



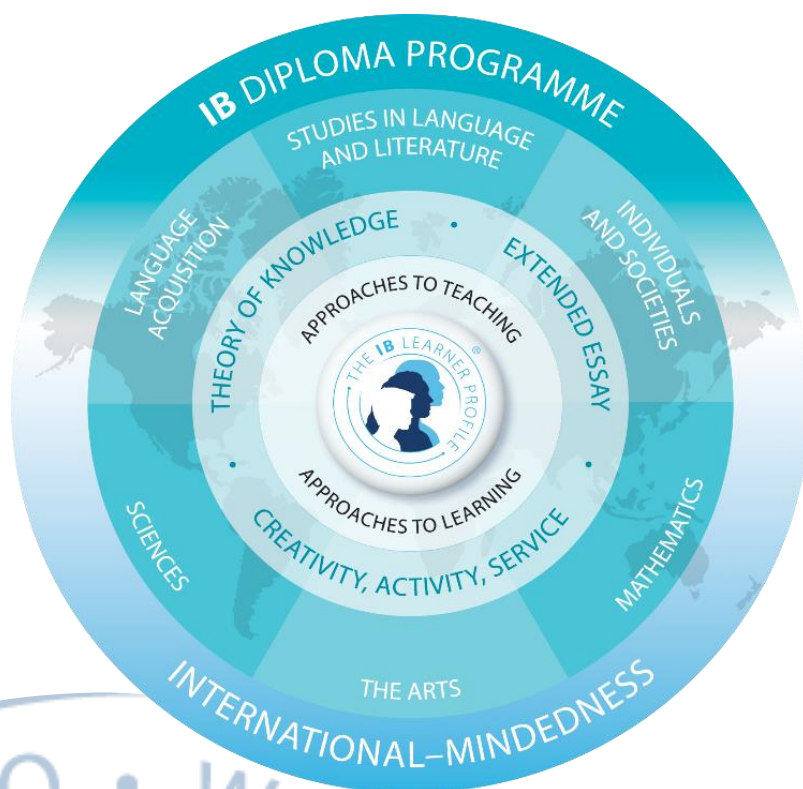
# IB DIPLOMA PROGRAMME HANDBOOK

## International Baccalaureate



### Madrasah Aljunied Al-Islamiah

***A tradition of Excellence; Forging into the Future***



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## The International Baccalaureate:

- One Mission
- Four Challenging Programmes Providing A Continuum Of Education For Children From 3-19 Years
- Over 4,200 Ib World Schools Implementing More Than 5,300 Programmes
- More Than 75,000 Teachers Trained Each Year
- More Than 1,250,000 Students Aged 3 To 19



