Management information systems (HL only)	**15**
Business management toolkit	**10**
Research time allocated for the pre-released statement in paper 1	**5**
Internal assessment	**20**

III. Assessment model

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

AO1: Knowledge and understanding
Demonstrate knowledge and understanding of:
- business management tools and theories
- course topics and concepts
- business problems, issues and decisions
- HL extension topics (HL only).

AO2: Application and analysis
Apply and analyse:
- business management tools and theories
- course topics and concepts
- business problems, issues and decisions
- business decisions and issues through the selection and use of appropriate data
- HL extension topics (HL only).

AO3: Synthesis and evaluation
Synthesize and evaluate:
- business management tools and theories
- course topics and concepts
- business problems, issues and decisions
- stakeholder interests to reach informed business decisions
- recommendations for competing future strategic options (HL only)
- HL extension topics (HL only).

AO4: Use and application of appropriate skills
- Select and apply relevant business management tools, theories and concepts to support research into a business issue or problem.
- Select, interpret and analyse business materials from a range of primary and secondary sources.
- Create well-structured materials using business management terminology.

- Communicate analysis, evaluation and conclusions of research effectively.

Assessment at a glance

Type of assessment	Format of assessment	Time	Weighting of final grade (%)
External		3 hours	70
Paper 1	Based on a pre-released statement that specifies the *context* and *background* for the unseen case study	1 hour 30 minutes	35
Paper 2	Based on unseen stimulus material with a quantitative focus	1 hour 30 minutes	35
Internal			
Business research project	Students produce a research project about a real business issue or problem facing a particular organization using a conceptual lens	20 hours	30

IV. Sample questions

Paper 1

- Explain **one** advantage and **one** disadvantage for *MT* of being a small business. [4]
- Discuss whether Jackie should accept or reject KC's offer to buy *MT*. [10]

Paper 2

- Using the information in the stimulus, evaluate WM's decision to shift from mass production to mass customization. [10]

International Baccalaureate
Diploma Programme Subject Brief

Individuals and societies: Business management—higher level

First assessments 2024

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.

I. Course description and aims

The business management course is designed to meet the current and future needs of students who want to develop their knowledge of business content, concepts and tools to assist with business decision-making. Future employees, business leaders, entrepreneurs or social entrepreneurs need to be confident, creative and compassionate as **change agents** for business in an increasingly interconnected global marketplace. The business management course is designed to encourage the development of these attributes.

Through the exploration of four interdisciplinary concepts: **creativity, change, ethics** and **sustainability**, this course empowers students to explore these concepts from a business perspective. Business management focuses on business functions, management processes and decision-making in contemporary contexts of strategic uncertainty.

Students examine how business decisions are influenced by factors that are internal and external to an organization and how these decisions impact upon a range of internal and external stakeholders. Emphasis is placed on strategic decision-making and the operational business functions of human resource management, finance and accounts, marketing, and operations management.

Business management is a challenging and dynamic discipline that more than meets the needs of our students growing and developing in a complex business environment. This course prepares students to be global citizens ready to face up to the challenges and opportunities awaiting them in our ever-changing world.

The aims of the DP **business management course** are to enable students to:

1. develop as confident, creative and compassionate business leaders, entrepreneurs, social entrepreneurs and as change agents
2. foster an informed understanding of ethical and sustainable business practices
3. explore the connections between individuals, businesses and society
4. engage with decision-making as a process and a skill.

II. Curriculum model overview

Component	Recommended teaching hours
Unit 1: Introduction to business management 1.1 What is a business? 1.2 Types of business entities 1.3 Business objectives 1.4 Stakeholders 1.5 Growth and evolution 1.6 Multinational companies (MNCs)	**20**
Unit 2: Human resource management 2.1 Introduction to human resource management 2.2 Organizational structure 2.3 Leadership and management 2.4 Motivation and demotivation 2.5 Organizational (corporate) culture (HL only) 2.6 Communication 2.7 Industrial/employee relations (HL only)	**35**
Unit 3: Finance and accounts 3.1 Introduction to finance 3.2 Sources of finance 3.3 Costs and revenues 3.4 Final accounts 3.5 Profitability and liquidity ratio analysis 3.6 Debt/equity ratio analysis (HL only) 3.7 Cash flow 3.8. Investment appraisal 3.9 Budgets (HL only)	**45**
Unit 4: Marketing 4.1 Introduction to marketing 4.2 Marketing planning 4.3 Sales forecasting (HL only) 4.4 Market research 4.5 The seven Ps of the marketing mix 4.6 International marketing (HL only)	**35**

Unit 5: Operations management 5.1 Introduction to operations management 5.2 Operations methods 5.3 Lean production and quality management (HL only) 5.4 Location 5.5 Break-even analysis 5.6 Production planning (HL only) 5.7 Crisis management and contingency planning (HL only) 5.8 Research and development (HL only) 5.9 Management information systems (HL only)	**45**
Business management toolkit	**35**
Research time allocated for the pre-released statement in paper 1	**5**
Internal assessment	**20**

III. Assessment model

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

AO1: Knowledge and understanding
Demonstrate knowledge and understanding of:
- business management tools and theories
- course topics and concepts
- business problems, issues and decisions
- HL extension topics (HL only).

