

## IB DIPLOMA PROGRAMME – 2021-2023



### **IB Mission Statement**

The International Baccalaureate aims to develop inquiring, knowledgeable and caring young people who help to create a better and more peaceful world through intercultural understanding and respect. To this end the organization works with schools, governments and international organizations to develop challenging programmes of international education and rigorous assessment. These programmes encourage students across the world to become active, compassionate and lifelong learners who understand that other people, with their differences, can also be right.

### **The Cathedral & John Connon School, Mumbai**

#### **Mission**

The Cathedral and John Connon School aims to provide an education to young minds that will allow them to: learn how to learn, understand how to adapt to the changing world around them, become global citizens with a local vision and develop a sense of international mindedness while cherishing the individuality of man and the commonality of mankind.

#### **Vision**

The Cathedral and John Connon School understands that today, more than ever, an education is incomplete if it does not add to the value system of a child. The School therefore is an institution that will provide an enriching learning experience based on a rich value system that shall hold its students in good stead in the future. The School has a curriculum that aids this belief by extending the boundaries of learning, outside of us as well as within.

## *IB Learner Profile*

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**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 embodies ten attributes valued by IB World Schools. We believe that these attributes, and others like them, can help individuals and groups become responsible members of local, national and global communities.*

## *International Baccalaureate*

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The IB Diploma Programme is designed as a 2-year pre- university course that amalgamates the preferences of some universities requiring depth of study and that of others emphasising breadth.

It is one of the best-known pre-university courses, preferred and respected by many universities around the world for its rigour, emphasis on skill development and its criterion-based assessment process.

While the IB program is a rigorous pre-collegiate curriculum, it also challenges students to think about global issues, cultural assumptions and our place in the world community. When taken in its entirety the program requires a broad focus in many areas, both academic and non-academic. Students move beyond the classroom, become involved in the service of their community and learn to work creatively. Through TOK students are challenged to think about what knowledge means in various disciplines. Ideally, these elements converge through the experience of designing and executing an individual research question or project in the Extended Essay.

Students who best succeed in the program have a strong commitment to the ideals of the mission statement, a genuine enthusiasm about learning and sincere curiosity about other cultures and the world around them.

The IB Diploma is designed to afford every student an opportunity to study from a diverse range of subjects while inculcating skills of research, analysis, critical thinking and report writing.

Over the course of the two-year programme, students:

- study six subjects chosen from the six subject groups
- complete an Extended Essay
- follow a Theory of Knowledge course (TOK)
- participate in creativity, activity, service (CAS)

Normally:

- three of the six subjects are studied at higher level (courses representing 240 teaching hours)
- three subjects are studied at standard level (courses representing 150 teaching hours).

### **Subjects offered:**

Currently, the Diploma Programme at the Cathedral & John Connon School offers the following subjects;

**Group 1:** English language and literature (*HL & SL*)

**Group 2:** French ab initio, Spanish ab initio and Hindi B (*SL*)

**Group 3:** Economics, History, Business management, Psychology & Global politics (*HL & SL*)

**Group 4:** Physics, Chemistry, Biology, Computer Science (*HL & SL*)

**Group 5:** Mathematics (*HL & SL*)

**Group 6:** Visual arts (*HL & SL*)

(Students may choose a second subject from Group 3 or Group 4 instead of Visual Arts)

### **Core requirements**

The core of the curriculum model consists of three components.

#### **Extended Essay**

The extended essay of 4,000 words offers the opportunity for IB students to investigate a topic of special interest, usually one of the student's six DP subjects, and acquaints them with the independent research and writing skills expected at university. It is intended to promote high-level research and writing skills, intellectual discovery and creativity - resulting in approximately 40 hours of work. It provides students with an opportunity to engage in personal research on a topic of their choice, under the guidance of a supervisor. This leads to a major piece of formally presented, structured writing of no more than 4,000 words, in which ideas and findings are communicated in a reasoned and coherent manner, appropriate to the subject, three mandatory reflections of the process have to be undertaken. A viva voce component is a part of the reflection. In countries where normally interviews are required prior to acceptance for employment or for a place at university, the extended essay has proved to be a valuable stimulus for discussion.

## **Theory of knowledge (TOK)**

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The interdisciplinary TOK course is designed to develop a coherent approach to learning that transcends and unifies the academic areas and encourages appreciation of other cultural perspectives. The theory of knowledge course is in part intended to encourage students to reflect on the huge cultural shifts worldwide around the digital revolution and the information economy. The extent and impact of the changes vary greatly in different parts of the world, but everywhere their implications for knowledge are profound. Theory of knowledge encourages critical thinking about knowledge itself and aims to help young people make sense of what they encounter. Its core content focuses on questions such as the following:

- What counts as knowledge?
- How does it grow?
- What are its limits?
- Who owns knowledge?
- What is the value of knowledge?
- What are the implications of having, or not having, knowledge?

TOK activities and discussions aim to help students discover and express their views on knowledge issues. The course encourages students to share ideas with others and to listen and learn from what others think. In this process students' thinking and their understanding of knowledge as a human construction are shaped, enriched and deepened. Connections may be made between knowledge encountered in different Diploma Programme subjects, in CAS experience or in extended essay research; distinctions between different kinds of knowledge may be clarified.

### **Assessment**

#### **Internal assessment 33%**

##### **The Presentation - 10 marks**

One presentation to the class by an individual or a group (a maximum of three persons in a group). Approximately 10 minutes per student is allowed for the presentation.

#### **External assessment - 67%**

##### **Essay on a prescribed title - 10 marks**

One essay on a title chosen from a list of six titles prescribed by the IB for each examination session. The prescribed titles will be issued on My IB in the September prior to submission for May session schools. The maximum length for the essay is 1,600 words.

### **Creativity, activity, service (CAS)**

Creativity, activity, service is at the heart of the Diploma programme, involving students in a range of activities that take place alongside their academic studies throughout the IB Diploma Programme. The component's three strands, often interwoven with particular activities, are characterized as follows:

- Creativity - arts and other experiences that involve creative thinking
- Activity - physical exertion contributing to a healthy lifestyle, complementing academic work elsewhere in the IB Diploma Programme
- Service - an unpaid and voluntary exchange that has a learning benefit for the student.

Creativity, activity, service (CAS) encourages students to be involved in activities as individuals and as part of a team that take place in local, national and international contexts. Creativity, activity, service enables students to enhance their personal and interpersonal development as well as their social and civic development, through experiential learning, lending an important counterbalance to the academic pressures of the rest of the IB Diploma Programme. It should be both challenging and enjoyable - a personal journey of self-discovery that recognizes each student's individual starting point.

Activities should provide:

- real, purposeful meaning, with significant outcomes
- personal challenge - tasks must extend the student and be achievable in scope,
- thoughtful, consideration, such as planning, reviewing progress and reporting
- reflection on outcomes and personal learning.

### English language and literature

In the Language A: language and literature course, students study a wide range of literary and non-literary texts in a variety of media. By examining communicative acts across literary form and textual type alongside appropriate secondary readings, students will investigate the nature of language itself and the ways in which it shapes and is influenced by identity and culture. Approaches to study in the course are meant to be wide ranging and can include literary theory, sociolinguistics, media studies and critical discourse analysis among others.

The aims of studies in language and literature are to enable students to:

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

### Course content

In this course students will learn about the complex and dynamic nature of language and explore both its practical and aesthetic dimensions. They will explore the crucial role language plays in communication, reflecting experience and shaping the world. Students will also learn about their own roles as producers of language and develop their productive skills. Throughout the course, students will explore the various ways in which language choices, text types, literary forms and contextual elements all effect meaning. Through close analysis of various text types and literary forms, students will consider their own interpretations, as well as the critical perspectives of others, to explore how such positions are shaped by cultural belief systems and to negotiate meanings for texts. Students will engage in activities that involve them in the process of production and help shape their critical awareness of how texts and visual and audio elements work independently or together to influence the audience/reader and how audiences/readers open up the possibilities of texts. With its focus on a wide variety of communicative acts, the course is meant to develop sensitivity to the foundational nature, and pervasive influence, of language in the world at large.