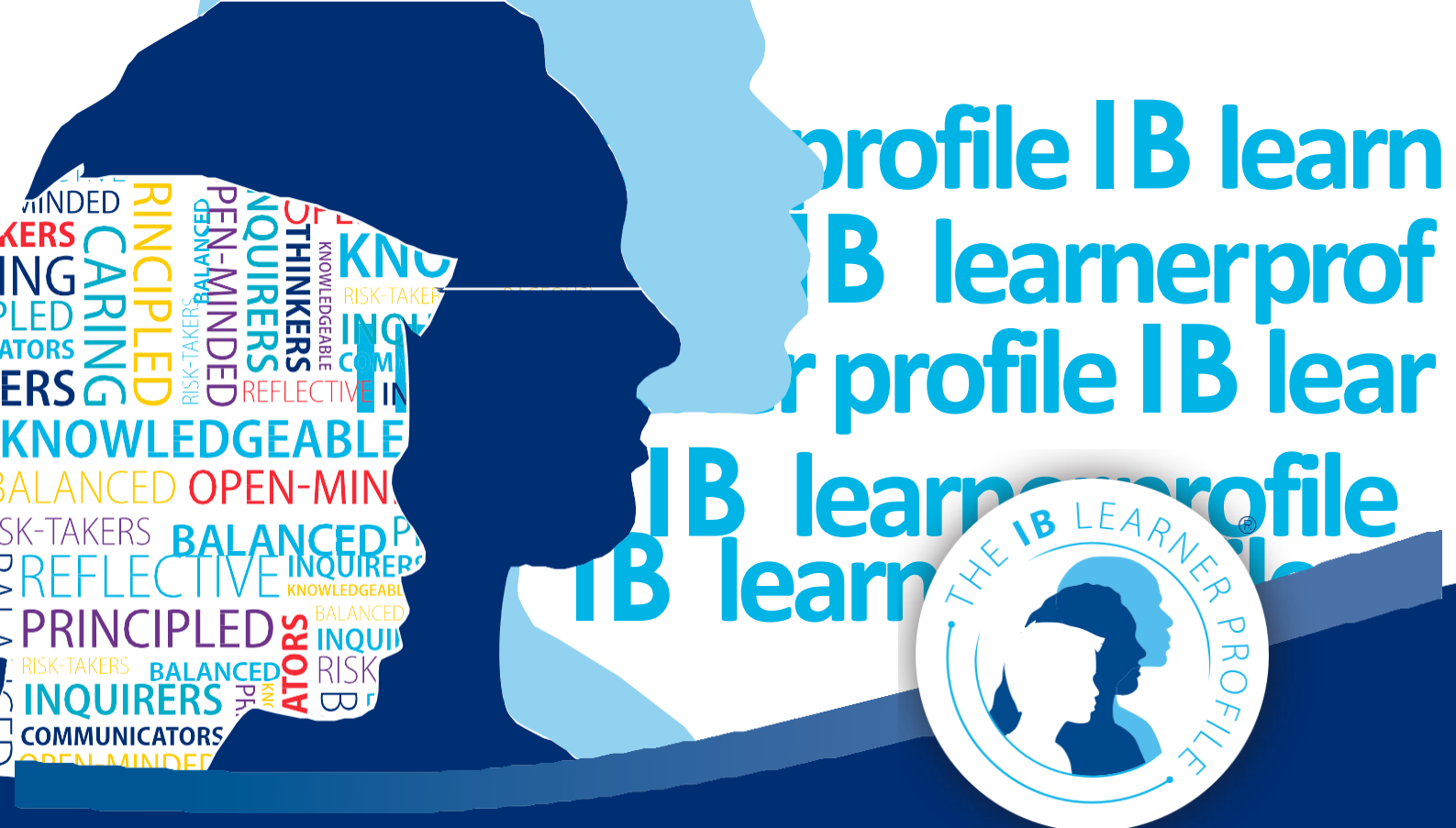


IB programmes share a powerful vision that is informed by the values described in the learner profile.

An IB education:

- **focuses on learners**  
the IB's student-centred programmes promote healthy relationships, ethical responsibility and personal challenge,
- **develops effective approaches to teaching and learning**  
IB programmes help students to develop the attitudes and skills they need for both academic and personal success,
- **works within global contexts**  
IB programmes increase understanding of languages and cultures, and explore globally significant ideas and issues,
- **explores significant content**  
IB programmes offer a curriculum that is broad and balanced, conceptual and connected.





# IB learner Profile

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

As IB learners we strive to be:

## INQUIRERS

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

## KNOWLEDGEABLE

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

## THINKERS

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

## COMMUNICATORS

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

## PRINCIPLED

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

## OPEN-MINDED

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

## CARING

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

## RISK-TAKERS

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

## BALANCED

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

## REFLECTIVE

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

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



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# ONE MISSION

## Approaches on Teaching & Learning



The IB community is united through a powerful mission, to create a better world through high quality, international education. Schools join us because of our reputation as a leader in our field.

**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.**

The IB offers four high-quality and challenging educational programmes for a worldwide community of schools, aiming to create a better, more peaceful world.

For 45 years we have delivered programmes designed to engage students from 3 to 19 years of age in educational learning that equips them for life in the 21st century.

IB students embrace their own cultures and are open and responsive to other cultures and views. They are fully engaged, ever curious learners for life.

At the heart of all our programmes is the IB Learner Profile, a long-term, holistic vision of education that underpins the IB continuum of education and puts the student at the centre of everything we do. The Learner Profile is the IB mission statement in action and provides a set of learning behaviours which aims to inspire, motivate and focus students, teachers and the entire IB School community, uniting them in a common purpose.



# INTERNATIONALLY MINDED LEARNERS

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

As IB learners, we strive to be:

## **Inquirers**

We nurture our curiosity, developing skills for inquiry and research. We know how to learn independently and with others.

We learn with enthusiasm and sustain our love of learning throughout life.

## **Knowledgeable**

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

## **Thinkers**

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

## **Communicators**

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

## **Principled**

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

## **Open-minded**

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

## **Caring**

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

## **Risk-takers**

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

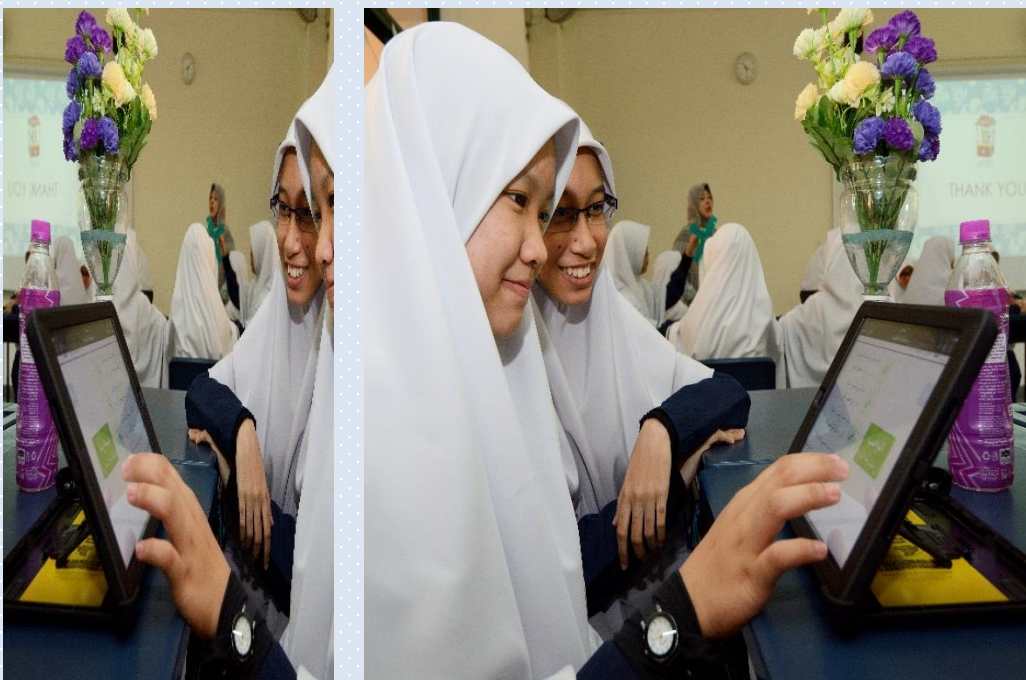
## **Balanced**

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

## **Reflective**

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

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





## 1.0 Pre-IBDP Secondary 3 and 4 academic subjects (adapted from the IBDP grade descriptors)

Percentage	Grade	Description
87 and above	7	Excellent
73 - 86	6	Very Good
62 - 72	5	Good
48 - 61	4	Satisfactory
30 - 47	3	Mediocre
14 - 29	2	Poor
0 - 13	1	Very Poor

## 2.0 IBDP Year 1 to IBDP Year 2

Students in the programme will undergo a 2-year curriculum and will not be retained in IBDP Year 1. However, the madrasah uses the IBDP overall grade descriptors and subject-specific boundaries, to ensure that students are on task and receive appropriate academic counselling, according to their performance.

