The International Baccalaureate Diploma Programme

Options Guide

THE BRITISH SCHOOL OF BEIJING, SHUNYI

A NORD ANGLIA EDUCATION SCHOOL

We believe there is no limit to what our students can achieve and our approach supports every child to succeed academically, socially and personally.

Foreword

Dear Students,

Welcome to IB Diploma Programme! These final two years of school are an incredibly exciting and important time for you. Not only will you specialise further in the subjects of greatest interest to you at the same time as honing your scholarly skills, you will be turning your attention to crucial decisions about life beyond school. At the British School of Beijing, we take seriously our role during these important years, enthusiastically encouraging each one of our students to strive for excellence, and utilising our wealth of experience and expertise to support each one of you to succeed.

The curriculum we offer in Years 12 & 13 is the International Baccalaureate Diploma Programme (IBDP), widely regarded as the world's leading post-sixteen course. To begin your personal Diploma Programme, you have important choices to make as you decide what courses to take. Of course, you are good at this now having experienced it at the beginning of your IGCSE journey with us; we know you will choose well, but remind you to take your time, open your mind, explore all the options and think about a route through the programme that will allow you to progress to the next stage of your education.

BSB's approach to the IBDP is about giving you every possible opportunity to achieve your goals. However, we can't do it for you; one of the most important things you will learn as an IB student is to be organised, to be disciplined and to seize every opportunity to engage with your subjects. Life as an IBDP student will be a fresh approach to learning (and dressing, of course, as the uniform is left behind and smart business wear becomes the order of the day). As you travel through the next two years, you will find out so much about yourself as a person. Your teachers are there to find new ways of working with you, facilitating your learning and challenging your thinking. This is a great opportunity not only to develop a true all-round knowledge and love for your subjects, but also to embrace the core requirements which are at the heart of an IB education. We look forward to sharing this journey with you.

Sarah Donnelly
IB Coordinator

Content

Introduction to the IB Diploma Programme

The IB Diploma Programme (IBDP) 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). Subjects at HL are studied in greater depth and breadth than at SL.

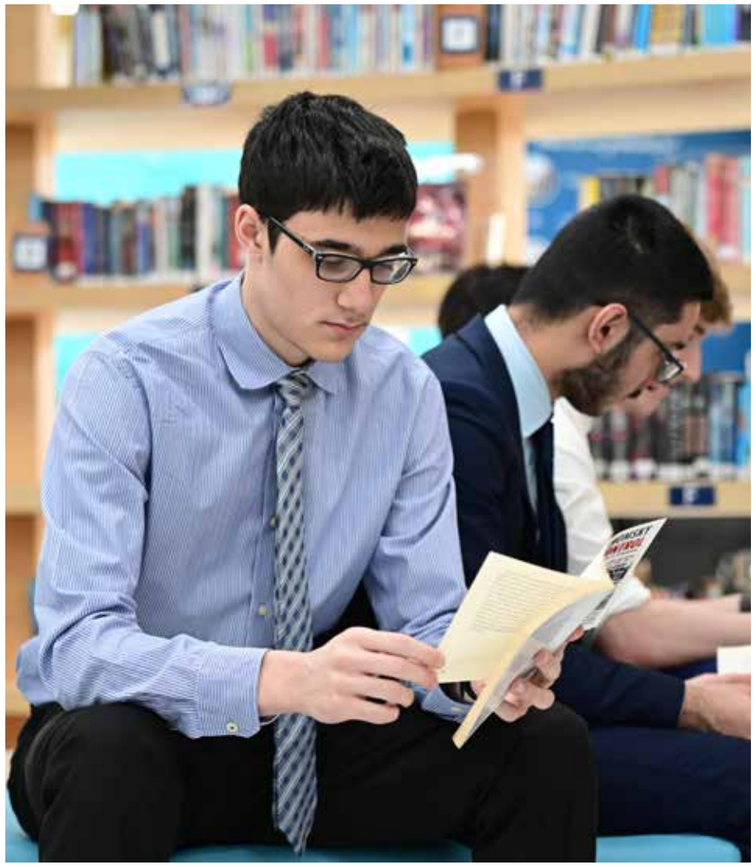
In addition, three core elements—the extended essay, theory of knowledge and creativity, activity, service—are compulsory and central to the philosophy of the programme.

IB Mission Statement

The IB Diploma Programme (IBDP) 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 organisation 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.



Approaches to Learning (ATLs)

The IB Diploma Programme (IBDP) aims to prepare students for success in higher education and beyond; it encourages students to become "active, compassionate and lifelong learners" (IB mission statement). DP teachers therefore play a crucial role as teachers of learners, not simply teachers of content. Approaches to learning (ATLs) are deliberate strategies, skills and attitudes that permeate the teaching and learning environment. These approaches and tools, intrinsically linked with the IB learner profile attributes, enhance student learning and assist student preparation for DP assessment and beyond. The development of skills such as thinking skills and communication skills is frequently identified as a crucial element in preparing students effectively for life beyond school. Developing students' ATL skills is about more than simply developing their cognitive skills. It is also about developing affective and metacognitive skills, and about encouraging students to view learning as something that they "do for themselves in a proactive way, rather than as a covert event that happens to them in reaction to teaching" (Zimmerman 2000: 65). By developing ATL skills and the attributes of the learner profile, DP students can become "self-regulated learners" (Kaplan 1998). Self-regulated learners have learned how to set learning goals, ask good questions, self-interrogate as they learn, generate motivation and perseverance, try out different learning processes, self-monitor the effectiveness of their learning, reflect on achievement, and make changes to their learning processes where necessary (Zimmerman and Schunk 1989, de Bruin et al. 2011, Wolters 2011). In the Diploma Programme, these cognitive, metacognitive and affective skills are grouped into the same five ATL categories.

- **Thinking Skills**
- **Communication skills**
- **Social skills**
- **Self-management skills**
- **Research skills**

Although these skills areas are presented as distinct categories, there are obviously close links and areas of overlap between them, and it is intended that these categories should be seen as interrelated. It is also the intention that these ATL skills should be seen as linking closely with the attitudes and dispositions identified in the IB learner profile. The learner profile is the IB mission statement translated into a set of learning outcomes for the 21st century. It is an easily communicated set of ideals that can inspire, motivate and focus the work of schools and teachers, uniting them in a common purpose.