AO2: Application and analysis
Apply and analyse:
- business management tools and theories
- course topics and concepts
- business problems, issues and decisions
- business decisions and issues through the selection and use of appropriate data
- HL extension topics (HL only).

AO3: Synthesis and evaluation
Synthesize and evaluate:
- business management tools and theories
- course topics and concepts
- business problems, issues and decisions
- stakeholder interests to reach informed business decisions
- recommendations for competing future strategic options (HL only)
- HL extension topics (HL only).

AO4: Use and application of appropriate skills
- Select and apply relevant business management tools, theories and concepts to support research into a business issue or problem.
- Select, interpret and analyse business materials from a range of primary and secondary sources.
- Create well-structured materials using business management terminology.

- Communicate analysis, evaluation and conclusions of research effectively.

Assessment at a glance

Type of assessment	Format of assessment	Time	Weighting of final grade (%)
External		4 hours 30 minutes	80
Paper 1	Based on a pre-released statement that specifies the *context* and *background* for the unseen case study	1 hour 30 minutes	25
Paper 2	Based on unseen stimulus material with a quantitative focus	1 hour 45 minutes	30
Paper 3	Based on unseen stimulus material about a social enterprise	1 hour 15 minutes	25
Internal			
Business research project	Students produce a research project about a real business issue or problem facing a particular organization using a conceptual lens	20 hours	20

IV. Sample questions

Paper 1

- Explain **one** advantage and **one** disadvantage for *MT* of being a small business. [4]
- Discuss whether Jackie should accept or reject KC's offer to buy *MT*. [10]

Paper 2

- Using the data provided in **Table 7**, other information in the stimulus, and a Boston Consulting Group (BCG) matrix, recommend to QS which e-scooter model should be removed from QS's portfolio in order for the company to remain profitable. [10]

Paper 3

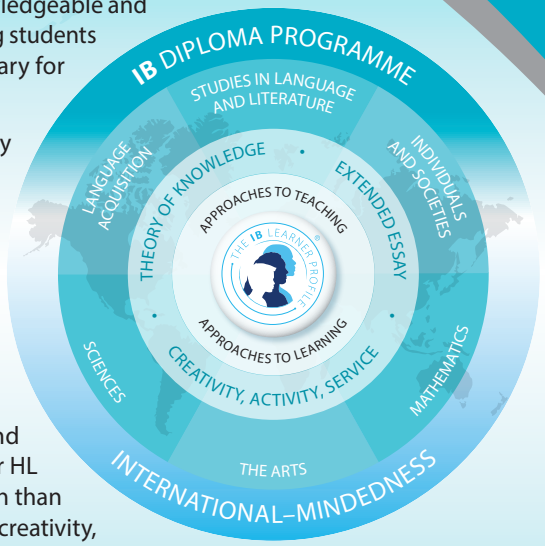
- Using all the resources provided and your knowledge of business management, recommend a possible plan of action to ensure the sustainability of *SML* for the next five years. [17]

International Baccalaureate Diploma Programme Subject Brief

Individuals and societies: History—standard level

First assessments 2017

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.

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 va-riety 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 think-ing, and on developing an understanding of multiple interpre-tations of history. In this way, the course involves a challenging and demanding critical exploration of the past. Teachers explicitly teach thinking and re-search 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, sig-nificance 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 contempo-rary 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 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. Emergence 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
- 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 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

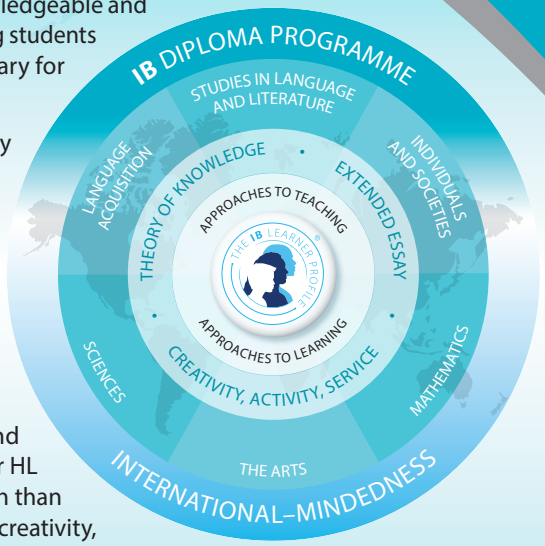
Paper 2 (HL and SL)
- Examine the impact of industrialization on standards of living and working conditions in one country.
- Compare and contrast the impact on women of the policies of two authoritarian states, each chosen from a different region.
- Compare and contrast the role of technology in determining the outcome of two 20th-century wars.
- Examine the impact of the US policy of containment on superpower relations between 1947 and 1964.

International Baccalaureate Diploma Programme Subject Brief

Individuals and societies: History—higher level

First assessments 2017

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.