**3.0** The following IBDP grade descriptors and passing guidelines apply:

Grade	Descriptor
7	Excellent performance
6	Very good performance
5	Good performance
4	Satisfactory performance
3	Mediocre performance
2	Poor performance
1	Very poor performance

- Min grade: 24 points from Groups 1 – 5
- All 6 subjects have been awarded grades
- No grade 1 in any subject
- Not more than 2 grades 2 at HL and SL
- At least a total of 12 points for HL subjects
- At least a total of 9 points for SL subjects
- TOK and EE results must meet expectations for a potential Predicted Grade C
- Meeting expectations for CAS
- Free from malpractice
- Students who score below 24 points will be promoted and have to undergo academic counselling on their study options and study management
- Requirements for passing the Azhar 2.0 examinations and promotion to Pre-University 2 will be the same as for students in the Azhar 2.0 Programme.

# International Baccalaureate Diploma Programme Subject Brief

Studies in language and literature:

English A: Language and literature – Higher level

First assessments 2013 – Last assessments 2020

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

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

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

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

## II. Curriculum model overview

Component	Recommended teaching hours
<b>Part 1: Language in cultural context</b> <ul style="list-style-type: none"> <li>• effect of audience and purpose on the structure and content of texts</li> <li>• impact of language changes</li> <li>• effect of culture and context on language and meaning</li> </ul>	60
<b>Part 2: Language and mass communication</b> <ul style="list-style-type: none"> <li>• forms of communication within the media</li> <li>• educational, political or ideological influence of the media</li> <li>• ways in which mass media use language and image to inform, persuade or entertain</li> </ul>	60



<b>Part 3: Literature—texts and contexts</b> <ul style="list-style-type: none"> <li>historical, cultural and social contexts in which texts are written and received</li> <li>relationship between context and formal elements of the text, genre and structure</li> <li>attitudes and values expressed by literary texts and their impact on readers</li> </ul>	70
<b>Part 4: Literature—critical study</b> <ul style="list-style-type: none"> <li>detailed exploration of literary works</li> <li>elements such as theme and the ethical stance or moral values of literary texts</li> <li>appropriate use of literary terms</li> </ul>	50

### III. Assessment model

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

#### Knowledge and understanding

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

#### Application and analysis

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

#### Synthesis and evaluation

- ability to compare and contrast the formal elements, content and context of texts
- ability to discuss the ways in which language and image may be used in a range of texts
- ability to evaluate conflicting viewpoints within and about a text
- ability to produce a critical response evaluating some aspects of text, context and meaning

#### Selection and use of appropriate presentation and language skills

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

### Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		4	70
Paper 1	A written comparative analysis of one pair of unseen texts.	2	25
Paper 2	In response to one of six questions, an essay based on at least two texts studied.	2	25
Written Tasks	At least four written tasks based on course material, two for external assessment.		20
Internal			30
Individual oral commentary	An oral commentary on an extract from a literary text studied; two guiding questions are given.		15
Further oral activity	At least two further oral activities. The mark of one is submitted for final assessment.		15

### IV. Sample questions

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

About the IB: For over 40 years the IB has built a reputation for high-quality, challenging programmes of education that develop internationally minded young people who are well prepared for the challenges of life in the 21st century and able to contribute to creating a better, more peaceful world.

For further information on the IB Diploma Programme, visit: <http://www.ibo.org/diploma/> Complete subject guides can be accessed through the IB Online Curriculum Center (OCC), the IB university and government official system, or purchased through the IB store: <http://store.ibo.org>

To learn more about how the IB Diploma Programme prepares students for success at university, visit: [www.ibo.org/recognition](http://www.ibo.org/recognition) or email: [recognition@ibo.org](mailto:recognition@ibo.org)

# 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.

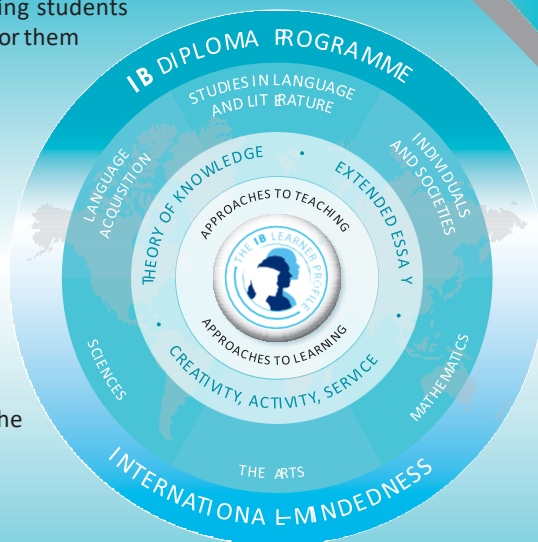
This IB DP subject brief has four key components:

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.