Creativity, Activity, Service

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.

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.

Extended Essay

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.

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.

Theory of Knowledge (TOK)

Course description and aims

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

The aims of the TOK course are:

• to encourage students to reflect on the central question, "How do we know that?", and to recognize the value of asking that question

• to expose students to ambiguity, uncertainty and questions with multiple plausible answers

• to equip students to effectively navigate and make sense of the world, and help prepare them to encounter novel and complex situations

• to encourage students to be more aware of their own perspectives and to reflect critically on their own beliefs and assumptions

• to engage students with multiple perspectives, foster open-mindedness and develop intercultural understanding

• to encourage students to make connections between academic disciplines by exploring underlying concepts and by identifying similarities and differences in the methods of inquiry used in different areas of knowledge

• to prompt students to consider the importance of values, responsibilities and ethical concerns relating to the production, acquisition, application and communication of knowledge.

Curriculum model overview

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

Group 1:

Studies in Language and Literature

“A book, too, can be a star, a living fire to lighten the darkness , leading out into the expanding universe.”

— Madeleine L’Engle

Language A: Literature

English/School Supported Self Taught

Course description and aims

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

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

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

Curriculum model overview

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

School Supported Self-Taught (SSST)

This standard level (SL) course follows the Language A: Literature syllabus, but offers a unique opportunity to study the literature of a language that is not offered at BSB as a taught subject. As such, please refer to the Language A: Literature subject brief for full information about what the content of this course will entail. Also, as with all students who take a Language A other then English A, SSST Literature students are eligible for the Bilingual Diploma.

Students who opt for this course have lesson time built into their weekly schedules just as their peers do for their language option. They source a tutor who specialises in literature of their chosen language, and with that tutor's support, they work their way through the course. Importantly, being a self-taught student requires a certain level of autonomy: for example, you will be asked to develop a list of literary works and a timeline. You will also be expected to autonomously meet the 150 hours required for the study of the course too.

At BSB, students have been very successful with this option; in the past two years, both of our self-taught Japanese Literature students achieved 7s, and our current Portuguese and French Literature students are on track to achieve 7s as well.

Language A: Language and Literature

Chinese/English/German/Korean

Course description and aims

The language A: language and literature course aims at studying the complex and dynamic nature of language and exploring both its practical and aesthetic dimensions. The course will explore the crucial role language plays in communication, reflecting experience and shaping the world, and the roles of individuals themselves as producers of language. 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.

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

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

Curriculum model overview

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

Group 2:

Language Acquisition

“Language is what makes us human. It is a recourse against the meaningless noise and silence of nature and history.”

- Octavio Paz

Language Ab Initio

Mandarin/French/Spanish

Course description and aims

Language acquisition consists of two modern language courses—language ab initio and language B—designed to provide students with the necessary skills and intercultural understanding to enable them to communicate successfully in an environment where the language studied is spoken.

Offered at SL only, language ab initio is a language acquisition course designed for students with no previous experience in—or very little exposure to—the target language.

Language ab initio students develop their receptive, productive and interactive skills while learning to communicate in the target language in familiar and unfamiliar contexts.

Students develop the ability to communicate through the study of language, themes and texts. There are five prescribed themes: identities, experiences, human ingenuity, social organization and sharing the planet. While the themes are common to both language ab initio and language B, the language ab initio syllabus additionally prescribes four topics for each of the five themes, for a total of 20 topics that must be addressed over the two years of the course.

The following language acquisition aims are common to both language ab initio and language B.

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

Curriculum model overview

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

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

Communication is evidenced through receptive, productive and interactive skills.

Language B

Chinese/French/Spanish

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.

Curriculum model overview

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

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

Communication is evidenced through receptive, productive and interactive skills.

Guidance for choosing a Group 2 language

Two of your academic subjects will be languages, providing you with the opportunity to develop and extend your multilingual capabilities, an essential skill in the twenty-first century.

At BSB, we understand that each individual student has their own language profile and is proficient in languages at highly varied levels. As such, we strive to ensure we can meet the needs of each one of you by matching that profile with effective provision. Fortunately, the IBDP is capable of extensive flexibility with this: not only can students opt for what BSB provides, but there are numerous 'self study' options too, from School Supported Self Taught Literature to study through the online platform Pamoja.

Importantly, students must ensure they choose a language level that will "allow for suitable degrees of challenge for development in those languages." The IB provides this guidance to help:

If a student can...

Receptive Skills …demonstrate a good understanding of the meaning and purpose of written texts, including literary texts; …demonstrate a good understanding of the meaning and purpose of oral texts; …recognize some subtleties of specific language use and their effects. **Productive skills** …speak mostly clearly and fluently and use a varied range of language mostly accurately; …write fairly detailed texts demonstrating a good command of vocabulary with a good level of grammatical accuracy; …show a reasonable ability to adapt their writing to suit the intended audience and purpose; …express ideas and organize work coherently. **Interactive skills** …handle ideas mostly effectively with generally full interaction; …exhibit some difficulties with more difficult questions.	**Language A: literature** or **Language A: language and literature** or **Literature and performance**

If a student can...

Receptive Skills …demonstrate a good understanding of the meaning and purpose of written texts; …demonstrate a good understanding of the meaning and purpose of oral texts. **Productive skills** …speak generally clearly; …respond appropriately to most questions but struggle with responding to difficult questions; …demonstrate an adequate command of vocabulary and grammatical accuracy; …use basic and some complex language correctly; …show a reasonable ability to adapt writing to suit the intended audience and purpose; …express ideas and organize work appropriately. **Interactive skills** …respond appropriately and demonstrate comprehension; …use pronunciation and intonation which facilitate the understanding of the message; …make independent contributions; …produce clear messages.	**Language B HL**

If a student can...

