
Year 10 Curriculum Handbook 2019



**QUEENSLAND
ACADEMIES**

Science Mathematics
& Technology Campus

Course structure of the Year 10 program

All students at QASMT undertake the International Baccalaureate Diploma Programme (IBDP) in Years 11 and 12. If all passing criteria is met the student is awarded the International Baccalaureate Diploma. Students will also work towards the award of the Queensland Certificate of Education (QCE).

Our Year 10 students study a Pre-IBDP Program. In the Pre-IBDP Program, students should select the subjects they intend to study in their IB Diploma Programme. The curriculum is designed to provide students with the understandings and skills needed as preparatory requirements of the IB Diploma subjects. The program also provides students with an opportunity to experience the rigours and organisation needed to succeed in the IB Diploma Programme.



Figure 1: IB Diploma Programme curriculum overview

Subjects offered in the Pre-IBDP Program

As students are preparing for their IB Diploma Programme, students should select the subjects they intend to study for the Diploma. As in the IB Diploma Programme, subjects are organised in groups to ensure a balanced course of study. Students must study English and Mathematics, ONE subject from each of Group 2-4, and a SECOND subject from either Group 4 or Group 6.

IB Diploma Programme Group	Subject
1 – Studies in language and literature	English
2 – Language acquisition	French
	German
	Japanese
	Spanish
3 – Individuals and societies	Economics
	Information Technology in a Global Society
	Psychology
4 - Sciences	Biology
	Chemistry
	Computer Science
	Health Science
	Physics
5 - Mathematics	Mathematics
6 – The arts	Visual Art

Note: All subject offerings are dependent on numbers and staffing conditions being met. Subjects that do not attract minimum enrolment numbers may not be offered.

Subjects offered in the IB Diploma Programme

Students choose the subjects and levels they will study in the IB Diploma Programme in Term 3 of Year 10. The IB curriculum can be best understood through the IB circle (Figure 1). Students must study six subjects when undertaking the Diploma Programme, with one subject being chosen from each of Groups 1 to 5. The sixth subject may come from Group 4 or 6. Three subjects must be studied at standard level (equivalent of 150 teaching hours each subject) and three at higher level (equivalent of 240 teaching hours each subject).

During the two year programme students will also complete an Extended Essay, study a Theory of Knowledge course and participate in the Creativity, Activity & Service course. The International Baccalaureate Organisation (IBO) has comprehensive guidelines that must be adhered to in order for students to receive the IB Diploma qualification.

For your reference please find below the subjects and levels currently offered at QASMT in the IB Diploma Programme. In accordance with the IBDP rules at QASMT, students must study ONE subject from each of Group 1-5, and a SECOND subject from either Group 4 or Group 6. All students must study three (3) subjects at Higher Level (HL) and three (3) subjects at Standard Level (SL). Subjects are significantly more rigorous at HL level than at SL level. HL courses are designed for students with the high level of skills and understandings needed to succeed with the extra breadth and depth of subject material.

Group	Subject	Levels offered	
		SL	HL
1 – Studies in language and literature	English A Literature	✓	✓
	Language A Literature (School Supported Self-Taught (SSST) – Mother Tongue)	✓	
2 – Language acquisition	French ab initio	✓	
	German ab initio	✓	
	Japanese ab initio	✓	
	Spanish ab initio	✓	
	Language B English**		✓
3 – Individuals and societies	Economics		✓
	Information Technology in a Global Society		✓
	Psychology		✓
4 - Sciences	Biology	✓	✓
	Chemistry	✓	✓
	Computer Science		✓
	Sports, Exercise & Health Science		✓
	Physics	✓	✓
5 - Mathematics	Mathematics	✓	✓
	Mathematics Studies	✓	
6 – The arts	Visual Art		✓

Note: These subject offerings reflect the current offerings at QASMT and are subject to change. All subject offerings are dependent on numbers and staffing conditions being met.

** Language B English is negotiated on a yearly basis dependent on sufficient numbers for a class.

Subject overviews

Group 1 – Language and literature (English)

This course is designed to prepare students for the IB Language and Literature subjects and therefore preparatory elements of all subjects are studied during English. The course also aims to develop a strong English foundation which extends their literacy skills. The IB encourages students to study their Group 1 subject in the Diploma Programme in their mother tongue wherever possible. To accommodate this in the IB Diploma Programme we offer Group 1 in a range of other languages through the School Supported Self-Taught (SSST) program and in Chinese A (where numbers permit). Students completing their Group 1 subject in a different language to the rest of their course are eligible for a Bilingual Diploma. Details of the IB Diploma Programme subjects offered in this group are included below.