- 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 through 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%	<b>Paper 1</b> (productive skills) One writing task from a choice of three	25%
	Writing—30 marks	
	<b>Paper 2</b> (receptive skills) Separate sections for listening and reading	
Internal 25%	Listening—25 marks	25%
	Reading—40 marks	25%
	<b>Individual oral assessment</b> 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
<b>Identities</b>	Explore the nature of the self and what it is to be human.	<ul style="list-style-type: none"> <li>• Lifestyles</li> <li>• Health and well-being</li> <li>• Beliefs and values</li> </ul>	<ul style="list-style-type: none"> <li>• Subcultures</li> <li>• Language and identity</li> </ul>	<ul style="list-style-type: none"> <li>• What constitutes an identity?</li> <li>• How do language and culture contribute to form our identity?</li> </ul>
<b>Experiences</b>	Explore and tell the stories of the events, experiences and journeys that shape our lives.	<ul style="list-style-type: none"> <li>• Leisure activities</li> <li>• Holidays and travel</li> <li>• Life stories</li> </ul>	<ul style="list-style-type: none"> <li>• Rites of passage</li> <li>• Customs and traditions</li> <li>• Migration</li> </ul>	<ul style="list-style-type: none"> <li>• How does our past shape our present and our future?</li> <li>• How and why do different cultures mark important moments in life?</li> </ul>
<b>Human ingenuity</b>	Explore the ways in which human creativity and innovation affect our world.	<ul style="list-style-type: none"> <li>• Entertainment</li> <li>• Artistic expressions</li> <li>• Communication and media</li> </ul>	<ul style="list-style-type: none"> <li>• Technology</li> <li>• Scientific innovation</li> </ul>	<ul style="list-style-type: none"> <li>• What can we learn about a culture through its artistic expression?</li> <li>• How do the media change the way we relate to each other?</li> </ul>
<b>Social organization</b>	Explore the ways in which groups of people organize themselves, or are organized, through common systems or interests.	<ul style="list-style-type: none"> <li>• Social relationships</li> <li>• Community</li> <li>• Social engagement</li> </ul>	<ul style="list-style-type: none"> <li>• Education</li> <li>• The working world</li> <li>• Law and order</li> </ul>	<ul style="list-style-type: none"> <li>• What is the individual's role in the community?</li> <li>• What role do rules and regulations play in the formation of a society?</li> </ul>
<b>Sharing the planet</b>	Explore the challenges and opportunities faced by individuals and communities in the modern world.	<ul style="list-style-type: none"> <li>• The environment</li> <li>• Human rights</li> <li>• Peace and conflict</li> <li>• Equality</li> </ul>	<ul style="list-style-type: none"> <li>• Globalization</li> <li>• Ethics</li> <li>• Urban and rural environment</li> </ul>	<ul style="list-style-type: none"> <li>• What environmental and social issues present challenges to the world, and how can these challenges be overcome?</li> <li>• What challenges and benefits does globalization bring?</li> </ul>

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

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Complete subject guides can be accessed through the programme resource centre or purchased through the IB store: [store.ibo.org](http://store.ibo.org).

For more on how the DP prepares students for success at university, visit: [www.ibo.org/en/university-admission](http://www.ibo.org/en/university-admission).



# International Baccalaureate Diploma Programme Subject Brief

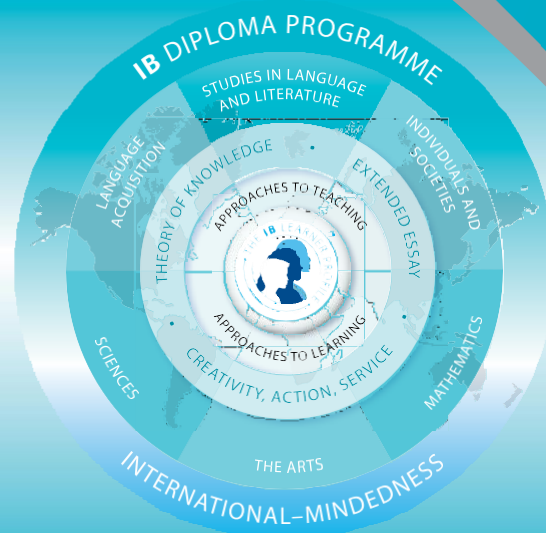
Individuals and societies:

Global politics—standard level

First assessments 2017—last assessments 2023

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

To ensure both breadth and depth of knowledge and understanding, students must choose six courses from six distinct groups: 1) studies in language and literature; 2) language acquisition; 3) individuals and societies; 4) sciences; 5) mathematics; 6) the arts. Students may choose to replace the arts course with a second course from one of the other five groups. At least three, and not more than four, subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, activity, service—are compulsory and central to the philosophy of the programme.



These DP subject briefs illustrate four key course components.

- I. Course description and aims
- II. Curriculum model overview

- III. Assessment model
- IV. Sample questions

## I. Course description and aims

The 21st century is characterized by rapid change and increasing interconnectedness, impacting individuals and societies in unprecedented ways and creating complex global political challenges. Global politics is an exciting, dynamic subject that draws on a variety of disciplines in the social sciences and humanities, reflecting the complex nature of many contemporary political issues. The study of global politics enables students to critically engage with different and new perspectives and approaches to politics in order to comprehend the challenges of the changing world and become aware of their role in it as active global citizens.

The DP global politics course explores fundamental political concepts such as power, equality, sustainability and peace in a range of contexts. It allows students to develop an understanding of the local, national, international and global dimensions of political activity and processes, as well as to explore political issues affecting their own lives. The course helps students to understand abstract political concepts by grounding them in real-world examples and case studies. It also invites comparison between such examples and case studies to ensure a wider and transnational perspective.

The core units of the course together make up a central unifying theme of “people, power and politics”. The emphasis on “people” reflects the fact that the course explores politics not only at a state level but also explores the function and impact of non-state actors, communities, groups and individuals. The concept of “power” is also emphasized as being particularly crucial to understanding the dynamics, tensions and outcomes of global politics. Throughout the course, issues such as conflict, migration or climate change are explored through an explicitly political lens:

“politics” provides a uniquely rich context in which to explore the relationship between people and power. Teachers explicitly teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources.