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 va-riety 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 think-ing, and on developing an understanding of multiple interpre-tations of history. In this way, the course involves a challenging and demanding critical exploration of the past. Teachers explicitly teach thinking and re-search 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, sig-nificance 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 contempo-rary 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 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. Emergence 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.

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.

International Baccalaureate Diploma Programme Subject Brief

Individuals and societies: Geography

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
IV. Sample questions

I. Course description and aims

Geography is a dynamic subject firmly grounded in the real world, and focuses on the interactions between individuals, societies and physical processes in both time and space. It seeks to identify trends and patterns in these interactions. It also investigates the way in which people adapt and respond to change, and evaluates actual and possible management strategies associated with such change. Geography describes and helps to explain the similarities and differences between different places, on a variety of scales and from different perspectives.

Geography as a subject is distinctive in its spatial dimension and occupies a middle ground between social or human sciences and natural sciences. The course integrates physical, environmental and human geography, and students acquire elements of both socio-economic and scientific methodologies. Geography takes advantage of its position to examine relevant concepts and ideas from a wide variety of disciplines, helping students develop life skills and have an appreciation of, and a respect for, alternative approaches, viewpoints and ideas.

Students at both SL and HL are presented with a common core and optional geographic themes. HL students also study the HL core extension. Although the skills and activity of studying geography are common to all students, HL students are required to acquire a further body of knowledge, to demonstrate critical evaluation and to further synthesize the concepts in the HL extension.

The aims of the geography course at SL and HL are to enable students to:

- develop an understanding of the dynamic interrelationships between people, places, spaces and the environment at different scales
- develop a critical awareness and consider complexity thinking in the context of the nexus of geographic issues, including:
    - acquiring an in-depth understanding of how geographic issues, or wicked problems, have been shaped by powerful human and physical processes
    - synthesizing diverse geographic knowledge in order to form viewpoints about how these issues could be resolved.
- understand and evaluate the need for planning and sustainable development through the management of resources at varying scales.

II. Curriculum model overview

Syllabus component	Teaching hours	
	SL	HL
Geographic themes—seven options **SL—two options; HL— three options** • Freshwater • Oceans and coastal margins • Extreme environments • Geophysical hazards • Leisure, tourism and sport • Food and health • Urban environments	60	90
SL and HL core **Geographic perspectives—global change** • Population distribution—changing population • Global climate—vulnerability and resilience • Global resource consumption and security	70	70

HL only **Geographic perspectives—global interactions** • Power, places and networks • Human development and diversity • Global risks and resilience		60
Internal assessment **SL and HL Fieldwork** Fieldwork, leading to one written report based on a fieldwork question, information collection and analysis with evaluation	20	20
Total teaching hours	150	240

III. Assessment model

There are four assessment objectives (AOs) for the SL and HL geography course. Having followed the course at SL or HL, students will be expected to do the following:

1. **Demonstrate knowledge and understanding of specified content**
   - the core theme—global change
   - two optional themes at SL and three optional themes at HL
   - at HL, the HL extension—global interactions
   - in internal assessment, a specific geographic research topic.
2. **Demonstrate application and analysis of knowledge and understanding**
   - apply and analyse geographic concepts and theories
   - identify and interpret geographic patterns and processes in unfamiliar information, data and cartographic material
   - demonstrate the extent to which theories and concepts are recognized and understood in particular contexts.
3. **Demonstrate synthesis and evaluation**
   - examine and evaluate geographic concepts, theories and perceptions
   - use geographic concepts and examples to formulate and present an argument
   - evaluate materials using methodology appropriate for geographic fieldwork
   - at HL only, demonstrate synthesis and evaluation of the HL extension—global interactions.
4. **Select, use and apply a variety of appropriate skills and techniques**
   - select, use and apply:
     - prescribed geographic skills in appropriate contexts
     - techniques and skills appropriate to a geographic research question.
   - produce well-structured written material, using appropriate terminology.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)		Weighting of final grade (%)	
		SL	HL	SL	HL
External		2.75	4.5	75	80
Paper 1	Each option has a structured question and one extended answer question from a choice of two.	1.5	2.25	35	35
Paper 2	Three structured questions, based on each SL/HL core unit. Infographic or visual stimulus, with structured questions. One extended answer question from a choice of two.	1.25	1.25	40	25
Paper 3	Choice of three extended answer questions, with two parts, based on each HL core extension unit.		1		20
Internal		20	20	25	20
Fieldwork	One written report based on a fieldwork question from any suitable syllabus topic, information collection and analysis with evaluation.	20	20	25	20

IV. Sample questions

- Examine the role of plate margin type in determining the severity of volcanic hazards.
- Evaluate the success of attempts to predict tectonic hazard event and their possible impacts.
- Evaluate the role of agribusiness and new technologies in increasing world food supply.
- Examine the relationship between food security and health.
- Using examples, analyse how technological developments can threaten the security of states.
- To what extent does a global culture exist?

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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: Biology

First assessment 2025

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.

I. Course description and aims

As one of the three natural sciences in the IB Diploma Programme, biology is primarily concerned with the study of life and living systems. Biologists attempt to make sense of the world through a variety of approaches and techniques, controlled experimentation and collaboration between scientists. At a time of global introspection on human activities and their impact on the world around us, developing and communicating a clear understanding of the living world has never been of greater importance than it is today.