“Text” in this subject, and in the published guide, is defined as anything from which information can be extracted, and includes the widest range of oral, written and visual materials present in society. This range will include single and multiple images with or without text, literary and non-literary written texts and extracts, media texts (for example, films), radio and television programmes and their scripts, and electronic texts that share aspects of a number of these areas (for example, video-sharing websites, web pages, social media messages, blogs, wikis and tweets). Oral texts will include readings, speeches, broadcasts and transcriptions of recorded conversation. The development of the relevant skills, is divided into three areas of exploration—the exploration of the nature of the interactions between **readers, writers and texts**; the exploration of how texts interact with **time and space** and the exploration of **intertextuality** and how texts connect with each other. Although these three areas seem to offer an ordered approach to progression through the course, they are inherently over-lapping, iterative or circular and allow for flexibility in course design.

Across the three areas of exploration at least four literary works must be studied in the SL course and at least six literary works must be studied in the HL course.

### Conceptual understanding

Concepts are vital in studies in this course since they help to organise and guide the study of texts across the three areas of exploration. The concepts interact with the three areas of exploration in numerous ways and contribute a sense of continuity in the transition from one area to the next. They also facilitate the process of establishing connections between texts, making it easier for students to identify different ways in which the texts they study relate to one another.

The seven concepts which structure the teaching and learning of this course are given below:

Identity	Perspective
Culture	Transformation
Creativity	Representation
Communication	

## **Assessment SL**

### **External assessment (3 hours) – 70%**

#### **Paper 1: Guided textual analysis (1 hour 15 minutes) - 35%**

The paper consists of two non-literary passages, from two different text types, each accompanied by a question. Students choose one passage and write an analysis of it. (20 marks)

#### **Paper 2: Comparative essay (1 hour 45 minutes) – 35%**

The paper consists of four general questions. In response to one question students write a comparative essay based on two literary works studied in the course. (30 marks)

### **Internal assessment – 30%**

This component consists of an individual oral which is internally assessed by the teacher and externally moderated by the IB at the end of the course.

#### **Individual oral (15 minutes)**

Supported by an extract from one non-literary body of work and one from a literary work, students will offer a prepared response of 10 minutes, followed by 5 minutes of questions by the teacher, to the following prompt:

Examine the ways in which the global issue of your choice is presented through the content and form of one of the works and one of the bodies of work that you have studied. (40 marks)

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

## **Assessment HL**

### **External assessment (4 hours) – 80%**

#### **Paper 1: Guided textual analysis (2 hours 15 minutes) - 35%**

The paper consists of two non-literary passages, from two different text types, each accompanied by a question. Students will be asked to write a separate analysis on each of the passages focussing on the technical or formal aspect the respective accompanying questions propose, or another similar aspect of the student's choice. (40 marks)

#### **Paper 2: Comparative essay (1 hour 45 minutes) – 25%**

The paper consists of four general questions. In response to one question students write a comparative essay based on two literary works studied in the course. (30 marks)

### **HL essay - 20%**

Students submit an essay on one non-literary body of work, or a literary work studied during the course. (20 marks)

The essay must be 1,200-1,500 words in length.

### **Internal assessment – 20%**

This component consists of an individual oral which is internally assessed by the teacher and externally moderated by the IB at the end of the course.

#### **Individual oral (15 minutes)**

Supported by an extract from one non-literary body of work and one from a literary work, students will offer a prepared response of 10 minutes, followed by 5 minutes of questions by the teacher, to the following prompt:

Examine the ways in which the global issue of your choice is presented through the content and form of one of the works and one of the bodies of work that you have studied. (40 marks)

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

## **Learner portfolio**

Each student will also be expected to maintain a learner portfolio - a platform for students to develop independent thinking when studying texts, reflecting on the ways their texts and responses explore cultural values, identities, relationships, and issues across a variety of topics.

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## Group 2: Language acquisition

Group 2 consists of three modern language courses— language ab initio and language B—that are offered in French, Hindi and Spanish. Language ab initio and language B are language acquisition courses designed to provide students with the necessary skills and intercultural understanding to enable them to communicate successfully in an environment where the language studied is spoken. This process encourages the learner to go beyond the confines of the classroom, expanding an awareness of the world and fostering respect for cultural diversity.

The group 2 courses use a balance between approaches to learning that are teacher-centred (teacher-led activities and assessment in the classroom) and those that are learner-centred (activities designed to allow the students to take the initiative, which can also involve student participation in the evaluation of their learning). The teacher is best placed to evaluate the needs of the students and is expected to encourage both independent and collaborative learning. The two modern language courses—language *ab initio* and language B—develop students' linguistic abilities through the development of receptive, productive and interactive skills.

### Course content

#### Language ab initio

The language ab initio course is organized into five themes.

- Identities
- Experiences
- Human ingenuity
- Social organisation
- Sharing the Planet.

The themes allow students to compare the target language and cultures(s) to other languages and cultures with which they are familiar. The themes also provide opportunities for students to make connections to other disciplinary areas in the DP.

Language ab initio is available at SL only.

#### Language B

The course is designed for students with previous experiences of learning a foreign language (normally 3– 5 years), and is suitable for those who have displayed both ability and interest in their previous foreign language classes. The syllabi for both HL and SL are similar in content, although HL is a more intensive course and the proficiency level achieved is higher. HL courses also offer students the possibility to explore some literary texts.

The objective of the Language B course is for students to communicate clearly and effectively in different styles and contexts while studying the cultures associated with the language. Students gain a better understanding and use of grammatical structures and vocabulary through studying a variety of topics. These topics all offer a cultural perspective and enable students to take part in discussions on a wide variety of issues. Examples of topics include communication and media, global issues and social relationships. Students are encouraged to reflect upon their own perspectives, those of the school and those of the target language culture.

### Skills developed

#### Language ab initio (French/Spanish)

Receptive skills: Understand, both aurally and in writing, simple sentences and some more complex sentences related to the five themes and related topics. Understand simple authentic (adapted where appropriate) written texts and questions related to them in the target language.

Productive skills: Express information fairly accurately, in both writing and in speech, using a range of basic vocabulary and grammatical structures. Communicate orally and respond appropriately to most questions on the five prescribed themes and related topics.

Communicate clearly, in writing, some simple information and ideas in response to a written task.

Interactive skills: Understand and respond clearly to some information and ideas within the range of the five prescribed themes and related topics. Engage in simple conversations. Demonstrate some intercultural understanding by reflecting on similarities and differences between the target culture(s) and the student's own and by providing some appropriate examples and information.

### **Language B SL (Hindi)**

Receptive skills: Understand straightforward recorded or spoken information on the topics studied. Understand authentic written texts related to the topics studied and that use mostly everyday language.

Productive skills: Communicate orally in order to explain a point of view on a designated topic. Describe with some detail and accuracy experiences, events and concepts. Produce texts where the use of register, style, rhetorical devices and structural elements are generally appropriate to the audience and purpose.

Interactive skills: Demonstrate interaction that usually flows coherently, but with occasional limitations. Engage in conversations on the topics studied, as well as related ideas. Demonstrate some intercultural engagement with the target language and culture(s).

### **Assessment – Language ab initio SL**

#### **External assessment – 75%**

- **Paper 1:** Productive skills (1 hour) – 25% Writing (30 marks)

Two written tasks of 70-150 words, each from a choice of three tasks, choosing a text type for each task from among those listed in the examination instructions.

- **Paper 2:** Receptive skills (1 hour 45 minutes)– 50% Separate sections for listening and reading (65 marks). Listening comprehension (45 minutes) (25 marks) Reading comprehension (1 hour) (40 marks) Comprehension exercises on 3 audio passages and 3 written texts, drawn from all five themes.