The aims of the global politics course are to enable students to:

- understand key political concepts and contemporary political issues in a range of contexts
- develop an understanding of the local, national, international and global dimensions of political activity
- understand, appreciate and critically engage with a variety of perspectives and approaches in global politics
- appreciate the complex and interconnected nature of many political issues, and develop the capacity to interpret competing and contestable claims regarding those issues.

## II. Curriculum model overview

Component	Recommended teaching hours
<b>Core units: People, power and politics</b> Four compulsory units: <ol style="list-style-type: none"> <li>1. Power, sovereignty and international relations</li> <li>2. Human rights</li> <li>3. Development</li> <li>4. Peace and conflict</li> </ol>	<b>130</b>
<b>Engagement activity</b> An engagement on a political issue of personal interest, complemented with research.	<b>20</b>

### III. Assessment model

There are four assessment objectives for the DP global politics 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 knowledge and understanding of key political concepts and contemporary issues in global politics.
- Demonstrate understanding of relevant source material.
- Demonstrate understanding of a political issue in a particular experiential situation.

#### Assessment objective 2: Application and analysis

- Apply knowledge of key political concepts to analyse contemporary political issues in a variety of contexts.
- Identify and analyse relevant material and supporting examples.
- Use political concepts and examples to formulate, present and sustain an argument.
- Apply knowledge of global politics to inform and analyse experiential learning about a political issue.

#### Assessment objective 3: Synthesis and evaluation

- Compare, contrast, synthesize and evaluate evidence from sources and background knowledge.
- Compare, contrast, synthesize and evaluate a variety of perspectives and approaches to global politics, and evaluate political beliefs, biases and prejudices, and their origin.
- Synthesize and evaluate results of experiential learning and more theoretical perspectives on a political issue.

#### Assessment objective 4: Use and application of appropriate skills

- Produce well-structured written material that uses appropriate terminology.
- Organize material into a clear, logical, coherent and relevant response.
- Demonstrate evidence of research skills, organization and referencing.

### Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		3	75
Paper 1	Stimulus-based paper based on a topic from one of the four core units	1.25	30
Paper 2	Extended response paper based on the four core units	1.75	45
Internal			
Engagement activity	A written report (2,000-word maximum) on a political issue explored through engagement and research.	20	25

### IV. Sample questions

#### Paper 1

- Contrast the views of two sources within the stimulus material regarding the relationship between NGOs and the state.
- “NGOs are insignificant actors in global politics.” Using the sources and your own knowledge evaluate this claim.

#### Paper 2

- To what extent is state sovereignty an outdated concept in the 21st century?
- Evaluate the claim that humanitarian intervention is a justifiable intrusion into the sovereignty of a state.

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# International Baccalaureate Diploma Programme Subject Brief

Individuals and societies:

Global politics—higher level

First assessments 2017—last assessments 2023

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

To ensure both breadth and depth of knowledge and understanding, students must choose six courses from six distinct groups: 1) studies in language and literature; 2) language acquisition; 3) individuals and societies; 4) sciences; 5) mathematics; 6) the arts. Students may choose to replace the arts course with a second course from one of the other five groups. At least three, and not more than four, subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, activity, service—are compulsory and central to the philosophy of the programme.



These DP subject briefs illustrate four key course components.

- I. Course description and aims
- II. Curriculum model overview

- III. Assessment model
- IV. Sample questions

## I. Course description and aims

The DP global politics course explores fundamental political concepts such as power, equality, sustainability and peace in a range of contexts. It allows students to develop an understanding of the local, national, international and global dimensions of political activity and processes, as well as to explore political issues affecting their own lives. The course helps students to understand abstract political concepts by grounding them in real-world examples and case studies. It also invites comparison between such examples and case studies to ensure a wider and transnational perspective.

Teachers explicitly teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources. The study of global politics enables students to critically engage with different and new perspectives and approaches to politics in order to comprehend the challenges of the changing world and become aware of their role in it as active global citizens.

The aims of the global politics course are to enable students to:

- understand key political concepts and contemporary political issues in a range of contexts
- develop an understanding of the local, national, international and global dimensions of political activity
- understand, appreciate and critically engage with a variety of perspectives and approaches in global politics
- appreciate the complex and interconnected nature of many political issues, and develop the capacity to interpret competing and contestable claims regarding those issues.

## II. Curriculum model overview

Component	Recommended teaching hours
<b>Core units: People, power and politics</b> Four compulsory units: <ol style="list-style-type: none"> <li>1. Power, sovereignty and international relations</li> <li>2. Human rights</li> <li>3. Development</li> <li>4. Peace and conflict</li> </ol>	<b>130</b>
<b>Engagement activity</b> An engagement on a political issue of personal interest, complemented with research.	<b>20</b>
<b>HL extension: Global political challenges</b> Political issues in two of the following six global political challenges are researched and presented through a case study approach. <ol style="list-style-type: none"> <li>1. Environment</li> <li>2. Poverty</li> <li>3. Health</li> <li>4. Identity</li> <li>5. Borders</li> <li>6. Security</li> </ol>	<b>90</b>



### III. Assessment model

There are four assessment objectives for the DP global politics 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 knowledge and understanding of key political concepts and contemporary issues in global politics.
- Demonstrate understanding of relevant source material.
- Demonstrate understanding of a political issue in a particular experiential situation.
- Demonstrate in-depth knowledge and understanding of political issues in two detailed case studies.

#### Assessment objective 2: Application and analysis

- Apply knowledge of key political concepts to analyse contemporary political issues in a variety of contexts.
- Identify and analyse relevant material and supporting examples.
- Use political concepts and examples to formulate, present and sustain an argument.
- Apply knowledge of global politics to inform and analyse experiential learning about a political issue.
- Apply knowledge of global politics to analyse political issues in two case studies.