Through the study of DP biology, students are empowered to make sense of living systems through unifying themes. By providing opportunities for students to explore conceptual frameworks, they are better able to develop understanding and awareness of the living world around them. This is carried further through a study of interactions at different levels of biological organization, from molecules and cells to ecosystems and the biosphere. Integral to the student experience of the DP biology course is the learning that takes place through scientific inquiry. With an emphasis on experimental work, teachers provide students with opportunities to ask questions, design experiments, collect and analyse data, collaborate with peers, and reflect, evaluate and communicate their findings.

DP biology enables students to constructively engage with topical scientific issues. Students examine scientific knowledge claims in a real-world context, fostering interest and curiosity. By exploring the subject, they develop understandings, skills and techniques which can be applied across their studies and beyond.

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

1. develop conceptual understanding that allows connections to be made between different areas of the subject, and to other DP sciences subjects
2. acquire and apply a body of knowledge, methods, tools and techniques that characterize science
3. develop the ability to analyse, evaluate and synthesize scientific information and claims
4. develop the ability to approach unfamiliar situations with creativity and resilience
5. design and model solutions to local and global problems in a scientific context
6. develop an appreciation of the possibilities and limitations of science
7. develop technology skills in a scientific context
8. develop the ability to communicate and collaborate effectively
9. develop awareness of the ethical, environmental, economic, cultural and social impact of science.

II. Curriculum model overview

The DP biology course promotes concept-based teaching and learning to foster critical thinking.

The DP biology course is built on:

- approaches to learning
- nature of science
- skills in the study of biology.

These three pillars support a broad and balanced experimental programme. As students progress through the course, they become familiar with traditional experimentation techniques, as well as the application of technology. These opportunities help them to develop their investigative skills and evaluate the impact of error and uncertainty in scientific inquiry. The scientific investigation then places a specific emphasis on inquiry-based skills and the formal communication of scientific knowledge. Finally, the collaborative sciences project extends the development of scientific communication in a collaborative and interdisciplinary context, allowing students to work together beyond the confines of biology.

Syllabus component	Recommended teaching hours	
	SL	HL
Syllabus content	**110**	**180**
Unity and diversity • Water • Nucleic acids • Origins of cells * • Cell structure • Viruses * • Diversity of organisms • Classification and cladistics * • Evolution and speciation • Conservation of biodiversity	**19**	**33**

Syllabus component	Recommended teaching hours	
	SL	HL
Form and function • Carbohydrates and lipids • Proteins • Membranes and membrane transport • Organelles and compartmentalization • Cell specialization • Gas exchange • Transport • Muscle and motility * • Adaptation to environment • Ecological niches	**26**	**39**
Interaction and interdependance • Enzymes and metabolism • Cell respiration • Photosynthesis • Chemical signalling * • Neural signalling • Integration of body systems • Defence against disease • Populations and communities • Transfer of energy and matter	**31**	**48**
Continuity and change • DNA replication • Protein synthesis • Mutations and gene editing • Cell and nuclear division • Gene expression * • Water potential • Reproduction • Inheritance • Homeostasis • Natural selection • Sustainability and change • Climate change	**34**	**60**
Experimental programme	**40**	**60**
Practical work	20	40
Collaborative sciences project	10	10
Scientific investigation	10	10

* Topics with content that should only be taught to HL students

Skills in the study of biology

The skills and techniques students must experience through the course are encompassed within the tools. These support the application and development of the inquiry process in the delivery of the biology course.

Tools

- Experimental techniques
- Technology
- Mathematics

Inquiry process

- Exploring and designing
- Collecting and processing data
- Concluding and evaluating

Teachers are encouraged to provide opportunities for students to encounter and practise the skills throughout the programme. Rather than being taught as stand-alone topics, these skills should be integrated into the teaching of the syllabus when they are relevant to the syllabus topics being covered.

III. Assessment model

There are four assessment objectives for the DP biology course. Having followed the biology course, students are expected to demonstrate the following assessment objectives.

Assessment objective 1

Demonstrate knowledge of:

- terminology, facts and concepts
- skills, techniques and methodologies.

Assessment objective 2

Understand and apply knowledge of:

- terminology and concepts
- skills, techniques and methodologies.

Assessment objective 3

Analyse, evaluate, and synthesize:

- experimental procedures
- primary and secondary data
- trends, patterns and predictions.

Assessment objective 4

Demonstrate the application of 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
		SL	HL	
External		**3**	**4.5**	**80**
Paper 1	Paper 1A: Multiple-choice questions Paper 1B: Data-based questions (four questions that are syllabus related, addressing all themes)	1.5	2	36
Paper 2	Data-based and short-answer questions Extended-response questions	1.5	2.5	44
Internal		**10**		**20**
Scientific investigation	The scientific investigation is an open-ended task in which the student gathers and analyses data in order to answer their own formulated research question. The outcome of the scientific investigation will be assessed through the form of a written report. The maximum overall word count for the report is 3,000 words.	10		20

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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

Sciences: Chemistry

First assessment 2025

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.