Receptive Skills …demonstrate adequate understanding of the meaning and purpose of written texts; …demonstrate adequate understanding of the meaning and purpose of oral texts. **Productive skills** …develop some ideas using a logical structure; …use a range of basic cohesive devices; …use basic grammatical structures accurately; …use a range of basic vocabulary and appropriate register. **Interactive skills** …respond appropriately and generally demonstrate comprehension; …use pronunciation and intonation which often facilitate the understanding of the message; …make some independent contributions; …produce mostly clear messages.	**Language B SL**

If a student...

Receptive Skills …has no prior experience in or has had very limited previous exposure to the target language.	**Language ab initio**

Group 3:

Individuals and Societies

“Geography has made us neighbors. History has made us friends. Economics has made us partners, and necessity has made us allies. Those whom God has so joined together, let no man put asunder.”

- John F. Kennedy

Business Management

Course description and aims

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

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

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

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

The aims of the DP Business Management course are to enable students to:

1. develop as confident, creative and compassionate business leaders, entrepreneurs, social entrepreneurs and as change agents

2. foster an informed understanding of ethical and sustainable business practices

3. explore the connections between individuals, businesses and society

4. engage with decision-making as a process and a skill.

Curriculum model overview

Component	Recommended teaching hours SL	Recommended teaching hours HL
Unit 1: Introduction to business management 1.1 What is a business? 1.2 Types of business entities 1.3 Business objectives 1.4 Stakeholders 1.5 Growth and evolution 1.6 Multinational companies (MNCs)	20	20
Unit 2: Human resource management 2.1 Introduction to human resource management 2.2 Organizational structure 2.3 Leadership and management 2.4 Motivation and demotivation 2.5 Organizational (corporate) culture (HL only) 2.6 Communication 2.7 Industrial/employee relations (HL only)	20	35
Unit 3: Finance and accounts 3.1 Introduction to finance 3.2 Sources of finance 3.3 Costs and revenues 3.4 Final accounts 3.5 Profitability and liquidity ratio analysis 3.6 Debt/equity ratio analysis (HL only) 3.7 Cash flow 3.8. Investment appraisal 3.9 Budgets (HL only)	30	45
Unit 4: Marketing 4.1 Introduction to marketing 4.2 Marketing planning 4.3 Sales forecasting (HL only) 4.4 Market research 4.5 The seven Ps of the marketing mix 4.6 International marketing (HL only)	30	35
Unit 5: Operations management 5.1 Introduction to operations management 5.2 Operations methods 5.3 Lean production and quality management (HL only) 5.4 Location 5.5 Break-even analysis 5.6 Production planning (HL only) 5.7 Crisis management and contingency planning (HL only) 5.8 Research and development (HL only) 5.9 Management information systems (HL only)	15	45
Business Management toolkit	10	35
Research time allocated for the pre-released statement in paper 1	5	5
Internal assessment	20	20

Economics

Course description and aims

Economics is an exciting, dynamic subject that allows students to develop an understanding of the complexities and interdependence of economic activities in a rapidly changing world. At the heart of economic theory is the problem of scarcity. Owing to scarcity, choices have to be made. The economics course, at both SL and HL, uses economic theories, models and key concepts to examine the ways in which these choices are made: at the level of producers and consumers in individual markets (microeconomics); at the level of the government and the national economy (macroeconomics); and at an international level, where countries are becoming increasingly interdependent (the global economy). The DP economics course allows students to explore these models, theories and key concepts, and apply them, using empirical data, through the examination of six real-world issues. Through their own inquiry, students will be able to appreciate both the values and limitations of economic models in explaining real-world economic behaviour and outcomes. By focusing on the six real-world issues through the nine key concepts (scarcity, choice, efficiency, equity, economic well-being, sustainability, change, interdependence and intervention), students of the economics course will develop the knowledge, skills, values and attitudes that will encourage them to act responsibly as global citizens.

The aims of the DP economics course are to enable students to:

• develop a critical understanding of a range of economic theories, models, ideas and tools in the areas of microeconomics, macroeconomics and the global economy

• apply economic theories, models, ideas and tools, and analyse economic data to understand and engage with real-world economic issues and problems facing individuals and societies

• develop a conceptual understanding of individuals' and societies' economic choices, interactions, challenges and consequences of economic decision-making.

Curriculum model overview

Component	Recommended teaching hours SL	Recommended teaching hours HL
Unit 1: Introduction to economics 1.1 What is economics? 1.2 How do economists approach the world?	10	10
Unit 2: Microeconomics 2.1 Demand 2.2 Supply 2.3 Competitive market equilibrium 2.4 Critique of the maximizing behaviour of consumers and producers 2.5 Elasticity of demand 2.6 Elasticity of supply 2.7 Role of government in microeconomics 2.8 Market failure—externalities and common pool or common access resources 2.9 Market failure—public goods **2.10 Market failure—asymmetric information** **2.11 Market failure—market power** **2.12 The market's inability to achieve equity** **Only apply to HL**	35	70
Unit 3: Macroeconomics 3.1 Measuring economic activity and illustrating its variations 3.2 Variations in economic activity— aggregate demand and aggregate supply 3.3 Macroeconomic objectives 3.4 Economics of inequality and poverty 3.5 Demand management (demand-side policies)—monetary policy 3.6 Demand management—fiscal policy 3.7 Supply-side policies	40	75
Unit 4: The global economy 4.1 Benefits of international trade 4.2 Types of trade protection 4.3 Arguments for and against trade control/protection 4.4 Economic integration 4.5 Exchange rates 4.6 Balance of payments 4.7 Sustainable development 4.8 Measuring development 4.9 Barriers to economic growth and/or economic development 4.10 Economic growth and/or economic development strategies	45	65
Internal assessment Portfolio of three commentaries	20	20

Geography

Course description and aims

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

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

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

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

• develop an understanding of the dynamic interrelationships between people, places, spaces and the environment at different scales

• develop a critical awareness and consider complexity thinking in the context of the nexus of geographic issues, including:

— acquiring an in-depth understanding of how geographic issues, or wicked problems, have been shaped by powerful human and physical processes

— synthesising diverse geographic knowledge in order to form viewpoints about how these issues could be resolved.

• understand and evaluate the need for planning and sustainable development through the management of resources at varying scales.