#### Assessment objective 3: Synthesis and evaluation

- Compare, contrast, synthesize and evaluate evidence from sources and background knowledge.
- Compare, contrast, synthesize and evaluate a variety of perspectives and approaches to global politics, and evaluate political beliefs, biases and prejudices, and their origin.
- Synthesize and evaluate results of experiential learning and more theoretical perspectives on a political issue.
- Demonstrate synthesis and evaluation of different approaches to, and interpretations of, political issues in two case studies.

#### Assessment objective 4: Use and application of appropriate skills

- Produce well-structured written material that uses appropriate terminology.
- Organize material into a clear, logical, coherent and relevant response.
- Demonstrate evidence of research skills, organization and referencing.
- Present ideas orally with clarity.

### Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		4	60
Paper 1	Stimulus-based paper on a topic from one of the four core units	1.25	20
Paper 2	Extended response paper based on the four core units	2.75	40
Internal			
Engagement activity	A written report (2,000-word maximum) on a political issue explored through engagement and research.	20	20
HL extension: global political challenges	Two video-recorded oral presentations (10-minute maximum each) of two case studies chosen from two different HL extension topics.	90	20

### IV. Sample questions

#### Paper 1

- According to the stimulus material, what are three advantages of NGOs over other actors in global politics?
- Explain the term “civil society”, using both the information in the sources and examples you have studied.

#### Paper 2

- “A national or regional approach to human rights enforcement is more effective than a global approach.” Discuss.
- Evaluate the claim that humanitarian intervention is a justifiable intrusion into the sovereignty of a state.

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# International Baccalaureate Diploma Programme Subject Brief

Sciences:

Chemistry—Standard level

First assessments 2016 – Last assessments 2022

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To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students may choose either an arts subject from group 6, or a second subject from groups 1 to 5. At least three and not more than four subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, action, service—are compulsory and central to the philosophy of the programme.



These IB DP subject briefs illustrate four key course components.

- I. Course description and aims
- II. Curriculum model overview

- III. Assessment model
- IV. Sample questions

## I. Course description and aims

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

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

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

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

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities
2. acquire a body of knowledge, methods and techniques that characterize science and technology
3. apply and use a body of knowledge, methods and techniques that characterize science and technology

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

## II. Curriculum model overview

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

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

## The group 4 project

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

## III. Assessment model

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

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

## Assessment at a glance

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

## IV. Sample questions

- What is the total number of atoms in 0.50 mol of 1,4-diaminobenzene,  $\text{H}_2\text{NC}_6\text{H}_4\text{NH}_2$ ?
  - A.  $16.0 \times 10^{23}$
  - B.  $48.0 \times 10^{23}$
  - C.  $96.0 \times 10^{23}$
  - D.  $192.0 \times 10^{23}$
 (Avogadro's constant ( $L$  or  $N_A$ ) =  $6.0 \times 10^{23} \text{ mol}^{-1}$ .) (Paper 1)
- Many automobile manufacturers are developing vehicles that use hydrogen as a fuel.
  1. Suggest why such vehicles are considered to cause less harm to the environment than those with internal combustion engines.
  2. Hydrogen can be produced from the reaction of coke with steam:  $\text{C(s)} + 2\text{H}_2\text{O(g)} \rightarrow 2\text{H(g)} + \text{CO(g)}$   
Using information from section 12 of the data booklet, calculate the change in enthalpy,  $\Delta H$ , in  $\text{kJ mol}^{-1}$ , for this reaction. (Paper 2)

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# International Baccalaureate Diploma Programme Subject Brief

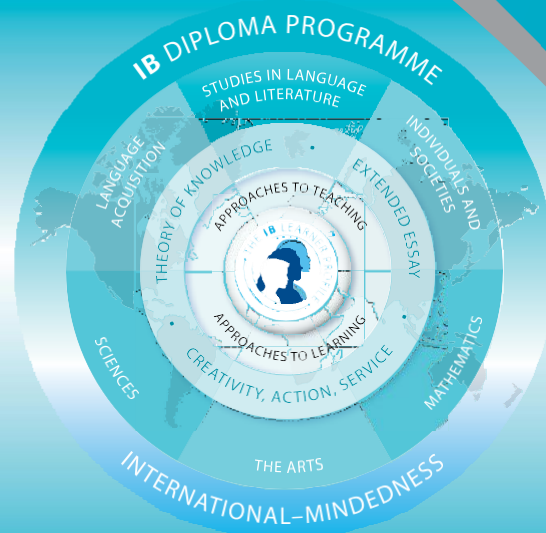
Interdisciplinary course:

Environmental systems and societies—standard level

First assessments 2017—last assessments 2023

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

To ensure both breadth and depth of knowledge and understanding, students must choose six courses from six distinct groups: 1) studies in language and literature; 2) language acquisition; 3) individuals and societies; 4) sciences; 5) mathematics; 6) the arts. Students may choose to replace the arts course with a second course from one of the other five groups. At least three, and not more than four, subjects are taken at higher level (240 recommended teaching hours), while the remaining are taken at standard level (150 recommended teaching hours). In addition, three core elements—the extended essay, theory of knowledge and creativity, activity, service—are compulsory and central to the philosophy of the programme.



These DP subject briefs illustrate four key course components.

I. Course description and aims

II. Curriculum model overview

III. Assessment model

IV. Sample questions

## I. Course description and aims

Environmental systems and societies (ESS) is an interdisciplinary course offered only at standard level (SL). This course can fulfill either the individuals and societies or the sciences requirement. Alternatively, this course enables students to satisfy the requirements of both subjects groups simultaneously while studying one course.