#### **Internal assessment (10 minutes):**

##### **Interactive skills – 25%**

- **Individual oral** (25 marks)

##### **Internal assessment – 25%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

- **Individual oral**

A conversation with the teacher, based on a visual stimulus, and at least one additional course theme. (30 marks)

Three-part oral internally assessed by the teacher and externally moderated by the IB towards the end of the course

- Part 1: presentation of a visual stimulus (from a choice of two) by the student
- Part 2: follow-up questions on the visual stimulus
- Part 3: general conversation including at least one additional theme taken from the five IB themes

### **Assessment -Language B**

Language B is an additional language-learning course designed for students with some previous learning of that language. It will be offered at SL for students who have existing knowledge of the French language and at HL and SL for those with knowledge of Hindi. The main focus of the course is on language acquisition and development of language skills. These language skills should be developed through the study and use of a range of written and spoken material. Such material will extend from everyday oral exchanges to literary texts, and will be related to the culture(s) concerned.



## Assessment – SL

### External assessment – 75%

#### Paper 1: Productive skills (1 hour 15 minutes) – 25%

One writing task of 250-400 words from a choice of three, each from a different theme, choosing a text type from among those listed in the examination instructions. (30 marks)

#### Paper 2: Receptive skills (1 hour 45 minutes) – 50% Separate sections for listening and reading (65 marks).

Listening comprehension (45 minutes) (25 marks) Reading comprehension (1 hour) (40 marks) Comprehension exercises on 3 audio passages and 3 written texts, drawn from all five themes.

### Internal assessment – 25%

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

### Individual oral

\_\_\_\_\_ A conversation with the teacher, based on a visual stimulus, followed by a discussion based on an additional theme. (30 marks)

## Group 3: Individuals and societies

Commonly known as the Humanities group, courses within this group may be taken without prior knowledge or study of the subject. CAJCS offers the following courses in Group 3;

### Economics

Economics is the study of choices leading to the best possible use of scarce resources in order to best satisfy unlimited human needs and wants understood through the use of models and theories. The Diploma Programme (DP) economics course allows students to explore these models and theories, and apply them using empirical data, through the examination of the following six real-world issues which are posed as economic questions:

- How do consumers and producers make choices in trying to meet their economic objectives?
- When are markets unable to satisfy important economic objectives—and does government intervention help?
- Why does economic activity vary over time and why does this matter?
- How do governments manage their economy and how effective are their policies?
- Who are the winners and losers of the integration of the world's economies?
- Why is economic development uneven?

With a focus on inquiry-based teaching and learning, students study nine concepts (**scarcity, choice, efficiency, equity, economic well-being, sustainability, change, interdependence and intervention**), that are anchored in content of economics - its theories, models, ideas and tools - and are given context through the use of real world issues and examples. The course emphasizes the theories of microeconomics, which deal with economic variables affecting individuals, firms and markets, and the theories of macroeconomics, which deal with economic variables affecting countries, governments and societies and global economy that includes international trade, exchange rates and economic development. These economic theories are not to be studied in a vacuum—rather, they are to be applied to real-world issues. The ethical dimensions involved in the application of economic theories and policies permeate throughout the economics course as students are required to consider and reflect on human end-goals and values. The economics course encourages students to develop the knowledge, skills, values and attitudes that will encourage them to act responsibly as global citizens. Importantly, the internationally minded economics student engages actively with the content and has a highly developed agency when exploring the economic issues facing individuals and societies.

**Examination questions will be drawn from the four units of the syllabus, namely:**

- Unit 1: Introduction to Economics
- Unit 2: Microeconomics
- Unit 3: Macroeconomics
- Unit 4: The global economy.

**External assessment details—SL**

**Paper 1 (25 marks)**

Duration: 1 hour 15 minutes

Weighting: 30%

The structure of this paper is the same as the HL paper 1 but the questions that require **extended responses** may be the same as, or different from, the HL paper 1 questions.

- Students answer **one** question from a choice of three.
- The questions are each subdivided into two parts, (a) and (b).
- Questions in this paper are drawn from the four units of the syllabus excluding the HL extension material and topics studied at HL only.
- The **command terms** used in each question indicate the depth required.
- Marks are allocated using a combination of an analytic mark scheme and mark bands.

**Paper 2 (40 marks)**

Duration: 1 hour 45 minutes

Weighting: 40%

The structure of this paper is the same as HL paper 2. The **text/data used** and questions may be the same at SL and at HL.

- Students answer **one** question from a choice of two.
- The questions are each subdivided into seven parts, (a), (b), (c), (d), (e), (f) and (g). Parts (a) and (b) both have subparts showing (i and ii)
- Questions in this paper are drawn from the four units of the syllabus excluding the HL extension material and topics studied at HL only.
- The command terms used in each question indicate the depth required.
- Marks are allocated using a combination of an analytic mark scheme and mark bands.
- Maximum marks are available per part and per subpart.
- \* Questions in (b) may be further subdivided into parts (i) and (ii) with 3 marks allocated in the first part and up to 2 marks in the other, or vice versa. The maximum for part (b) is 5 marks.

**Internal assessment (20 teaching hours) – 30%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course. The Internal assessments enable the students to demonstrate the application of their knowledge and understanding of economic theory in relation to the real-world events. Students produce a portfolio of **three** commentaries based on current news events and each drawn from topics from different sections of the syllabus namely Microeconomics, Macroeconomics, and the Global Economy. Each of the three commentaries **must use different key concepts** as a basis to analyse the published extracts. Each commentary must not be more than 800 words.

**External assessment details—HL**

**Paper 1 (25 marks)**

Duration: 1 hour 15 minutes

Weighting: 20%

- The structure of this paper is the same as SL paper 1. However, the questions that require **extended responses** may be the same as, or different from, the SL paper.
- Questions in this paper are drawn from the four units of the syllabus including the HL extension material and topics studied at HL only.
- Please refer to the section “**External assessment details—SL**”, for further details

**Paper 2 (40 marks)**

Duration: 1 hour 45 minutes

Weighting: 30%

- The structure of this paper is the same as SL paper 2. However, the **data response questions** may be the same as, or different from, the SL paper.
- Questions in this paper are drawn from the four units of the syllabus including the HL extension material and topics studied at HL only.
- Please refer to the section “[External assessment details—SL](#)”, for further details.

### **Paper 3 (60 marks)**

Duration: 1 hour 45 minutes

Weighting: 30%

- Students answer **two compulsory questions**.
- The questions are subdivided into parts (a) and (b). Part (a) has subparts.
- Questions in this paper are drawn from the four units of the syllabus including the HL extension material and topics studied at HL only.
- The command terms used indicate the depth of response required.
- Marks are allocated using a combination of an analytic mark scheme and mark bands.
- Many question parts require the use of a calculator. GDCs are allowed during the examination, and students should be familiar with their use. Full details are given in the section “[Use of calculators](#)”.
- An answer booklet will be provided, and additional answer sheets may be used if necessary.

### **Internal assessment (20 teaching hours) – 20%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course. The Internal assessments enable the students to demonstrate the application of their knowledge and understanding of economic theory in relation to the real-world events. Students produce a portfolio of **three** commentaries based on current news events and each drawn from topics from different sections of the syllabus namely Microeconomics, Macroeconomics, and the Global Economy. Each of the three commentaries **must use different key concepts** as a basis to analyse the published extracts. Each commentary must not be more than 800 words.

### **Global Politics**

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. At CAJCS 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. In the Diploma Programme 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.