Curriculum model overview

Syllabus component	Teaching hours SL	Teaching hours HL
Geographic themes—seven options **SL—two options; HL—three options** • Freshwater • Oceans and coastal margins • Extreme environments • Geophysical hazards • Leisure, tourism and sport • Food and health • Urban environments	60	90
SL and HL core **Geographic perspectives—global change** • Population distribution—changing population • Global climate—vulnerability and resilience • Global resource consumption and security	70	70
HL only **Geographic perspectives—global interactions** • Power, places and networks • Human development and diversity • Global risks and resilience		60
Internal assessment **SL and HL Fieldwork** Fieldwork, leading to one written report based on a fieldwork question, information collection and analysis with evaluation	20	20
Total teaching hours	150	240

History

Course description and aims

The DP history course is a world history course based on a comparative and multi-perspective approach to history. It involves the study of a variety of types of history, including political, economic, social and cultural, and provides a balance of structure and flexibility.

The course emphasizes the importance of encouraging students to think historically and to develop historical skills as well as gaining factual knowledge. It puts a premium on developing the skills of critical thinking, and on developing an understanding of multiple interpretations of history. In this way, the course involves a challenging and demanding critical exploration of the past. Teachers explicitly teach thinking and research skills such as comprehension, text analysis, transfer, and use of primary sources.

There are six key concepts that have particular prominence throughout the DP history course: change, continuity, causation, consequence, sig-nificance and perspectives.

The aims of the DP history course are to enable students to:

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

Curriculum model overview

Component	Recommended teaching hours	
	SL	HL
Prescribed subjects **One of the following, using two case studies, each taken from a different region of the world:** 1. Military leaders 2. Conquest and its impact 3. The move to global war 4. Rights and protest 5. Conflict and intervention	40	40
World history topics **Two of the following, using topic examples from more than one region of the world:** 1. Society and economy (750–1400) 2. Causes and effects of wars (750–1500) 3. Dynasties and rulers (750–1500) 4. Societies in transition (1400–1700) 5. Early Modern states (1450–1789) 6. Causes and effects of Early Modern wars (1500–1750) 7. Origins, development and impact of industrialization (1750–2005) 8. Independence movements (1800–2000) 9. Emergence and development of democratic states (1848–2000) 10. Authoritarian states (20th century) 11. Causes and effects of 20th-century wars 12. The Cold War: Superpower tensions and rivalries (20th century)	90	90
HL options: Depth studies **One of the following:** 1. History of Africa and the Middle East 2. History of the Americas 3. History of Asia and Oceania 4. History of Europe	N/A	90
Internal assessment Historical investigation	20	20

Psychology

Course description and aims

At the core of the DP psychology course is an introduction to three different approaches to understanding behaviour: the biological, cognitive and sociocultural approaches. Students study and critically evaluate the knowledge, concepts, theories and research that have developed the understanding in these fields.

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

The contribution and the interaction of the three approaches is understood through the four options in the course, focusing on areas of applied psychology: abnormal psychology, developmental psychology, health psychology, and the psychology of relationships. The options provide an opportunity to take what is learned from the study of the approaches to psychology and apply it to specific lines of inquiry.

Psychologists employ a range of research methods, both qualitative and quantitative, to test their observations and hypotheses. DP psychology promotes an understanding of the various approaches to research and how they are used to critically reflect on the evidence as well as assist in the design, implementation, analysis and evaluation of the students' own investigations. Surrounding the approaches and the options are the overarching themes of research and ethics. A consideration of both is paramount to the nature of the subject.

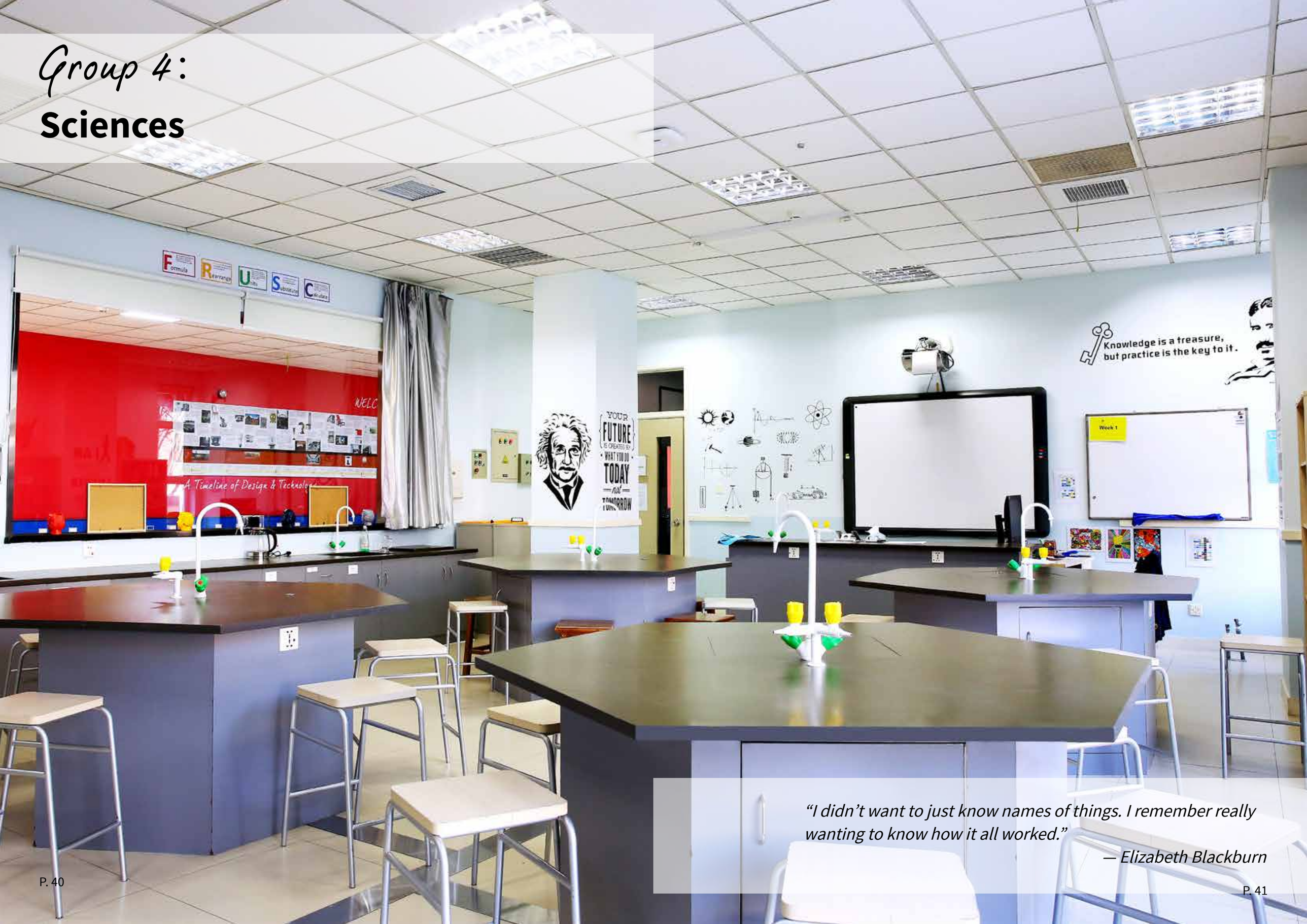
The aims of the psychology course at SL and at HL are to:

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

Curriculum model overview

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

Group 4:
Sciences



“I didn’t want to just know names of things. I remember really wanting to know how it all worked.”

— Elizabeth Blackburn

Biology

Course description and aims

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

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

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

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

Curriculum model overview

Component	Recommended teaching hours	
	SL	HL
Core	**95**	**95**
1. Cell biology	15	15
2. Molecular biology	21	21
3. Genetics	15	15
4. Ecology	12	12
5. Evolution and biodiversity	12	12
6. Human physiology	20	20
Additional higher level		**60**
7. Nucleic acids		9
8. Metabolism, cell respiration and photosynthesis	N/A	14
9. Plant biology		13
10.Genetics and evolution		8
11.Animal physiology		16
Option (choice of 1 out of 4)	**15**	**25**
A. Neurobiology and behaviour	15	25
B. Biotechnology and bioinformatics	15	25
C. Ecology and conservation	15	25
D. Human physiology	15	25
Practical scheme of work	**40**	**60**
Prescribed and other practical activities	20	40
Individual investigation	10	10
Group 4 project	10	10

Chemistry

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 characterise science and technology

3. apply and use a body of knowledge, methods and techniques that characterise science and technology

4. develop an ability to analyse, evaluate and synthesise 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.

Curriculum model overview

Component	Recommended teaching hours	
	SL	HL
Core	**95**	**95**
1. Stoichiometric relationships	13.5	13.5
2. Atomic structure	6	6
3. Periodicity	6	6
4. Chemical bonding and structure	13.5	13.5
5. Energetics/thermochemistry	9	9
6. Chemical kinetics	7	7
7. Equilibrium	4.5	4.5
8. Acids and bases	6.5	6.5
9. Redox processes	8	8
10.Organic chemistry	11	11
11.Measurement and data processing	10	10
Additional higher level (AHL)		**60**
12.Atomic structure		2
13.The periodic table—the transition metals		4
14.Chemical bonding and structure		7
15.Energetics/thermochemistry	N/A	7
16.Chemical kinetics		6
17.Equilibrium		4
18.Acids and bases		10
19.Redox processes		6
20.Organic chemistry		12
21.Measurement and analysis		2
Option (choice of 1 out of 4)	**15**	**25**
A. Materials	15	25
B. Biochemistry	15	25
C. Energy	15	25
D. Medicinal chemistry	15	25
Practical scheme of work	**40**	**60**
Prescribed and other practical activities	20	40
Individual investigation (internally assessed)	10	10
Group 4 project	10	10

Computer Science

Course description and aims

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

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

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

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

Curriculum model overview

Component	Recommended teaching hours HL	SL
Core syllabus content **SL/HL core** • Topic 1: System fundamentals • Topic 2: Computer organization • Topic 3: Networks • Topic 4: Computational thinking, problem-solving and programming **HL extension** • Topic 5: Abstract data structures • Topic 6: Resource management • Topic 7: Control **HL Case study** Additional subject content introduced by the annually issued case study	80 45 30	80
Option **SL/HL core** **HL extension** Students study one of the following options: • Option A: Databases • Option B: Modelling and simulation • Option C: Web science • Option D: Object-oriented programming (OOP)	30 15	30
Internal assessment **Solution** Practical application of skills through the develop- ment of a product and associated documentation	30	30
Group 4 project	10	10

Design Technology

Course description and aims

The Diploma Programme design technology course aims to develop internationally minded people whose enhanced understanding of design and the technological world can facilitate our shared guardianship of the planet and create a better world.

Inquiry and problem-solving are at the heart of the subject. DP design technology requires the use of the design cycle as a tool, which provides the methodology used to structure the inquiry and analysis of problems, the development of feasible solutions, and the testing and evaluation of the solution. A solution can be defined as a model, prototype, product or system that students have developed independently.

DP design technology achieves a high level of design literacy by enabling students to develop critical-thinking and design skills, which they can apply in a practical context. While designing may take various forms, it will involve the selective application of knowledge within an ethical framework.

Through the overarching theme of the nature of design, the aim of the DP design technology course is to enable students to develop:

1. a sense of curiosity as they acquire the skills necessary for independent and lifelong learning and action through inquiry into the technological world around them

2. an ability to explore concepts, ideas and issues with personal, local and global significance to acquire in-depth knowledge and understanding of design and technology

3. initiative in applying thinking skills critically and creatively to identify and resolve complex social and technological problems through reasoned ethical decision-making

4. an ability to understand and express ideas confidently and creatively using a variety of communication techniques through collaboration with others

5. a propensity to act with integrity and honesty, and take responsibility for their own actions in designing technological solutions to problems

6. an understanding and appreciation of cultures in terms of global technological development, seeking and evaluating a range of perspectives

7. a willingness to approach unfamiliar situations in an informed manner and explore new roles, ideas and strategies to confidently articulate and defend proposals

8. an understanding of the contribution of design and technology to the promotion of intellectual, physical and emotional balance and the achievement of personal and social well-being

9. empathy, compassion and respect for the needs and feelings of others in order to make a positive difference to the lives of others and to the environment

10.skills that enable them to reflect on the impacts of design and technology on society and the environment in order to develop their own learning and enhance solutions to technological problems.