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

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

The aims of the DP **environmental systems and societies** course are to enable students to:

- acquire the knowledge and understandings of environmental systems and issues at a variety of scales
- apply the knowledge, methodologies and skills to analyse environmental systems and issues at a variety of scales
- appreciate the dynamic interconnectedness between environmental systems and societies
- value the combination of personal, local and global perspectives in making informed decisions and taking responsible actions on environmental issues
- be critically aware that resources are finite, that these could be inequitably distributed and exploited, and that management of these inequities is the key to sustainability
- develop awareness of the diversity of environmental value systems
- develop critical awareness that environmental problems are caused and solved by decisions made by individuals and societies that are based on different areas of knowledge
- engage with the controversies that surround a variety of environmental issues
- create innovative solutions to environmental issues by engaging actively in local and global contexts.

## II. Curriculum model overview

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

### The group 4 project

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

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

## III. Assessment model

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

### Assessment objective 1

Demonstrate knowledge and understanding of relevant:

- facts and concepts
- methodologies and techniques
- values and attitudes.

### Assessment objective 2

Apply this knowledge and understanding in the analysis of:

- explanations, concepts and theories
- data and models
- case studies in unfamiliar contexts
- arguments and value systems.

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### Assessment objective 3

Evaluate, justify and synthesize, as appropriate:

- explanations, theories and models
- arguments and proposed solutions
- methods of fieldwork and investigation
- cultural viewpoints and value systems.

### Assessment objective 4

Engage with investigations of environmental and societal issues at the local and global level through:

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

### Assessment at a glance

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

## IV. Sample questions

### Paper 1

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

### Paper 2

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

# International Baccalaureate Diploma Programme Subject Brief

## Mathematics:

### Mathematics – Standard level

First assessments 2014 – Last assessments 2020

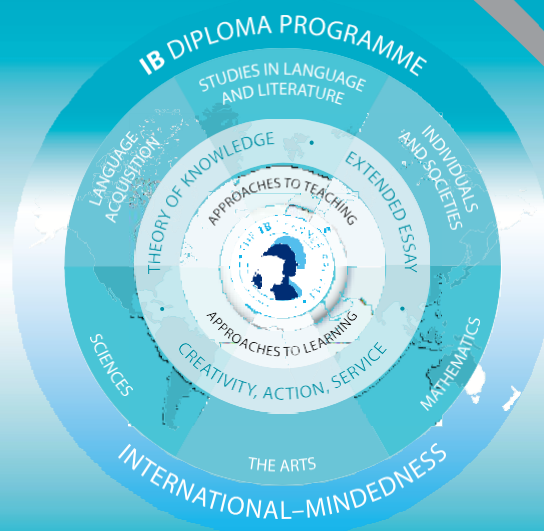
The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced programme of education designed to prepare students aged 16 to 19 for success at university and life beyond. The DP aims to encourage students to be knowledgeable, inquiring, caring and compassionate, and to develop intercultural 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 mathematics standard level (SL) course focuses on introducing important mathematical concepts through the development of mathematical techniques. The intention is to introduce students to these concepts in a comprehensible and coherent way, rather than insisting on the mathematical rigour required for mathematics HL. Students should, wherever possible, apply the mathematical knowledge they have acquired to solve realistic problems set in an appropriate context.

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

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

- enjoy mathematics, and develop an appreciation of the elegance and power of mathematics
- develop an understanding of the principles and nature of mathematics
- communicate clearly and confidently in a variety of contexts
- develop logical, critical and creative thinking, and patience and persistence in problem-solving

- employ and refine their powers of abstraction and generalization
- apply and transfer skills to alternative situations, to other areas of knowledge and to future developments
- appreciate how developments in technology and mathematics have influenced each other
- appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics
- appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
- appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course.

## II. Curriculum model overview

Component	Recommended teaching hours
<b>Topic 1</b> Algebra	9
<b>Topic 2</b> Functions and equations	24
<b>Topic 3</b> Circular functions and trigonometry	16
<b>Topic 4</b> Vectors	16

<b>Topic 5</b> Statistics and probability	35
<b>Topic 6</b> Calculus	40
<b>Mathematical exploration</b> Internal assessment in mathematics SL is an individual exploration. This is a piece of written work that involves investigating an area of mathematics.	10

### III. Assessment model

Having followed the mathematics standard level course, students will be expected to demonstrate the following.

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

### Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		3	80
Paper 1 (non-calculator)	Section A: Compulsory short-response questions based on the whole syllabus. Section B: Compulsory extended-response questions based on the whole syllabus.	1.5	40
Paper 2 (graphical display calculator required)	Section A: Compulsory short-response questions based on the whole syllabus. Section B: Compulsory extended-response questions based on the whole syllabus.	1.5	40
Internal			20
Mathematical exploration	Internal assessment in mathematics SL is an individual exploration. This is a piece of written work that involves investigating an area of mathematics.		

### IV. Sample questions

- A data set has a mean of 20 and a standard deviation of 6.  
A) Each value in the data set has 10 added to it. Write down the value of  
i. the new mean;  
ii. the new standard deviation.  
B) Each value in the original data set is multiplied by 10.  
i. Write down the value of the new mean.  
ii. Find the value of the new variance.
- Given that  $f(x) = 1/x$ , answer the following.  
A) Find the first four derivatives of  $f(x)$ .  
B) Write an expression for  $f^{(n)}$  in terms of  $x$  and  $n$ .