### **Course content**

The course content engages students with key political concepts and contemporary political issues in a variety of contexts and through a variety of approaches. Foundational unit: Power, Sovereignty and International Relations, Nature of power, Operation of state power in global politics, Function and impact of international organizations and non-state actors in global politics, Nature and extent of interactions in global politics  
Human rights unit: Human rights, Justice, Liberty, Equality. Nature and evolution of human rights, Codification, Protection and monitoring of human rights, Practice of human rights, Debates surrounding human rights and their application, differing interpretations of justice, liberty and equality.  
Development unit: Development, Globalization, Inequality, Sustainability Contested meanings of development,

Factors that may promote or inhibit development, Pathways towards development, Debates surrounding development: challenges of globalization, inequality and sustainability.  
Peace and conflict unit: peace, conflict, violence, non-violence Contested meanings of peace, conflict and violence, Causes and parties to conflict, Evolution of conflict, Conflict resolution and post conflict transformation

### **Skills developed**

Providing students with a core knowledge of key political concepts and contemporary political issues in a range of contexts  
Critical thinking and engagement with a variety of perspectives and approaches in global politics  
Awareness of complex and interconnected nature of many political issues, and develop the capacity to interpret competing and contestable claims  
Synthesis and evaluation of ideas

### **Assessment SL**

#### **External assessment (3 hours) – 75%**

##### **• Paper 1 (1 hour 15 minutes) – 30%**

Stimulus-based paper on a topic from one of the four core units  
Four compulsory short-answer/structured questions (25 marks)

##### **• Paper 2 (1 hour 45 minutes) – 45%**

Extended response paper based on the four core units Students must write two essays from a choice of eight, each selected from a different core unit. (50 marks)

#### **Internal assessment (20 teaching hours) – 25%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

#### **Engagement activity**

A written report (2,000-word maximum) on a political issue explored through engagement and research. (20 marks)

### **Assessment HL**

#### **External assessment (4 hours) – 60%**

##### **• Paper 1 (1 hour 15 minutes) – 20%**

Stimulus-based paper on a topic from one of the four core units  
Four compulsory short-answer/structured questions (25 marks)

##### **• Paper 2 (2 hour 45 minutes) – 40%**

Extended response paper based on the four core units Students must write three essays from a choice of eight, each selected from a different core unit. (75 marks)

#### **Internal assessment – 40%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

#### **Engagement activity- 20% (20 hours)**

A written report (2,000-word maximum) on a political issue explored through engagement and research. (20 marks)

#### **HL extension: global political challenges- 20% (90 hours)**

Two video recorded oral presentations (10-minute maximum each) of two case studies chosen from two different HL extension topics. (20marks)

### **History**

The vision of others can at times provide greater clarity than our own. For us to be true to the mission statement of CAJCS, we must be willing to see the world, which was, is and will be, through the eyes of others. History is more than the study of the past. It is the process of recording, reconstructing and interpreting the past through the investigation of a variety of sources. It is a discipline that gives people an understanding of themselves and others in relation to the world, both past and present. It is an exploratory subject that poses questions without providing definitive answers. In order to understand the past, students must engage with it both through exposures to primary historical sources and through the work of historians. Historical study involves both selection and interpretation of data and critical evaluation of it. Students of history should appreciate the relative nature of historical knowledge and understanding, as each generation reflects its own world and preoccupations and as more evidence emerges. A study of history both requires and develops an individual's understanding of, and empathy for, people living in other periods and contexts.

### **Course content**

SL and HL courses share the same core syllabus.

**Paper 1**-Prescribed subjects; HL and SL students study the Prescribed subject 3: The Move to Global War - Two case studies are prescribed, from different regions of the world, and both of these case studies must be studied. Case study 1: Japanese expansion in East Asia (1931– 1941)

Case study 2: German and Italian expansion (1933– 1940)

**Paper 2:** 20th century world history—topics; HL and SL students study the two topics listed below:

Authoritarian states (20th century) Causes and effects of 20th-century wars

HL options – HL students are required to undertake an in-depth study of a period of history.

**Paper 3**- History of Europe. HL students only

- Europe and the First World War (1871–1918)
- European states in the inter-war years (1918–1939)
- Versailles to Berlin: Diplomacy in Europe (1919–1945)

### **Skills developed**

History is a dynamic, contested, evidence-based discipline that involves an exciting engagement with the past. It is a rigorous intellectual discipline, focused around key historical concepts such as change, continuity, causation, consequence significance and perspectives.

- Ability to make cogent arguments
- Ability to make reasoned judgments
- Understanding the values and limitations of a range of sources of information
- Critical thinking
- Analysis, synthesis and interpretation of information
- Construction of substantiated analyses about the past
- Research and selection of material

### **Assessment SL**

**External assessment (2 hours 30 minutes) – 75%**

**Paper 1 (1 hour) 30%**

Source-based paper based on the five prescribed subjects. Choose **one** prescribed subject from a choice of five. Answer four structured questions. (24 marks) assessment objectives: 1–3

**Paper 2 (1 hour 30 minutes) 45 %**

Essay paper based on the 12 world history topics. Answer two essay questions on two different topics. (30 marks) assessment objectives 1–4

**Internal assessment – 25%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

Historical investigation based on a research question of the student's own devising - approximately 20 hours - assessment objectives 1–4 (25 marks)

### **Assessment HL**

#### **External assessment (5 Hours) – 80%**

##### **Paper 1 (1 hour) – 20 %**

Source-based paper based on the five prescribed subjects. Choose **one** prescribed subject from a choice of five. Answer four structured questions. (24 marks) assessment objectives: 1–3

##### **Paper 2 (1 hour 30 minutes) -25 %**

Essay paper based on the 12 world history topics. Answer two essay questions on two different topics. (30 marks) Assessment objectives 1–4

##### **Paper 3 (2 hours 30 minutes) -35%**

Separate papers for each of the four regional options. For the selected region, answer three essay questions. (45 marks)

Assessment objectives 1–4

#### **Internal assessment (20 hours) – 20%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course. Historical investigation based on a research question of the student's own devising- approximately 20 hours - assessment objectives 1–4 (25 marks)

### **Business management**

Business management studies business functions, management processes and decision-making in contemporary contexts of strategic uncertainty. It examines how business decisions are influenced by factors internal and external to an organization, and how these decisions impact upon its stakeholders, both internally and externally. Business management also explores how individuals and groups interact within an organization, how they may be successfully managed and how they can ethically optimize the use of resources in a world with increasing scarcity and concern for sustainability. Business management is, therefore, perfectly placed within the individuals and societies subject area: aiming to develop in students an appreciation both for our individuality and our collective purposes.

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

Emphasis is placed on strategic decision-making and the operational business functions of human resource management, finance and accounts, marketing and operations management. Links between the topics are central to the course, as this integration promotes a holistic overview of business management. Through the exploration of six concepts underpinning the subject (change, culture, ethics, globalization, innovation and strategy), the business management course allows students to develop their understanding of interdisciplinary concepts from a business management perspective.

### **Course content**

HL and SL share a common core syllabus, which comprises:

Business organisation and environment Human resource management

Finance and accounts

Marketing

Operations management

#### **Higher Level: Additional topics**

Organisational planning tools

Organisational culture  
Employee relations  
Final Accounts (some part)  
Efficiency ratio analysis  
Investment appraisal  
The extended marketing mix of seven Ps  
International marketing  
Budgets and sales forecasts  
Lean production and Quality management  
Production planning  
Research and Development  
Crisis management and contingency planning

### **Skills developed**

- Understanding of organizational ethos
- Analysis of markets and functioning
- Synthesis and evaluation of business strategies
- Research based on primary and secondary resources
- Interpreting data and applying analytical tools

### **Assessment SL**

#### **External assessment (3 hours) 75%**

- **Paper 1** (1 hour and 15 minutes) 30%

Based on a case study issued in advance, with additional unseen material included in section B.  
(40 marks)

#### **Section A**

Syllabus content: Units 1–5

Students answer two of three structured questions based on the pre-seen case study. (10 marks per question)

#### **Section B**

Syllabus content: Units 1–5

Students answer one compulsory structured question primarily based on the additional stimulus material. (20 marks)

- **Paper 2** (1 hour and 45 minutes) 45% (50 marks)

#### **Section A**

Syllabus content: Units 1–5

Students answer one of two structured questions based on stimulus material with a quantitative focus. (10 marks)

#### **Section B**

Syllabus content: Units 1–5

Students answer one of three structured questions based on stimulus material. (20 marks)

#### **Section C**

Syllabus content: Units 1–5

Students answer one of three extended response questions. This question is based primarily on two concepts

that underpin the course. (20 marks).