Curriculum model overview

Component	Recommended teaching hours	
	SL	HL
Core	**90**	**90**
1. Human factors and ergonomics	12	12
2. Resource management and sustainable production	22	22
3. Modelling	12	12
4. Raw material to final product	23	23
5. Innovation and design	13	13
6. Classic design	8	8
Additional higher level (AHL)	**N/A**	**54**
7. User-centred design (UCD)		12
8. Sustainability		14
9. Innovation and markets		13
10. Commercial production		15
Practical work	**60**	**96**
Design project	40	60
Group 4 project	10	10
Teacher-directed activities	10	26

Physics

Course description and aims

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

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

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

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

1. appreciate scientific study and creativity within a global context through stimulating and challenging opportunities

2. acquire a body of knowledge, methods and techniques that characterise science and technology

3. apply and use a body of knowledge, methods and techniques that characterise science and technology

4. develop an ability to analyse, evaluate and synthesise 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.

Curriculum model overview

Component	Recommended teaching hours	
	SL	HL
Core	**95**	**95**
1. Measurements and uncertainties	5	5
2. Mechanics	22	22
3. Thermal physics	11	11
4. Waves	15	15
5. Electricity and magnetism	15	15
6. Circular motion and gravitation	5	5
7. Atomic, nuclear and particle physics	14	14
8. Energy production	8	8
Additional higher level		**60**
9. Wave phenomena	N/A	17
10.Fields		11
11.Electromagnetic induction		16
12.Quantum and nuclear physics		16
Option (Choice of one out of four)	**15**	**25**
A. Relativity	15	25
B. Engineering physics	15	25
C. Imaging	15	25
D. Astrophysics	15	25
Practical scheme of work	**40**	**60**
Prescribed and other practical activities	20	40
Individual investigation (internally assessed)	10	10
Group 4 project	10	10

Sports, Exercise and Health Science

Course description and aims

Sports, exercise and health science (SEHS) is an experimental science course combining academic study with practical and investigative skills. SEHS explores the science underpinning physical performance and provides the opportunity to apply these principles. The course incorporates the disciplines of anatomy and physiology, biomechanics, psychology and nutrition. Students cover a range of core and option topics, and carry out practical (experimental) investigations in both laboratory and field settings. The course offers a deeper understanding of the issues related to sports, exercise and health in the 21st century and addresses the international dimension and ethics related to both the individual and global context.

Apart from being worthy of study in its own right, SEHS is good preparation for courses in higher or further education related to sports fitness and health, and serves as useful preparation for employment in sports and leisure industries.

Both the SL and HL have a common core syllabus, internal assessment scheme, and overlapping elements in the options studied. While the skills and activities are common to all students, HL requires additional material and topics within the options.

Through studying any of the group 4 subjects, students should become aware of how scientists work and communicate, and the variety of forms of the "scientific method" with an emphasis on a practical approach through experimental work. In this context, the aims of SEHS is for students to:

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

Curriculum model overview

Syllabus component	Recommended teaching hours	
	SL	HL
Core	**80**	
• Anatomy	7	
• Exercise physiology	17	
• Energy systems	13	
• Movement analysis	15	
• Skill in sports	15	
• Measurement and evaluation of human performance.	13	
Additional higher level (AHL)		**50**
• Further anatomy		7
• The endocrine system		7
• Fatigue		6
• Friction and drag		8
• Skill acquisition and analysis		9
• Genetics and athletic performance		7
• Exercise and immunity.		6
Options (Two of four)	**30**	**50**
• Optimising physiological performance		
• Psychology of sports		
• Physical activity and health		
• Nutrition for sports, exercise and health.		
Practical work	**40**	**60**
• Investigations	20	40
• Group 4 project	10	10
• Individual investigation (internal assessment)	10	10
Total teaching hours	**150**	**240**

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.

Group 5:

Mathematics

“Pure mathematics is, in its way, the poetry of logical ideas”
— Albert Einstein

Mathematics: Analysis and Approaches

Course description and aims

Individual students have different needs, aspirations, interests and abilities. For this reason there are two different DP subjects in mathematics, Mathematics: analysis and approaches and Mathematics: applications and interpretation. Each course is designed to meet the needs of a particular group of students. Both courses are offered at SL and HL.

The IB DP Mathematics: analysis and approaches course recognizes the need for analytical expertise in a world where innovation is increasingly dependent on a deep understanding of mathematics. The focus is on developing important mathematical concepts in a comprehensible, coherent and rigorous way, achieved by a carefully balanced approach. Students are encouraged to apply their mathematical knowledge to solve abstract problems as well as those set in a variety of meaningful contexts. Mathematics: analysis and approaches has a strong emphasis on the ability to construct, communicate and justify correct mathematical arguments. Students should expect to develop insight into mathematical form and structure, and should be intellectually equipped to appreciate the links between concepts in different topic areas. Students are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments. The internally assessed exploration allows students to develop independence in mathematical learning. Throughout the course students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas.

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

• develop a curiosity and enjoyment of mathematics, and appreciate its elegance and power

• develop an understanding of the concepts, principles and nature of mathematics

• communicate mathematics clearly, concisely and confidently in a variety of contexts

• develop logical and creative thinking, and patience and persistence in problem solving to instil confidence in using mathematics

• employ and refine their powers of abstraction and generalization

• take action to apply and transfer skills to alternative situations, to other areas of knowledge and to future developments in their local and global communities

• appreciate how developments in technology and mathematics influence each other

• appreciate the moral, social and ethical questions arising from the work of mathematicians and the applications of mathematics

• appreciate the universality of mathematics and its multicultural, international and historical perspectives

• appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course

• develop the ability to reflect critically upon their own work and the work of others

• independently and collaboratively extend their understanding of mathematics.