Literature

The English A Literature course is concerned with our conceptions, interpretations and experiences of the world. The study of literature, therefore, can be seen as a study of all the complex pursuits, anxieties, joys and fears that human beings are exposed to in the daily business of living. It enables an exploration of one of the more enduring fields of human creativity and artistic ingenuity, and provides immense opportunities for encouraging independent, original, critical and clear thinking. It also promotes a healthy respect for the imagination and a perceptive approach to the understanding and interpretation of literary works. The discussion of literature is itself an art which requires the clear expression of ideas both orally and in writing. The Literature programme encourages students to see literary works as products of art and their authors as craftspeople whose methods of production can be analysed in a variety of ways and on a number of levels. This is achieved through the emphasis placed on exploring the means used by different authors to convey their subjects in the works studied. It is further reinforced by the comparative framework emphasized for the study of these works in all parts of the programme.

Language and Literature

The study of the texts produced in a language is central to an active engagement with language and culture and, by extension, to how we see and understand the world in which we live. A key aim of the Language and Literature course is to encourage students to question the meaning generated by language and texts, which, it can be argued, is rarely straightforward and unambiguous. Helping students to focus closely on the language of the texts they study and to become aware of the role of each text's wider context in shaping its meaning is central to the course. An understanding of the ways in which formal elements are used to create meaning in a text is combined with an exploration of how that meaning is affected by reading practices that are culturally defined and by the circumstances of production and reception. Language and Literature comprises four parts—two relate to the study of language and two to the study of literature.

Language A (IB Diploma Programme only)

Non-native English speaking students at QASMT have the possibility of studying their mother tongue in the Diploma Program as one their six subjects. Language A: Literature SSST is available for study in 55 languages. Chinese A is a language and literature course and sits in Group 1. It is designed for students who are Chinese native speakers and are able to speak, write and read fluently. Please note that this is not a language learning course. It is a requirement for all SSST and Chinese A students to study either English B as their Group 2 (Language acquisition) subject or English A as an additional Group 1 subject.

Group 2 – Language acquisition

French, German, Japanese and Spanish

These language courses are designed for students who have some or no previous experience of learning the target language. The focus of the courses is on the acquisition of language required for purposes and situations usual in everyday social interaction. These courses are not available for native speakers of the language.

German and Italian will start the IB Diploma Programme in Year 10 as students will sit their final German and Italian exams in the May examination block in Year 12, this is because these subjects are not offered in the November examination period. After the May exam in Year 12 these students will have a study line and will only sit exams for five subjects in the November block. French and Japanese will have a Pre-IB Diploma Programme in Year 10 and start the IB Diploma Programme in Year 11. Students for French and Japanese will sit their final exams in the November examination block.

Language courses aim to develop a variety of linguistic skills and a basic awareness of the target culture(s) through the study of a core syllabus and language-specific syllabuses.

Aims

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

At the end of the Language ab initio course candidates will be expected to demonstrate ability to:

1. Communicate clearly and effectively in a range of contexts and for a variety of purposes.
2. Understand and use language appropriate to a range of interpersonal and/or intercultural contexts and audiences.
3. Understand and use language to express and respond to a range of ideas with fluency and accuracy.
4. Identify, organize and present ideas on a range of topics.
5. Understand, analyse and reflect upon a range of written, audio, visual and audio-visual texts.

Prescribed topics:

Identities	Experiences	Human Ingenuity	Social organization	Sharing the planet
<ul style="list-style-type: none">• Personal attributes• Personal relationships• Eating and drinking• Physical wellbeing	<ul style="list-style-type: none">• Daily routine• Leisure• Holidays• Festivals and celebrations	<ul style="list-style-type: none">• Transport• Entertainment• Media• Technology	<ul style="list-style-type: none">• Neighbourhood• Education• The workplace• Social issues	<ul style="list-style-type: none">• Climate• Physical geography• The environment• Global issues

Group 3 – Individuals and societies

Economics

Economics, a dynamic social science, is essentially about dealing with scarcity, resource allocation and the methods and processes by which choices are made in the satisfaction of human wants. As a social science, economics uses scientific methodologies that include quantitative and qualitative elements.