### **Internal assessment (15 teaching hours) 25%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

#### **Written commentary**

Students produce a written commentary based on three to five supporting documents about a real issue or problem facing a particular organization. Maximum 1500 words. (25 marks)

#### **Assessment HL**

### **External assessment (4 hours and 30 minutes) 75%**

- Paper 1 (2 hour and 15 minutes) 35%

Based on a case study issued in advance, with additional unseen material included in sections B and C. (60 marks)

#### **Section A**

Syllabus content: Units 1–5 including HL extension topics

Students answer two of three structured questions based on the pre-seen case study (10 marks per question)

#### **Section B**

Students answer one compulsory structured question primarily based on the additional stimulus material. (20 marks)

#### **Section C**

Syllabus content: Units 1–5 including HL extension topics

Students answer one compulsory extended response question primarily based on the additional stimulus material. (20 marks)

- **Paper 2** (2 hour and 15 minutes) 40% (70 marks)

#### **Section A**

Syllabus content: Units 1–5 including HL extension topics

Students answer one of two structured question based on stimulus material with a quantitative focus. (10 marks)

#### **Section B**

Syllabus content: Units 1–5 including HL extension topics

Students answer two of three structured questions based on stimulus material. (20 marks per question)

#### **Section C**

Syllabus content: Units 1–5 including HL extension topics. Students answer one of three extended response questions. This question is based primarily on two concepts that underpin the course. (20 marks)

### **Internal assessment (30 teaching hours) 25%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

#### **Research project**

Students research and report on an issue facing an organization or a decision to be made by an organization (or several organizations). Maximum 2000 words. (25 marks)

#### **Psychology**

Psychology is the systematic study of behaviour and mental processes. Psychology has its roots in both the natural and social sciences, leading to a variety of research designs and applications, and providing a unique



approach to understanding modern society. In the Diploma program, psychology examines the interaction of biological, cognitive and sociocultural influences on human behaviour, thereby adopting an integrative approach. Understanding how psychological knowledge is generated, developed and applied enables students to achieve a greater understanding of themselves and appreciate the diversity of human behaviour. The focus of the IB Psychology curriculum is to study this content through the broad lens of research and ethics.

### **Course Content**

In the Psychology Diploma program, SL and HL share the study of the core or Paper I. This includes 90 hours devoted to the understanding of human behaviour from three different perspectives. These are the Biological, the Cognitive and the Sociocultural approaches to behaviour. HL students are expected to go a little beyond this content to study an applied component in each approach.

In Paper 2 i.e. Options, SL students are required to learn only one Applied field of Psychology whereas HL students are required to learn two fields. There are 4 options that students can choose from. These are Abnormal Psychology, Developmental Psychology, the Psychology of Human Relationships and Health Psychology.

Paper 3 only applies to HL students and this is based on methods and analysis in psychological research.

### **Skills developed**

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

#### *1. Knowledge and comprehension of specified content*

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

#### *2. Application and analysis*

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

#### *3. Synthesis and evaluation*

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

#### *4. Selection and use of skills appropriate to psychology*

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

### **Assessment SL**

External assessment (3 hours) 75%

**Paper 1** (2 hours) 50%

Section A: Three compulsory questions on part 1 of the syllabus.

Section B: Three questions on part 1 of the syllabus. Students choose one question to answer in essay form. (49 marks)

**Paper 2** (1 hour) 25%

Fifteen questions on part 2 of the syllabus. Students choose one question to answer in essay form. (22 marks)

**Internal assessment 25%**

A report of a simple experimental study conducted by the student. (22 marks)

**Assessment HL**

**External assessment** (5 hours) 80%

**Paper 1** (2 hours) 40%

Section A: **Three** compulsory questions on part 1 of the syllabus.

Section B: **Three** questions on part 1 of the syllabus. Students choose **one** question to answer in essay form. (49 marks)

**Paper 2** (2 hours) 20%

Fifteen questions on part 2 of the syllabus. Students choose **two** questions to answer in essay form. (44 marks)

**Paper 3** (1 hour) 20%

**Three** compulsory questions based on an unseen text, covering part 3 of the syllabus. (24 marks)

**Internal assessment (20%)**

A report of a simple experimental study conducted by the student. (22 marks)

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**Group 4: Sciences**

**Physics**

Physics is the most fundamental of the experimental sciences, as it seeks to explain the universe itself from the very smallest particles—currently accepted as quarks, which may be truly fundamental—to the vast distances between galaxies. Despite the exciting and extraordinary development of ideas throughout the history of physics, certain aspects have remained unchanged. Observations remain essential to the very core of physics, sometimes requiring a leap of imagination to decide what to look for. Models are developed to try to understand observations, and these themselves can become theories that attempt to explain

the observations. Theories are not always directly derived from observations but often need to be created. At the school level both theory and experiments should be undertaken by all students. They should complement one another naturally, as they do in the wider scientific community. The Diploma Programme physics course allows students to develop traditional practical skills and techniques and increase their abilities in the use of mathematics, which is the language of physics. It also allows students to develop interpersonal and digital communication skills which are essential in modern scientific endeavour and are important life-enhancing, transferable skills in their own right.

**Course content**

SL and HL courses share the core syllabus. Core syllabus component covers the following topics:

- measurements and uncertainties
- mechanics
- thermal physics
- waves
- electricity and magnetism
- circular motion and gravitation

- atomic, nuclear and particle physics
- energy production

### **Additional topics (HL students only)**

- wave phenomena
- fields
- electromagnetic induction
- quantum and nuclear physics

### **Options SL and HL**

Students will study one option to be chosen by the teacher from the following topics:

- relativity
- engineering physics
- imaging
- astrophysics

### **Skills developed**

- Understanding of methodologies and terminologies of science
- Application of concepts and techniques
- Formulation of hypotheses
- Analysis and evaluation of data
- Research and personal skills
- TOK and internationalism aspects of Physics

### **Assessment SL**

#### **External assessment (3 hours) – 80%**

- **Paper 1** (45 minutes) – 20%

30 multiple-choice questions on the core

- **Paper 2** (1 hour 15 minutes) – 40%

Short-answer and extended-response questions on core material

- **Paper 3** (1 hour) – 20%

This paper will have questions on core and SL option material.

- **Section A:** one data-based question and several short- answer questions on experimental work
- **Section B:** short-answer and extended-response questions from one option

### **Assessment HL**

#### **External assessment (4 hours 30 minutes) – 80%**

- **Paper 1** (1 hour) – 20%

40 multiple-choice questions (approx 15 common to SL)

- **Paper 2** (2 hour 15 minutes) – 36%

short-answer and extended-response questions on the core and AHL material

- **Paper 3** (1 hour 15 minutes) – 24%

This paper will have questions on core, AHL and option material.

- **Section A:** one data-based question and several short- answer questions on experimental work
- **Section B:** short-answer and extended-response questions from one option

#### **Internal assessment HL and SL – 20%**

- Individual investigation of 10 hours in duration
- Time allocation for practical work

Students at SL are required to spend a total of 40 hours, and students at HL 60 hours, on practical activities

(excluding time spent on writing). These times include 10 hours for the Group 4 project and 10 hours for the internal assessment investigation.

## Chemistry

Chemistry is an experimental science that combines academic study with the acquisition of practical and investigational skills. It is often called the central science, as chemical principles underpin both the physical environment in which we live and all biological systems. Apart from being a subject worthy of study in its own right, chemistry is a prerequisite for many other courses in higher education, such as medicine, biological science and environmental science, and serves as useful preparation for employment. The Diploma Programme chemistry course allows students to develop traditional practical skills and techniques and to increase facility in the use of mathematics, which is the language of science. It also allows students to develop interpersonal skills, and digital technology skills, which are essential in 21st century scientific endeavour and are important life-enhancing, transferable skills in their own right.