I. Course description and aims

As one of the three natural sciences in the IB Diploma Programme, chemistry is primarily concerned with identifying patterns that help to explain matter at the microscopic level. This then allows matter's behaviour to be predicted and controlled at a macroscopic level. The subject therefore emphasizes the development of representative models and explanatory theories, both of which rely heavily on creative but rational thinking.

DP chemistry enables students to constructively engage with topical scientific issues. Students examine scientific knowledge claims in a real-world context, fostering interest and curiosity. By exploring the subject, they develop understandings, skills and techniques which can be applied across their studies and beyond.

Integral to the student experience of the DP chemistry course is the learning that takes place through scientific inquiry both in the classroom and the laboratory.

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

1. develop conceptual understanding that allows connections to be made between different areas of the subject, and to other DP sciences subjects
2. acquire and apply a body of knowledge, methods, tools and techniques that characterize science
3. develop the ability to analyse, evaluate and synthesize scientific information and claims
4. develop the ability to approach unfamiliar situations with creativity and resilience
5. design and model solutions to local and global problems in a scientific context
6. develop an appreciation of the possibilities and limitations of science
7. develop technology skills in a scientific context
8. develop the ability to communicate and collaborate effectively
9. develop awareness of the ethical, environmental, economic, cultural and social impact of science.

II. Curriculum model overview

The DP chemistry course promotes concept-based teaching and learning to foster critical thinking.

The DP chemistry course is built on:

- approaches to learning
- nature of science
- skills in the study of chemistry.

These three pillars support a broad and balanced experimental programme. As students progress through the course, they become familiar with traditional experimentation techniques, as well as the application of technology. These opportunities help them to develop their investigative skills and evaluate the impact of error and uncertainty in scientific inquiry. The scientific investigation then places a specific emphasis on inquiry-based skills and the formal communication of scientific knowledge. Finally, the collaborative sciences project extends the development of scientific communication in a collaborative and interdisciplinary context, allowing students to work together beyond the confines of chemistry.

Syllabus component	Recommended teaching hours	
	SL	HL
Syllabus content	**110**	**180**
Structure 1. Models of the particulate nature of matter Structure 1.1—Introduction to the particulate nature of matter Structure 1.2—The nuclear atom Structure 1.3—Electron configurations Structure 1.4—Counting particles by mass: The mole Structure 1.5—Ideal gases	17	21
Structure 2. Models of bonding and structure Structure 2.1—The ionic model Structure 2.2—The covalent model Structure 2.3—The metallic model Structure 2.4—From models to materials	20	30
Structure 3. Classification of matter Structure 3.1—The periodic table: Classification of elements Structure 3.2—Functional groups: Classification of organic compounds	16	31
Reactivity 1. What drives chemical reactions? Reactivity 1.1—Measuring enthalpy change Reactivity 1.2—Energy cycles in reactions Reactivity 1.3—Energy from fuels Reactivity 1.4—Entropy and spontaneity (Additional higher level)	12	22
Reactivity 2. How much, how fast and how far? Reactivity 2.1—How much? The amount of chemical change Reactivity 2.2—How fast? The rate of chemical change Reactivity 2.3—How far? The extent of chemical change	21	31

Reactivity 3. What are the mechanisms of chemical change? Reactivity 3.1—Proton transfer reactions Reactivity 3.2—Electron transfer reactions Reactivity 3.3—Electron sharing reactions Reactivity 3.4—Electron-pair sharing reactions	24	45
Experimental programme	**40**	**60**
Practical work	20	40
Collaborative sciences project	10	10
Scientific investigation	10	10

Skills in the study of chemistry

The skills and techniques students must experience through the course are encompassed within the tools. These support the application and development of the inquiry process in the delivery of the chemistry course.

Tools

- Experimental techniques
- Technology
- Mathematics

Inquiry process

- Exploring and designing
- Collecting and processing data
- Concluding and evaluating

Teachers are encouraged to provide opportunities for students to encounter and practise the skills throughout the programme. Rather than being taught as stand-alone topics, these skills should be integrated into the teaching of the syllabus when they are relevant to the syllabus topics being covered.

III. Assessment model

There are four assessment objectives for the DP chemistry course. Having followed the chemistry course, students are expected to demonstrate the following assessment objectives.

Assessment objective 1

Demonstrate knowledge of:

- terminology, facts and concepts
- skills, techniques and methodologies.

Assessment objective 2

Understand and apply knowledge of:

- terminology and concepts
- skills, techniques and methodologies.

Assessment objective 3

Analyse, evaluate, and synthesize:

- experimental procedures
- primary and secondary data
- trends, patterns and predictions.