Curriculum model overview

Syllabus component	Recommended teaching hours	
	SL	HL
• Number and algebra	19	39
• Functions	21	32
• Geometry and trigonometry	25	51
• Statistics and probability	27	33
• Calculus	28	55
Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics	30	30
Total teaching hours	150	240

Mathematics: Applications and Interpretation

STANDARD LEVEL

Course description and aims

Individual students have different needs, aspirations, interests and abilities. For this reason there are two different DP subjects in mathematics, Mathematics: analysis and approaches and Mathematics: applications and interpretation. Each course is designed to meet the needs of a particular group of students. Both courses are offered at SL and HL.

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

Students should expect to develop strong technology skills, and will be intellectually equipped to appreciate the links between the theoretical and the practical concepts in mathematics. All external assessments involve the use of technology. Students are also encouraged to develop the skills needed to continue their mathematical growth in other learning environments.

The internally assessed exploration allows students to develop independence in mathematical learning. Throughout the course students are encouraged to take a considered approach to various mathematical activities and to explore different mathematical ideas.

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

• develop a curiosity and enjoyment of mathematics, and appreciate its elegance and power

• develop an understanding of the concepts, principles and nature of mathematics

• communicate mathematics clearly, concisely and confidently in a variety of contexts

• develop logical and creative thinking, and patience and persistence in problem solving to instil confidence in using mathematics

• employ and refine their powers of abstraction and generalization

• take action to apply and transfer skills to alternative situations, to other areas of knowledge and to future developments in their local and global communities

• appreciate how developments in technology and mathematics influence each other

• appreciate the moral, social and ethical questions arising from the work of mathematicians and the applications of mathematics

• appreciate the universality of mathematics and its multicultural, international and historical perspectives

• appreciate the contribution of mathematics to other disciplines, and as a particular “area of knowledge” in the TOK course

• develop the ability to reflect critically upon their own work and the work of others

• independently and collaboratively extend their understanding of mathematics.

Curriculum model overview

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

Syllabus component	Recommended teaching hours SL
• Number and algebra • Functions • Geometry and trigonometry • Statistics and probability • Calculus	16 31 18 36 19
Development of investigational, problem-solving and modelling skills and the exploration of an area of mathematics	30
Total teaching hours	150

Group 6:

The Arts

"You can't use up creativity. The more you use, the more you have."
- Maya Angelou

Music

Course description and aims

The Diploma Programme Music course (for first teaching from 2020) has been designed to prepare the 21st century music student for a world in which global musical cultures and industries are rapidly changing.

The course is grounded in the knowledge, skills and processes associated with the study of music and offers a strengthened approach to student creativity through practical, informed and purposeful explorations of diverse musical forms, practices and contexts. The course also ensures a holistic approach to learning, with the roles of performer, creator and researcher afforded equal importance in all course components.

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

- explore a range of musical contexts and make links to, and between, different musical practices, conventions and forms of expression
- acquire, develop and experiment with musical competencies through a range of musical practices, conventions and forms of expression, both individually and in collaboration with others
- evaluate and develop critical perspectives on their own music and the work of others.

Alignment with DP arts courses

The curriculum moves into alignment with other DP arts courses, through the clear articulation of the balance between the theoretical and practical disciplines of music. A new set of assessment tasks that link directly to the processes and roles experienced in the curriculum have been developed. These robust tasks address the concept of holistic musical development by removing optionality (and thereby the possibility to specialise in one skill at the expense of others) and incorporating practical music-making into all tasks. Assessment tasks are now presented as coursework, balanced between internal and external assessment. There are three common components at SL and HL, with a discrete HL extension component which invites students to work within the parameters of real-life music industry practices.

Engagement with diverse musical material

The new course seeks to be inclusive of students with wide-ranging personal and cultural musical backgrounds. In place of prescribed musical content, students and teachers in the new course have the agency to personalise unique approaches to musical forms, genres and pieces. The exploration of diverse musical material is focused through the lenses of four areas of inquiry.

- Music for sociocultural and political expression
- Music for listening and perfomance,
- Music for dramatic impact, movement and entertainment
- Music technology in the electronic and digital age.

A framework for study and assessment

Engagement with these areas of inquiry takes place across three contexts—personal, local and global. These contexts invite students to move beyond familiar musical material (personal context), to experience music from the culture or community around them (local context), as well as engaging with previously unfamiliar music (global context). Combined with the contexts, the areas of inquiry offer a “matrix” onto which students can plot the variety of their musical encounters. This new flexibility is not only about choice in the learning, teaching and assessment—it is also about forging deep, life-long connections between students’ passions and interests and the wider world of music and music-making. All musical encounters are experienced in the roles of researcher, creator and performer, and are related through teaching and assessment to the processes of exploring, experimenting and presenting music. Academic rigour is assured through the requirement for students to critically analyse the music with which they engage, drawing information and conclusions which they then apply to their own practical music making through creating and performing.

What do students do in a music classroom?

Engage with a diverse range of music that will broaden their musical horizons and provide stimuli to expand their own music-making.

Connect theoretical studies to practical work to gain a deeper understanding of the music they engage with.

Communicate and present music as researchers, creators and performers.

How are music students assessed?

Students at SL and HL submit the following common assessment tasks.

An exploration portfolio: Written work demonstrating engagement with, and understanding of, diverse musical material, along with practical exercises in creating and performing

An experimentation report: Written work in the form of a rationale and commentary that supports practical musical evidence of experimentation in creating and performing

A musical presentation: Finished works in creating and performing, supported by programme notes.

In addition, HL students will submit the following project.

A collaborative project: A continuous multimedia presentation documenting a real-life project, containing evidence of the project proposal, the process and evaluation, and the realized project, or curated selections of it.

By the end of the course students will have:

- broadened their musical horizons through engagement with diverse musical material
- analysed a wide range of music
- engaged with music technology as a compulsory part of the course
- gained confidence in the essential processes associated with music-making
- developed as holistic musicians with experience as creators and performers
- developed both independent and collaborative working skills
- honed their inquiry, reflection and critical thinking skills.

The course is ideal for students who ...

- are interested in both the practical and theoretical aspects of music-making
- respond to a creative approach to composition and performance z value collaboration
- wish to experience a DP arts course
- plan to study music in university or college.