### Course content

SL and HL courses share the core syllabus. Core syllabus component covers the following topics:

- Stoichiometric relationships
- Atomic structure
- Periodicity
- Chemical bonding and structure
- Energetics/thermochemistry
- Measurement and data processing
- Chemical kinetics
- Equilibrium
- Acids and bases
- Redox processes
- Organic chemistry

Additional topics (HL students only)

- Atomic structure
- The periodic table
- Chemical bonding and structure
- Energetics/thermochemistry
- Chemical kinetics
- Equilibrium
- Acids and bases
- Redox processes
- Organic chemistry
- Measurement and analysis

Options SL and HL

Students will study one option to from the following topics:

- Materials
- Biochemistry
- Energy
- Medicinal chemistry

### Skills developed

- Understanding of methodologies and terminologies of science
- Application of concepts and techniques
- Formulation of hypotheses
- Analysis and evaluation of data
- Research skills and thinking skills
- ToK and internationalism aspects of Chemistry
- Visualisation of abstract forms of atomic structures

### Assessment SL

External assessment (3 hours) – 80%

- Paper 1 (45 minutes) – 20%

30 multiple-choice questions on the core

- Paper 2 (1 hour 15 minutes) – 40%

Short-answer and extended-response questions on core material

- Paper 3 (1 hour) – 20%

This paper will have questions on core and SL option material.

- Section A: One data-based question and several short- answer questions on experimental work

- Section B: Short-answer and extended-response questions from one option

### **Assessment HL**

External assessment (4 hours 30 minutes) – 80%

- Paper 1 (1 hour) – 20%

40 multiple-choice questions (approx. 15 are common to SL)

- Paper 2 (2 hour 15 minutes) – 36%

Short-answer and extended-response questions on the core and AHL material

- Paper 3 (1 hour 15 minutes) – 24%

This paper will have questions on core, AHL and option material.

- Section A: One data-based question and several short- answer questions on experimental work

- Section B: Short-answer and extended-response questions from one option

Internal assessment HL and SL – 20%

- Individual investigation of 10 hours in duration Students at SL are required to spend a total of 40hours, and students at HL 60 hours, on practical

activities (excluding time spent on writing). These times include 10 hours for the Group 4 project and 10 hours for the internal assessment investigation.

### **Computer Science**

Computer Science is an experimental science that offers a rigorous and practical problem-solving discipline, which, as a methodology, can be applied to all walks of life.

Computer Science is the study of information processes. It is concerned with the inherent structure and organization of information, how that data can be transformed into different kinds of knowledge, and how and to what extent those transformations can be automated. At the school level students will be taught to use a programming language, but programming is only a means of achieving the far more important outcomes of developing our student's ability to solve problems through algorithmic processes that they develop through a scientific methodology. This ability transcends disciplinary boundaries and will be essential to students whether they are working with chemical compounds, studying ecosystems, modifying genetic material, or seeking a deeper understanding of medieval manuscripts. In any area of application, a computer science student will seek to understand the transformative information processes used in the application area. Students will hypothesize an algorithm- based model of how the data is transformed into knowledge and then experimentally validate this model by developing a program that implements the model. If the model is correct, the program should be able to accomplish the same transformations that are observed in the field. A very nice side-effect of this experimental validation is that the program can then be used as tool for further work in the field. This combination of an experiment-based scientific method with algorithmic representation of information processes is very broadly applicable as the principles are the same, regardless of the field in which the information process being studied occurs. Computer Science is one of those subjects which can open a number of different career paths, such as in Cyber security, Computer Networking, Telecommunication, Bio-Technology, Biometrics, Ecommerce, Database Management, Mobile Computing, Internet Technology and many more. This is because it provides a foundation upon which we can better understand the world of technology around us.

### **Course content**

SL and HL courses share the core syllabus. Core syllabus component covers the following topics:

- System fundamentals

- Computer organization
- Networks
- Computational thinking, problem-solving and programming measurements and uncertainties

### **Additional topics (HL students only)**

- Abstract data structures
- Resource management
- Control

### **Options SL Core and HL Extension**

Students will study one option to be chosen by the teacher from the following topics:

- Option A: Databases
- Option B: Modelling and simulation
- Option C: Web science
- Option D: Object-oriented programming (OOP)

### **Skills developed**

Understanding of methodologies and terminologies of Computer science  
 Application of concepts and techniques Formulation of algorithm  
 Analysis and evaluation of data Research and personal skills

### **Assessment SL**

#### **External Assessment (2 hours 30 minutes) – 70%**

##### **Paper 1 (1 hour 30 minutes) – 45%**

Section A (30 minutes approximately) consists of several **compulsory** short answer questions. The maximum mark for this section is 25.

Section B (60 minutes approximately) consists of three **compulsory** structured questions. The maximum mark for this section is 45

Total marks = 70

##### **Paper 2 (1 hour) – 25%**

Paper 2 is an examination paper linked to the option studied. The paper consists of between two and five **compulsory** questions: Total marks = 45

**Calculators:** The use of calculators is **not** permitted in any computer science examination.

#### **Internal Assessment (40 hour) – 30%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

##### **Solution (30 hours)**

The development of a computational solution. Students must produce:

- a cover page that follows the prescribed format
- a product
- supporting documentation (word limit 2,000 words). Total marks = 34

### **Assessment HL**

#### **External assessment (4 hours 30 minutes) – 80%**

##### **Paper 1 (2 hours 10 minutes) – 40%**

Paper 1 is an examination paper consisting of **two compulsory sections**.

- Section A (30 minutes approximately) consists of several **compulsory** short answer questions. The maximum mark for this section is 25.
- Section B (100 minutes approximately) consists of five **compulsory** structured questions. The maximum mark for this section is 75.

##### **Paper 2 (1 hour 20 minutes) – 20%**

Paper 2 is an examination paper linked to the option studied.

The paper consists of between three and seven

**compulsory** questions.

The SL/HL core questions are common and worth 45 marks, HL extension is worth 20 marks.

Total marks= 65 marks

**Paper 3 (1 hour) – 20%**

Paper 3 is an examination paper of **1 hour** consisting of **four compulsory** questions based on a pre-seen case study.

Total marks= 30 marks

Total marks=100 marks

**Calculators:** The use of calculators is **not** permitted in any Computer Science Examination

**Internal assessment HL – 20%**

This component is internally assessed by the teacher and externally moderated by the IB at the end of the course.

**Solution (30 hours)**

The development of a computational solution. Students must produce:

- a cover page that follows the prescribed format
- a product
- supporting documentation (word limit 2,000 words). Total marks = 34

## **Biology**

Biology is the study of life. The first organisms appeared on the planet over 3 billion years ago and, through reproduction and natural selection, have given rise to the 8 million or so different species alive today.

Estimates vary, but over the course of evolution 4 billion species could have been produced. Most of these flourished for a period of time and then became extinct as new, better-adapted species took their place. There have been at least five periods when very large numbers of species became extinct and biologists are concerned that another mass extinction is underway, caused this time by human activity. Nonetheless, there are more species alive on Earth today than ever before. This diversity makes biology both an endless source of fascination and a considerable challenge. There are a variety of approaches to the teaching of biology. By its very nature, biology lends itself to an experimental approach, and this is reflected throughout the IB Biology course.