Assessment objective 4

Demonstrate the application of 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
		SL	HL	
External		**3**	**4.5**	**80**
Paper 1	Paper 1A: Multiple-choice questions Paper 1B: Data-based questions and questions on experimental work	1.5	2	36
Paper 2	Short answer and extended-response questions	1.5	2.5	44
Internal		**10**		**20**
Scientific investigation	The scientific investigation is an open-ended task in which the student gathers and analyses data in order to answer their own formulated research question. The outcome of the scientific investigation will be assessed through the form of a written report. The maximum overall word count for the report is 3,000 words.	10		20

International Baccalaureate Diploma Programme Subject Brief

Sciences:

Computer science – Standard level

First assessments 2014

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

The IB DP Computer science SL course requires an understanding of the fundamental concepts of computational thinking as well as knowledge of how computers and other digital devices operate. The course, underpinned by conceptual thinking, draws on a wide spectrum of knowledge, and enables and empowers innovation, exploration and the acquisition of further knowledge. Students study how computer science interacts with and influences cultures, society and how individuals and societies behave, and the ethical issues involved. During the course the student will develop computational solutions. This will involve the ability to:

- identify a problem or unanswered question
- design, prototype and test a proposed solution
- liaise with clients to evaluate the success of the proposed solution and make recommendations for future developments.

The aims of the computer science standard level courses are to:

- provide opportunities for study and creativity within a global context that will stimulate and challenge students developing the skills necessary for independent and lifelong learning
- provide a body of knowledge, methods and techniques that characterize computer science
- enable students to apply and use a body of knowledge, methods and techniques that characterize computer science
- demonstrate initiative in applying thinking skills critically to identify and resolve complex problems
- engender an awareness of the need for, and the value of, effective collaboration and communication in resolving complex problems
- develop logical and critical thinking as well as experimental, investigative and problem-solving skills
- develop and apply the students' information and communication technology skills in the study of computer science to communicate information confidently and effectively
- raise awareness of the moral, ethical, social, economic and environmental implications of using science and technology
- develop an appreciation of the possibilities and limitations associated with continued developments in IT systems and computer science
- encourage an understanding of the relationships between scientific disciplines and the overarching nature of the scientific method.

II. Curriculum model overview

Component	Recommended teaching hours
Core syllabus content **SL/HL core** The topics that must be studied, including some practical work, are: • Topic 1: System fundamentals • Topic 2: Computer organization • Topic 3: Networks • Topic 4: Computational thinking, problem-solving and programming	80
Option **SL/HL core**	30
Internal assessment **Solution** • Practical application of skills through the development of a product and associated documentation	30
Group 4 project	10

III. Assessment model

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

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

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

Construct, analyse, evaluate and formulate:
- success criteria, solution specifications including task outlines, designs and test plans
- appropriate techniques within a specified solution.

Demonstrate the personal skills of cooperation and perseverance as well as appropriate technical skills for effective problem-solving in developing a specified product.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External			70
Paper 1	• Section A consists of several compulsory short answer questions • Section B consists of three compulsory structured questions.	1.5	45
Paper 2	An examination paper of between two and five compulsory questions; linked to the option studied.	1	25
Internal			30
Solution	The development of a computational solution. Students must produce: • a cover page that follows the prescribed format • a product supporting documentation (word limit 2,000 words). There must be evidence of independent research and investigation for students to reach the top level.	30	
Group 4 project	To be assessed using the criterion Personal skills.	10	

IV. Sample questions

- The colour of a pixel can be stored as a 16-bit integer.
  (a) State how many different colours can be represented in a 16-bit integerfield.
  (b) State whether this storage system for colour values is digital or analog.
  (c) Outline one advantage and one disadvantage of using 32-bits per-pixel to store colours instead of 16-bits per-pixel.
- State the output of the following code fragment:
  double n= 1234.5678;
  double p = math.floor((n*100)/100); output (p);
  Recall that math.floor(3.7) produces the integer result 3.

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International Baccalaureate Diploma Programme Subject Brief

Sciences:

Computer science – Higher level

First assessments 2014

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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

The IB DP computer science HL course requires an understanding of the fundamental concepts of computational thinking as well as knowledge of how computers and other digital devices operate. The course, underpinned by conceptual thinking, draws on a wide spectrum of knowledge, and enables and empowers innovation, exploration and the acquisition of further knowledge. Students study how computer science interacts with and influences cultures, society and how individuals and societies behave, and the ethical issues involved. During the course the student will develop computational solutions. This will involve the ability to:

- identify a problem or unanswered question
- design, prototype and test a proposed solution
- liaise with clients to evaluate the success of the proposed solution and make recommendations for future developments.

The aims of the computer science HL courses are to:

- provide opportunities for study and creativity within a global context that will stimulate and challenge students developing the skills necessary for independent and lifelong learning
- provide a body of knowledge, methods and techniques that characterize computer science
- enable students to apply and use a body of knowledge, methods and techniques that characterize computer science
- demonstrate initiative in applying thinking skills critically to identify and resolve complex problems
- engender an awareness of the need for, and the value of, effective collaboration and communication in resolving complex problems
- develop logical and critical thinking as well as experimental, investigative and problem-solving skills
- develop and apply the students' information and communication technology skills in the study of computer science to communicate information confidently and effectively
- raise awareness of the moral, ethical, social, economic and environmental implications of using science and technology
- develop an appreciation of the possibilities and limitations associated with continued developments in IT systems and computer science
- encourage an understanding of the relationships between scientific disciplines and the overarching nature of the scientific method.