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# International Baccalaureate Diploma Programme Subject Brief

## Mathematics:

### Mathematical studies – Standard level

First assessments 2014 – Last assessments 2020

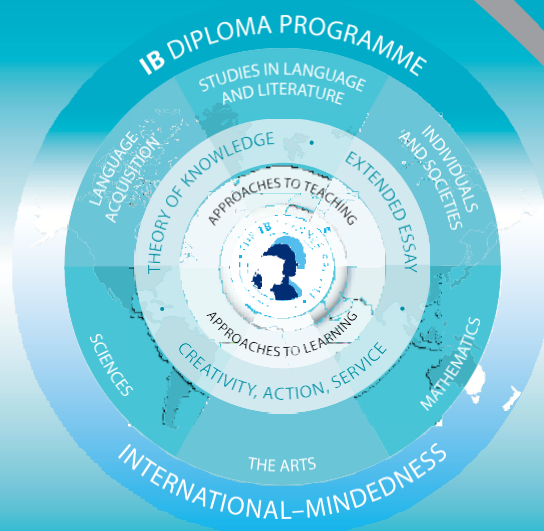
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To ensure both breadth and depth of knowledge and understanding, students must choose at least one subject from five groups: 1) their best language, 2) additional language(s), 3) social sciences, 4) experimental sciences, and 5) mathematics. Students 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 mathematical studies standard level (SL) course focuses on important interconnected mathematical topics. The syllabus focuses on: placing more emphasis on student understanding of fundamental concepts than on symbolic manipulation and complex manipulative skills; giving greater emphasis to developing students' mathematical reasoning rather than performing routine operations; solving mathematical problems embedded in a wide range of contexts; using the calculator effectively. There is an emphasis on applications of mathematics and statistical techniques. It is designed to offer students with varied mathematical backgrounds and abilities the opportunity to learn important concepts and techniques and to gain an understanding of a wide variety of mathematical topics, preparing them to solve problems in a variety of settings, develop more sophisticated mathematical reasoning and enhance their critical thinking.

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

- enjoy and develop an appreciation of the elegance and power of mathematics
- develop an understanding of the principles and nature of mathematics
- communicate clearly and confidently in a variety of contexts
- develop logical, critical and creative thinking, and patience and persistence in problem-solving
- employ and refine their powers of abstraction and generalization
- apply and transfer skills to alternative situations, to other areas of knowledge and to future developments
- appreciate how developments in technology and mathematics have influenced each other
- appreciate the moral, social and ethical implications arising from the work of mathematicians and the applications of mathematics

- appreciate the international dimension in mathematics through an awareness of the universality of mathematics and its multicultural and historical perspectives
- appreciate the contribution of mathematics to other disciplines, and as a particular "area of knowledge" in the TOK course.

## II. Curriculum model overview

Component	Recommended teaching hours
<b>Topic 1</b> Numbers and algebra	20
<b>Topic 2</b> Descriptive statistics	12
<b>Topic 3</b> Logic, sets and probability	20
<b>Topic 4</b> Statistical application	17
<b>Topic 5</b> Geometry and trigonometry	18
<b>Topic 6</b> Mathematical models	20
<b>Topic 7</b> Introduction to differential calculus	18
<b>Project</b> An individual piece of work involving the collection of information or the generation of measurements, and subsequent the analysis and evaluation.	25

### III. Assessment model

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

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

### Assessment at a glance

Type of assessment	Format of assessment	Time (hours)	Weighting of final grade (%)
External		3	80
Paper 1 (graphical display calculator required)	15 compulsory short-response questions based on the whole syllabus.	1.5	40
Paper 2 (graphical display calculator required)	6 compulsory extended-response questions based on the whole syllabus.	1.5	40
Internal			20
Project	An individual piece of work involving the collection of information or the generation of measurements, and subsequent analysis and evaluation.		20

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### IV. Sample questions

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

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

A. Using the model, write down a second equation in  $a$  and  $b$ .

B. Using your graphic display calculator or otherwise, find the value of  $a$  and of  $b$ .

C. Use the model to predict the temperature of the liquid 60 seconds after the start of heating.

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

Find

A. the value of the investment after 3 years;

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

# International Baccalaureate Diploma Programme Subject Brief

Diploma Programme core:  
Theory of knowledge

First assessments 2015 – Last assessments 2021

The IB Diploma Programme (DP) is a rigorous, academically challenging and balanced programme of education designed to prepare students aged 16 to 19 for success at university and life beyond. The DP aims to encourage students to be knowledgeable, inquiring, caring and compassionate, and to develop intercultural understanding, open-mindedness and the attitudes necessary to respect and evaluate a range of viewpoints.

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These IB DP subject briefs illustrate four key course components.

I. Course description and aims  
II. Curriculum model overview



III. Assessment model  
IV. Sample questions

## I. Course description and aims

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

The aims of the TOK course are to:

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

## II. Curriculum model overview

### Component

#### **Knowing about knowing**

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

#### **Ways of knowing**

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

#### **Areas of knowledge**

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

### III. Assessment model

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

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

### Assessment at a glance

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

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

### IV. Sample prescribed titles

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

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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.

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## 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

## 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 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. 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
<b>Identify own strengths and develop areas for growth.</b>	Students are able to see themselves as individuals with various abilities and skills, of which some are more developed than others.
<b>Demonstrate that challenges have been undertaken, developing new skills in the process.</b>	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.
<b>Demonstrate how to initiate and plan a CAS experience.</b>	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.
<b>Show commitment to, and perseverance in, CAS experiences.</b>	Students demonstrate regular involvement and active engagement in CAS.

<b>Demonstrate the skills and recognize the benefits of working collaboratively.</b>	Students are able to identify, demonstrate and critically discuss the benefits and challenges of collaboration gained through CAS experiences.
<b>Demonstrate engagement with issues of global significance.</b>	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.
<b>Recognize and consider the ethics of choices and actions.</b>	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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