### **Course content**

SL and HL courses share the core syllabus. Core syllabus component covers the following topics:

- cell biology
- molecular biology
- genetics
- ecology
- evolution and biodiversity
- human physiology

**Additional topics (HL students only):**

- nucleic acids
- metabolism, cell respiration and photosynthesis
- plant biology
- genetics and evolution
- animal physiology

### **Options**

SL and HL students will study one option to be chosen by the teacher from the following topics:

- neurobiology and behaviour
- biotechnology and bioinformatics
- ecology and conservation

- human physiology

### **Skills developed**

- Understanding of methodologies and terminologies of science
- Application of concepts and techniques
- Formulation of hypotheses
- Analysis and evaluation of data
- Research and personal skills
- TOK and internationalism aspects of Biology

### **Assessment SL**

#### **External assessment (3 hours) – 80%**

- **Paper 1** (45 minutes) – 20%

30 multiple-choice questions on the core

- **Paper 2** (1 hour 15 minutes) – 40%

short-answer and extended-response questions on core material

- **Paper 3** (1 hour) – 20%

This paper will have questions on core and SL option material.

- **Section A:** one data-based question and several short-answer questions on experimental work
- **Section B:** short-answer and extended-response questions from one option

### **Assessment HL**

#### **External assessment (4 hours 30 minutes) – 80%**

- **Paper 1** (1 hour) – 20%

40 multiple-choice questions (approx. 15 common to SL)

- **Paper 2** (2 hour 15 minutes) – 36%

Short-answer and extended-response questions on the core and AHL material

- **Paper 3** (1 hour 15 minutes) – 24%

This paper will have questions on core, AHL and option material.

- **Section A:** One data-based question and several short-answer questions on experimental work
- **Section B:** Short-answer and extended-response questions from one option

#### **Internal assessment HL and SL – 20%**

- Individual investigation of 10 hours in duration
- Time allocation for practical work

Students at SL are required to spend a total of 40 hours, and students at HL 60 hours, on practical activities (excluding time spent on writing). These times include 10 hours for the Group 4 project and 10 hours for the internal assessment investigation.

### **Environmental Systems and Societies**

ESS is an interdisciplinary group 3 and 4 course that is offered only at standard level (SL). As an interdisciplinary course, ESS is designed to combine the methodology, techniques and knowledge associated with group 4 (sciences) with those associated with group 3 (individuals and societies). Because it is an interdisciplinary course, students can study ESS and have it count as either a group 3 or a group 4 course, or as both.

ESS is a complex course, requiring a diverse set of skills from its students. It 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 course requires a systems approach to environmental understanding and problem-solving, and promotes holistic thinking about environmental issues. It is recognized that to understand the environmental issues of the 21st century and suggest suitable management solutions, both the human and environmental aspects must be understood. Students should be encouraged to develop solutions from a personal to a community and to a global scale.

### **Course Content**

- Foundations of environmental systems and societies
- Ecosystems and ecology
- Biodiversity and conservation
- Water and Aquatic Food Production Systems and Society
- Soil systems and terrestrial food production systems and societies
- Atmospheric systems and societies
- Climate change and energy production
- Humans Systems and Resource Use

### **Skills developed**

Understanding relevant facts, concepts, methodologies and attitudes  
Application of concepts to case studies in unfamiliar contexts  
Evaluate explanations and models  
Justify arguments and propose solutions  
Conduct fieldwork and investigation  
Engage with environmental issues ranging from societal to global level

### **Assessments**

#### **External Assessments (3 hours) - 35%**

- **Paper 1** (1 hour) - 25%  
Previously unseen case study
- **Paper 2** (2 hours) - 50%
- **Section A:** short answer and data-based questions
- **Section B:** two structured essay questions from a choice of four

#### **Internal assessment – 25%**

- Individual investigation of 10 hours in duration
- Time allocation for practical work

Students are required to spend a total of 30 hours on practical activities (excluding time spent on writing). This time includes 10 hours for the internal assessment investigation.

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### **The Group 4 Project**

The group 4 project is a collaborative activity where students from different group 4 subjects work together on a scientific or technological topic, allowing for concepts and perceptions from across the disciplines to be shared in line with aim 10—that is, to “develop an understanding of the relationships between scientific disciplines and their influence on other areas of knowledge”. The project can be practically or theoretically based. Collaboration between schools in different regions is encouraged. The group 4 project allows students to appreciate the environmental, social and ethical implications of science and technology. It may also allow them to understand the limitations of scientific study, for example, the shortage of appropriate data and/or the lack of resources. The emphasis is on interdisciplinary cooperation and the processes involved in scientific investigation, rather than the products of such investigation.

All DP students have to necessarily participate in the Group 4 project.



## Group 5: Mathematics

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The school is offering three courses in Mathematics depending on the level students wish to acquire in line with their aspirations for University courses.

### Mathematics AA HL

This course caters for students with a good background in Mathematics who are competent in a range of analytical and technical skills. The majority of these students will be expecting to include Mathematics as a major component of their University studies, either as a subject in its own right or within courses such as Physics, Engineering and Technology. Others may take this subject because they have a strong interest in Mathematics and enjoy meeting its challenges and engaging with its problems.

#### Course content

Core syllabus component that will be studied over the two-year course, covers the following topics:

- number and algebra
- functions
- geometry and trigonometry
- probability and statistics
- calculus

#### Mathematical Exploration

Internal assessment in Mathematics HL is an individual exploration. This is a piece of written work that involves investigating an area of Mathematics. (20 marks).

#### Skills developed

- Algebraic skills and problem solving
- Technology and use of Mathematical software
- Application of Mathematics in other areas
- Transformation of common contexts into Mathematics
- Reasoning and Deduction

#### Assessment

##### External assessment (5 hours) – 80%

- **Paper 1** (2 hours) – 30%
  - No technology allowed (110 marks)
  - **Section A:** Compulsory short-response questions based on the syllabus
  - **Section B:** Compulsory extended-response questions based on the syllabus
- **Paper 2** (2 hours) – 30%
  - Technology required (110 marks)
  - **Section A:** Compulsory short-response questions based on the syllabus
  - **Section B:** Compulsory extended-response questions based on the syllabus
- **Paper 3** (1 hour) – 20%
  - Technology required (50 marks)
  - Two compulsory extended response problem-solving questions

##### Internal Assessment – 20%

This component is internally assessed by the teacher and externally moderated by IB at the end of the course. It takes the form of an individual **Mathematical exploration**, which is a piece of written work that involves investigating an area of Mathematics.

## Mathematics AA SL

This course is designed to provide Mathematical techniques and methods for those needing substantial Mathematical skills in other subject areas. In order to gain success in this course a high level of Mathematical ability is required as well as sustained effort and commitment.

### Course content

Core syllabus component that will be studied over the two-year course, covers the following topics:

- number and algebra
- functions
- geometry and trigonometry
- probability and statistics
- calculus

### 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 (20 marks).

### Skills developed

All Mathematics courses seek to develop the following skills at the appropriate level for that course:

- manipulative algebraic skills
- facility with Mathematical software and technology via the graphic display calculator
- discrimination between methods of solution to a given problem in order to determine the most efficient
- applicability of the subject to other disciplines

### Assessment

#### External assessment (3 hours) – 80%

- **Paper 1** (1 hour 30 minutes) – 40%
  - No technology allowed (80 marks)
  - Section A*: Compulsory short-response questions based on the syllabus
  - Section B*: Compulsory extended-response questions based on the syllabus
- **Paper 2** (1 hour 30 minutes) – 40%
  - Technology required (80 marks)
  - Section A*: compulsory short-response questions based on the syllabus
  - Section B*: compulsory extended-response questions based on the syllabus

#### Internal Assessment – 20%

This component is internally assessed by the teacher and externally moderated by IB at the end of the course. It takes the form of an individual **Mathematical exploration**, which is a piece of written work that involves investigating an area of Mathematics.

## Mathematics AI HL/SL

Mathematics: applications and interpretation is for students who wish to gain understanding and competence in how mathematics relates to the real world and to other subjects. It is for those who are interested in developing their mathematics for describing our world and solving practical problems. They will also be interested in harnessing the power of technology alongside exploring mathematical models. Students who take Mathematics: applications and interpretation will be those who enjoy mathematics best when seen in a practical context.