II. Curriculum model overview

Component	Recommended teaching hours
Core syllabus content	
SL/HL core • Topic 1: System fundamentals • Topic 2: Computer organization • Topic 3: Networks • Topic 4: Computational thinking, problem-solving and programming	80
HL extension • Topic 5: Abstract data structures • Topic 6: Resource management • Topic 7: Control	45
Case study Additional subject content introduced by the annually issued case study	30

Option **SL/HL core** **HL extension** Students study one of the following options: • Option A: Databases • Option B: Modelling and simulation • Option C: Web science • Option D: Object-oriented programming (OOP)	 30 15
Internal assessment **Solution** Practical application of skills through the development of a product and associated documentation	30
Group 4 project	10

III. Assessment model

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

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

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

Construct, analyse, evaluate and formulate:
- success criteria, solution specifications including task outlines, designs and test plans
- appropriate techniques within a specified solution.

Demonstrate the personal skills of cooperation and perseverance as well as appropriate technical skills for effective problem-solving in developing a specified product.

Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External			80
Paper 1	• Section A consists of several compulsory short answer questions. • Section B consists of five compulsory structured questions.	2 hours, 10 min.	40
Paper 2	An examination paper of between three and seven compulsory question; linked to the option studied.	1 hour, 20 min.	20
Paper 3	An examination paper consisting of four compulsory questions based on a pre-seen case study.	1 hour	20
Internal			20
Written commentary	A report of The development of a computational solution. Students must produce: • a cover page that follows the prescribed format • a product • supporting documentation (word limit 2,000 words).	30 hours	25
Group 4 project	To be assessed using the criterion Personal skills.	10 hours	

IV. Sample questions

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

International Baccalaureate
Diploma Programme Subject Brief

Sciences: Physics

First assessment 2025

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.

I. Course description and aims

As one of the three natural sciences in the IB Diploma Programme, physics is concerned with an attempt to understand the natural world; from determining the nature of the atom to finding patterns in the structure of the universe. It is the search for answers from how the universe exploded into life to the nature of time itself. Observations are 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 leading to a better understanding of the natural world, physics gives us the ability to alter our environments.

DP physics enables students to constructively engage with topical scientific issues. Students examine scientific knowledge claims in a real-world context, fostering interest and curiosity. By exploring the subject, they develop understandings, skills and techniques which can be applied across their studies and beyond.

Integral to the student experience of the DP physics course is the learning that takes place through scientific inquiry both in the classroom and the laboratory.

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

1. develop conceptual understanding that allows connections to be made between different areas of the subject, and to other DP sciences subjects
2. acquire and apply a body of knowledge, methods, tools and techniques that characterize science
3. develop the ability to analyse, evaluate and synthesize scientific information and claims
4. develop the ability to approach unfamiliar situations with creativity and resilience
5. design and model solutions to local and global problems in a scientific context
6. develop an appreciation of the possibilities and limitations of science
7. develop technology skills in a scientific context

8. develop the ability to communicate and collaborate effectively
9. develop awareness of the ethical, environmental, economic, cultural and social impact of science.

II. Curriculum model overview

The DP physics course promotes concept-based teaching and learning to foster critical thinking.

The DP physics course is built on:

- approaches to learning
- nature of science
- skills in the study of physics.

These three pillars support a broad and balanced experimental programme. As students progress through the course, they become familiar with traditional experimentation techniques, as well as the application of technology. These opportunities help them to develop their investigative skills and evaluate the impact of error and uncertainty in scientific inquiry. The scientific investigation then places a specific emphasis on inquiry-based skills and the formal communication of scientific knowledge. Finally, the collaborative sciences project extends the development of scientific communication in a collaborative and interdisciplinary context, allowing students to work together beyond the confines of physics.

Syllabus component	Recommended teaching hours	
	SL	HL
Syllabus content	**110**	**180**
A Space, time and motion A.1 Kinematics • A.2 Forces and momentum • A.3 Work, energy and power • A.4 Rigid body mechanics ••• A.5 Galilean and special relativity •••	27	42
B. The particulate nature of matter B.1 Thermal energy transfers • B.2 Greenhouse effect • B.3 Gas laws • B.4 Thermodynamics ••• B.5 Current and circuits •	24	32
C. Wave behaviour C.1 Simple harmonic motion •• C.2 Wave model • C.3 Wave phenomena •• C.4 Standing waves and resonance • C.5 Doppler effect ••	17	29
D. Fields D.1 Gravitational fields •• D.2 Electric and magnetic fields •• D.3 Motion in electromagnetic fields • D.4 Induction •••	19	38

E. Nuclear and quantum physics E.1 Structure of the atom •• E.2 Quantum physics ••• E.3 Radioactive decay •• E.4 Fission • E.5 Fusion and stars •	23	39
Experimental programme	**40**	**60**
Practical work	20	40
Collaborative sciences project	10	10
Scientific investigation	10	10

Key to table:

• Topics with content that should be taught to all students

•• Topics with content that should be taught to all students plus additional HL content

••• Topics with content that should only be taught to HL students

Skills in the study of physics

The skills and techniques students must experience through the course are encompassed within the tools. These support the application and development of the inquiry process in the delivery of the physics course.