Curriculum model overview

Syllabus component	Teaching hours SL	Teaching hours HL
Exploring music in context Students will learn how to engage with a diverse range of music that will broaden their musical horizons and provide stimuli to expand their own music-making. They will demonstrate diversity and breadth in their exploration by engaging with music from the areas of inquiry in personal, local and global contexts.	45	45
Experimenting with music Students connect theoretical studies to practical work and gain a deeper understanding of the music they engage with. Through this theoretical and practical work as researchers, creators and performers, they will learn to experiment with a range of musical material and stimuli from the areas of inquiry across local and global contexts.	45	45
Presenting music Students learn to practise and prepare finished pieces that will be performed or presented to an audience. In working towards completed musical works, they expand their musical identity, demonstrate their level of musicianship, and learn to share and communicate their music as researchers, creators and performers.	60	60
The contemporary music maker (HL only) Music at higher level (HL) builds on the learning of musical competencies and challenges students to engage with the musical processes in settings of contemporary music-making. For the HL component, students plan and collaboratively create a project that draws on the competencies, skills and processes in all of the musical roles of the music course and is inspired by real-life practices of music-making.	N/A	90
Total teaching hours	150	240

Theatre

Course description and aims

The IB Diploma Programme theatre course is a multifaceted theatre-making course. It gives students the opportunity to make theatre as creators, designers, directors and performers. It emphasizes the importance of working both individually and as part of an ensemble. It offers the opportunity to engage actively in the creative process of inquiring, developing, presenting and evaluating. Students are encouraged to work as inquisitive and imaginative artists, transforming ideas into action and communicating these to an audience.

Theatre students learn to apply research and theory to inform and contextualize their work as they experience the course through practical and physical engagement. They understand that knowledge resides in the body and that research can be conducted physically through both action and practice. In this respect, the theatre course encourages students to appreciate that through the processes of researching, creating, preparing, presenting and critically reflecting on theatre—as participants and spectators—they gain a richer understanding of themselves, their community and the world.

Through the study of theatre, students strengthen their awareness of their own personal and cultural perspectives, developing an appreciation of the diversity of theatre practices, their processes and their modes of presentation. This enables students to discover and engage with different forms of theatre across time, place and culture and promotes international-mindedness. Participation in the DP theatre course results in the development of both theatre and life skills; the building of confidence, imagination, creativity and a collaborative mindset.

The aims of the DP arts subjects (dance, film, music, theatre, visual arts and literature and performance) are to enable students to:

1. explore the diversity of the arts across time, cultures and contexts
2. develop as imaginative and skilled creators and collaborators
3. express ideas creatively and with competence in forms appropriate to the artistic discipline
4. critically reflect on the process of creating and experiencing the arts
5. develop as informed, perceptive and analytical practitioners
6. enjoy lifelong engagement with the arts.

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

7. inquire into theatre and its contexts
8. develop and practically apply theatre performance and production skills and elements, led by intentions
9. create, present and evaluate theatre work both independently and collaboratively
10. acquire the perspectives and intentions of an internationally-minded theatre-maker
11. understand, appreciate and explore the relationship between theory and performance (HL only).

Curriculum model overview

Syllabus component	teaching hours SL	teaching hours HL
Staging play texts This area of the syllabus addresses the transformation of play texts into action. Students examine the ways in which ideas are articulated in texts by playwrights and the ways in which performance and production elements can be used to effectively fulfill theatre-maker intentions.	45	45
Exploring world theatre traditions This area of the syllabus addresses the authentic exploration of world theatre traditions through academic and practical research and exploration. Students inquire into and physically explore world theatre traditions, performance conventions and performance material from those traditions in order to acquire a deeper understanding and appreciation of the traditions through the body and/or voice.	45	45
Collaboratively creating original theatre This area of the syllabus addresses the collaborative development and performance of original theatre as part of an ensemble of theatre-makers. Students formulate intentions for theatre-making and examine the ways in which these intentions can be effectively realized through the collaborative creation of original performance work inspired by a starting point.	60	60
Performing theatre theory (HL only) This area of the syllabus addresses the exploration of aspects of theatre theory and the ways in which theory can inform performance. Students research at least one theatre theorist, identify an aspect of their theory and apply this to create and present theatre work that demonstrates this aspect of theory in performance.	N/A	90
Total teaching hours	150	240

Visual Arts

Course description and aims

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

The role of visual arts teachers should be to actively and carefully organize learning experiences for the students, directing their study to enable them to reach their potential and satisfy the demands of the course. Students should be empowered to become autonomous, informed and skilled visual artists.

The aims of the arts subjects are to enable students to:

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

In addition, the aims of the visual arts course at SL and HL are to enable students to:

7. make artwork that is influenced by personal and cultural contexts
8. become informed and critical observers and makers of visual culture and media
9. develop skills, techniques and processes in order to communicate concepts and ideas.

Curriculum model overview

Component	Recommended teaching hours SL	Recommended teaching hours HL
Visual arts in context • Examine and compare the work of artists from different cultural contexts. • Consider the contexts influencing their own work and the work of others. • Make art through a process of investigation, thinking critically and experimenting with techniques. • Apply identified techniques to their own developing work. • Develop an informed response to work and exhibitions they have seen and experienced. • Begin to formulate personal intentions for creating and displaying their own artworks.	50	80
Visual arts methods • Look at different techniques for making art. • Investigate and compare how and why different techniques have evolved and the processes involved. • Experiment with diverse media and explore techniques for making art. • Develop concepts through processes informed by skills, techniques and media. • Evaluate how their ongoing work communicates meaning and purpose. • Consider the nature of “exhibition” and think about the process of selection and the potential impact of their work on different audiences.	50	80
Communicating visual arts • Explore ways of communicating through visual and written means. • Make artistic choices about how to most effectively communicate knowledge and understanding. • Produce a body of artwork through a process of reflection and evaluation, showing a synthesis of skill, media and concept. • Select and present resolved works for exhibition. • Explain the ways in which the works are connected. • Discuss how artistic judgments impact the overall presentation.	50	80

Throughout the course students are required to maintain a visual arts journal. Although sections of the journal will be selected, adapted and presented for assessment, the journal itself is not directly assessed or moderated. It is, however, regarded as a fundamental activity of the course.

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