This course recognizes the increasing role that mathematics and technology play in a diverse range of fields in a data-rich world. As such, it emphasizes the meaning of mathematics in context by focusing on topics that are often used as applications or in mathematical modelling. To give this understanding a firm base, this course also includes topics that are traditionally part of a pre-university mathematics course such as calculus and statistics. The course makes extensive use of technology to allow students to explore and construct mathematical models. Mathematics: applications and interpretation will develop mathematical thinking, often in the context of a practical problem and using technology to justify conjectures.

### **Mathematics: Applications and interpretation: Distinction between SL and HL**

Students who choose Mathematics: applications and interpretation at SL or HL should enjoy seeing mathematics used in real-world contexts and to solve real-world problems. Students who wish to take Mathematics: applications and interpretation at higher level will have good algebraic skills and experience of solving real-world problems. They will be students who get pleasure and satisfaction when exploring challenging problems and who are comfortable to undertake this exploration using technology.

### **Course content**

The format of the syllabus section is the same for each level. This structure gives prominence and focus to the aspects of teaching and learning, including conceptual understandings, content and enrichment. There are five topics and within these topics there are sub-topics.

The five topics are:

- number and algebra
- functions
- geometry and trigonometry
- probability and statistics
- calculus

### **Time allocation**

The recommended teaching time for HL courses is 240 hours and for SL courses is 150 hours. For mathematics courses at both SL and HL, it is expected that 30 hours will be spent on developing inquiry, modelling and investigation skills. This includes up to 15 hours for work on the internal assessment which is called the exploration.

### **Mathematical Exploration**

Internal assessment in Mathematics AI HL/SL is an individual exploration. This is a piece of written work that involves investigating an area of Mathematics (20 marks).

### **Skills developed**

All Mathematics courses seek to develop the following skills at the appropriate level for that course:

- manipulative algebraic skills and problem solving
- technology and use of Mathematical software
- discrimination between methods of solution to a given problem in order to determine the most efficient method
- applicability of the subject to other disciplines
- reasoning and deduction

### **Assessment component Weighting-SL**

#### **External assessment (3 hours)- 80%**

- Paper 1 (90 minutes) (80 marks) 40%
- Technology required.
- Compulsory short-response questions based on the syllabus.
- Paper 2 (90 minutes) (80 marks) 40%
- Technology required.

- Compulsory extended-response questions based on the syllabus.

### **Assessment component Weighting-HL**

#### **External assessment (5 hours)- 80%**

- Paper 1 (120 minutes) -(110 marks)-30%

Technology required.

Compulsory short-response questions based on the syllabus.

- Paper 2 (120 minutes) -(110 marks)-30%

Technology required.

Compulsory extended-response questions based on the syllabus.

- Paper 3 (60 minutes)- (55 marks)- 20%

Technology required.

Two compulsory extended response problem-solving questions.

#### **Internal assessment-20% (common to Both HL and SL)**

This component is internally assessed by the

teacher and externally moderated by the

IB at the end of the course. Mathematical exploration Internal assessment in

mathematics is an individual exploration. This is a piece of written work that involves

investigating an area of mathematics. (20 marks)

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### **Group 6: The Visual Arts**

The IB Diploma Programme visual arts course encourages students to challenge their own creative and cultural expectations and boundaries. It is a thought-provoking course in which students develop analytical skills in problem-solving and divergent thinking, while working towards technical proficiency and confidence as art-makers. In addition to exploring and comparing visual arts from different perspectives and in different contexts, students are expected to engage in, experiment with and critically reflect upon a wide range of contemporary practices and media. The course is designed for students who want to go on to study visual arts in higher education as well as for those who are seeking lifelong enrichment through visual arts.

#### **Course content**

The course encompasses a wide range of activities designed to encourage students to explore and discover new possibilities in the visual arts.

Students develop ideas and themes for their studio work and refine their skills in the investigation workbook. New art processes and concepts, the use of media, and learning research techniques that yield many possibilities for studio works are the driving force for work in the investigation workbook. Gallery visits, drawings, experiments with materials and approaches, and historical and critical analysis are included. Divergent and convergent strategies are employed. In the studio, students develop an exciting and highly personal portfolio of work in preparation for their exam/show. The portfolio of work serves a second purpose for those who choose to attend post-secondary education in the visual arts; it can form the basis of their university admissions portfolio.

#### **Skills developed**

- Visual literacy and observation skills
- Visual research and in-depth investigation
- The ability to experiment with a range of visual solutions for communicating their intentions
- Critical analysis of artwork
- To consider the social, historical, geographical and cultural influences on art

### **IBDP Visual Arts Assessment outline—SL**

## External assessment

*These two-component task has to be uploaded as IB Visual Arts coursework and externally marked by the IB at the end of the course.*

### Part 1: Comparative study 20%

Students at SL analyze and compare different artworks by different artists. This independent critical and contextual investigation explores artworks, objects and artifacts from differing cultural contexts.

1. SL students submit 10–15 screens which examine and compare at least three artworks, at least two of which should be by different artists. The work selected for comparison and analysis should come from contrasting contexts (local, national, international and/or intercultural).
2. SL students submit a list of sources used.

### Part 2: Process portfolio 40%

Students at SL submit carefully selected materials which evidence their experimentation, exploration, manipulation and refinement of a variety of visual arts activities during the two-year course.

1. SL students submit 9–18 screens which evidence their sustained experimentation, exploration, manipulation and refinement of a variety of art-making activities. For SL students the submitted work must be in at least **two** art-making forms, each from separate columns of the art-making forms table.

### Part 3: Exhibition

Students at SL submit for assessment a selection of resolved artworks from their exhibition. The selected pieces should show evidence of their technical accomplishment during the visual arts course and an understanding of the use of materials, ideas and practices appropriate to visual communication.

1. SL students submit a curatorial rationale that does not exceed 400 words.
2. SL students submit 4–7 artworks.

SL students may submit two photographs of their overall exhibition. These exhibition photographs provide an understanding of the context of the exhibition and the size and scope of the works. While the photographs will not be used to assess individual artworks, they may give the moderator insight into how a candidate has considered the overall experience of the viewer in their exhibition.

## IBDP Visual Arts Assessment outline—HL

### External assessment

*These two-component task has to be uploaded as IB Visual Arts coursework and externally marked by the IB at the end of the course.*

#### Part 1: Comparative study 20%

Students at HL analyse and compare different artworks by different artists. This independent critical and contextual investigation explores artworks, objects and artefacts from differing cultural contexts.

1. HL students submit 10–15 screens which examine and compare at least three artworks, at least two of which need to be by different artists. The works selected for comparison and analysis should come from contrasting contexts (local, national, international and/or intercultural).
2. HL students submit 3–5 screens which analyse the extent to which their work and practices have been influenced by the art and artists examined.
3. HL students submit a list of sources used.

#### Part 2: Process portfolio 40%

Students at HL submit carefully selected materials which evidence their experimentation, exploration, manipulation and refinement of a variety of visual arts activities during the two-year course.

HL students submit 13–25 screens which evidence their sustained experimentation, exploration, manipulation and refinement of a variety of art-making activities. For HL students the submitted work must have been created in at least **three** art-making forms, selected from a minimum of two columns of the art-making forms table.

### Internal assessment

*This component task is internally assessed by the teacher and externally moderated by the IB at the end of the course.*

**Part 3: Exhibition 40%**

Students at HL submit for assessment a selection of resolved artworks from their exhibition. The selected pieces should show evidence of their technical accomplishment during the visual arts course and an understanding of the use of materials, ideas and practices appropriate to visual communication.

1. HL students submit a curatorial rationale that does not exceed 700 words.
2. HL students submit 8–11 artworks.
3. HL students submit exhibition text (stating the title, medium, size and intention) for each selected artwork.

HL students may submit two photographs of their overall exhibition. These exhibition photographs provide an understanding of the context of the exhibition and the size and scope of the works. While the photographs will not be used to assess individual artworks, they may give the moderator insight into how a candidate has considered the overall experience of the viewer in their exhibition.

*For further information,*

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