Tools

- Experimental techniques
- Technology
- Mathematics

Inquiry process

- Exploring and designing
- Collecting and processing data
- Concluding and evaluating

Teachers are encouraged to provide opportunities for students to encounter and practise the skills throughout the programme. Rather than being taught as stand-alone topics, these skills should be integrated into the teaching of the syllabus when they are relevant to the syllabus topics being covered.

III. Assessment model

There are four assessment objectives for the DP physics course. Having followed the physics course, students are expected to demonstrate the following assessment objectives.

Assessment objective 1

Demonstrate knowledge of:

- terminology, facts and concepts
- skills, techniques and methodologies.

Assessment objective 2

Understand and apply knowledge of:

- terminology and concepts
- skills, techniques and methodologies.

Assessment objective 3

Analyse, evaluate, and synthesize:

- experimental procedures
- primary and secondary data
- trends, patterns and predictions.

Assessment objective 4

Demonstrate the application of 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
		SL	HL	
External		**3**	**4.5**	**80**
Paper 1	Paper 1A: Multiple-choice questions Paper 1B: Data-based questions	1.5	2	36
Paper 2	Short-answer and extended-response questions	1.5	2.5	44
Internal		**10**		**20**
Scientific investigation	The scientific investigation is an open-ended task in which the student gathers and analyses data in order to answer their own formulated research question. The outcome of the scientific investigation will be assessed through the form of a written report. The maximum overall word count for the report is 3,000 words.	10		20

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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.

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

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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
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- 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
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- 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.
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- **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

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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.

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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*?

International Baccalaureate
Diploma Programme Subject Brief

Diploma Programme core: Theory of knowledge

First assessment 2022

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.

I. Course description and aims

The theory of knowledge (TOK) course plays a special role in the DP by providing an opportunity for students to reflect on the nature, scope and limitations of knowledge and the process of knowing. In this way, the main focus of TOK is not on students acquiring new knowledge but on helping students to reflect on, and put into perspective, what they already know. TOK underpins and helps to unite the subjects that students encounter in the rest of their DP studies. It engages students in explicit reflection on how knowledge is arrived at in different disciplines and areas of knowledge, on what these areas have in common and the differences between them.

The aims of the TOK course are:

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

II. Curriculum model overview

Course elements	Minimum teaching hours
Core theme: Knowledge and the knower This theme provides an opportunity for students to reflect on themselves as knowers and thinkers, and on the different communities of knowers to which we belong.	32
Optional themes Students are required to study **two** optional themes from the following five options. • Knowledge and technology • Knowledge and language • Knowledge and politics • Knowledge and religion • Knowledge and indigenous societies	
Areas of knowledge Students are required to study the following **five** areas of knowledge. • History • The human sciences • The natural sciences • The arts • Mathematics	50

III. Assessment model

Students are required to complete **two** assessment tasks for TOK.

- Theory of knowledge exhibition
- Theory of knowledge essay on a prescribed title

Assessment objectives

Having completed the TOK course, students should be able to:

- demonstrate TOK thinking through the critical examination of knowledge questions
- identify and explore links between knowledge questions and the world around us
- identify and explore links between knowledge questions and areas of knowledge
- develop relevant, clear and coherent arguments
- use examples and evidence effectively to support a discussion
- demonstrate awareness and evaluation of different points of view
- consider the implications of arguments and conclusions.

Assessment details

Type of assessment	Format of assessment	Hours	Weighting
External	Theory of knowledge essay	10	2/3 or 67%
Students are required to write an essay in response to one of the six prescribed titles that are issued by the IB for each examination session. As an external assessment component, it is marked by IB examiners.			
Internal	Theory of knowledge exhibition	8	1/3 or 33%
Students are required to create an exhibition of three objects with accompanying commentaries that explores how TOK manifests in the world around us. This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.			

IV. Sample questions

Specimen essay titles

- How important are the opinions of experts in the search for knowledge? Answer with reference to the arts and one other area of knowledge.
- Is the division of the natural sciences and mathematics into separate areas of knowledge artificial?
- When historians and natural scientists say that they have explained something, are they using the word "explain" in the same way?
- Are there fewer ethical constraints on the pursuit of knowledge in the arts than in the human sciences?
- How do our expectations impact our interpretations? Discuss with reference to history and one other area of knowledge.
- To what extent do you agree with the claim that "knowledge is of no value unless you put it into practice" (Anton Chekhov)? Answer with reference to two areas of knowledge.

Sample exhibition prompts

- What counts as knowledge?
- On what grounds might we doubt a claim?
- Are some types of knowledge less open to interpretation than others?
- Is bias inevitable in the production of knowledge?
- Should some knowledge not be sought on ethical grounds?
- What role do experts play in influencing our consumption or acquisition of knowledge?
- How can we distinguish between knowledge, belief and opinion?