The IB Diploma Programme economics course emphasizes the economic theories of microeconomics, which deal with economic variables affecting individuals, firms and markets, and the economic theories of macroeconomics, which deal with economic variables affecting countries, governments and societies. These economic theories are to be applied to real-world issues. Prominent among these issues are fluctuations in economic activity, international trade, economic development and environmental sustainability. 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 international perspectives, fosters a concern for global issues, and raises students' awareness of their own responsibilities at a local, national and international level. The course also seeks to develop values and attitudes that will enable students to achieve a degree of personal commitment in trying to resolve these issues, appreciating our shared responsibility as citizens of an increasingly interdependent world.

Information technology in a global society

The IB Diploma Programme information technology in a global society (ITGS) course is the study and evaluation of the impacts of information technology (IT) on individuals and society. It explores the advantages and disadvantages of the access and use of digitized information at the local and global level.

ITGS provides a framework for the student to make informed judgments and decisions about the use of IT within social contexts. Although ITGS shares methods of critical investigation and analysis with other social sciences, it also considers social and ethical considerations that are common to other subjects in group 3. Students come into contact with IT on a daily basis because it is so pervasive in the world in which we live. This increasingly widespread use of IT inevitably raises important questions with regard to the social and ethical considerations that shape our society today. ITGS offers an opportunity for a systematic study of these considerations, whose range is such that they fall outside the scope of any other single discipline

Psychology

Psychology is the systematic study of behaviour and mental processes. Psychology has its roots in both the natural and social sciences and a variety of research designs are utilized. Overall Psychology provides a unique approach to understanding modern society.

IB 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 ethical concerns raised by the methodology and application of psychological research are key considerations in IB psychology.

IB Psychology takes a holistic approach that fosters intercultural understanding and respect. In the core of the IB Psychology course, the biological approaches to understanding behaviour demonstrates what all humans share, whereas the cognitive and sociocultural approaches to understanding behaviour reveal the immense diversity of influences that produce human behaviour and mental processes. Cultural diversity is explored and students are encouraged to develop empathy for the feelings, needs and lives of others within and outside their own culture, therefore contributing to an international understanding.

Group 4 – Sciences

Biology

Biology is an experimental science that combines academic study with the acquisition of practical and investigational skills. Apart from being a subject worthy of study in its own right, Biology is recommended for students wishing to study medicine, biological science and environmental science in higher education and serves as useful preparation for employment.

Chemistry

Chemistry is an experimental science that combines academic study with the acquisition of practical and investigational skills. It is 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. Chemistry is recommended for students interested in university studies in all science fields, for many universities Chemistry is a pre-requisite study requirement.

Physics

Physics is an experimental science that combines academic study with the acquisition of practical and investigational skills. It is the most fundamental of the experimental sciences as it seeks to explain the universe itself, from the very smallest particles – like quarks and leptons (perhaps 10^{-17} m in size), perhaps truly fundamental – to the size of the universe itself (). Students with an aptitude in Mathematics or physical science or simply a desire to work in fields like Astronomy, Nanotechnology, Rocketry, Medicine, Engineering, Dentistry, Architecture or Photonics (to name a few), should consider studying the IB Physics Programme. A challenging but richly rewarding programme of study, with many exciting career options available.

Health science

Health science is an experimental science that combines academic study with the acquisition of practical and investigative skills. It is an applied science course, with aspects of biological and physical science being studied within the specific contexts of health, wellbeing and physical activity. Students are introduced to the traditional disciplines of anatomy and physiology, biomechanics and nutrition. Topics covered in Pre-IB Health science include: anatomy, function and disorders of the musculoskeletal system, physics of motion (forces, Newton's Laws of Motion, projectile motion), nutrition and physical activity. Students undertake both theory and practical work, and are introduced to the scientific inquiry skills required to successfully undertake a scientific research project.

Computer science

Computer science requires an understanding of the fundamental concepts of computational thinking as well as knowledge of how computers and other digital devices operate. The Diploma Programme computer science course is engaging, accessible, inspiring and rigorous. It has the following characteristics:

- draws on a wide spectrum of knowledge
- enables and empowers innovation, exploration and the acquisition of further knowledge
- interacts with and influences cultures, society and how individuals and societies behave
- raises ethical issues
- is underpinned by computational thinking.

Computer science students will become aware of how computer scientists work and communicate with each other and with other stakeholders in the successful development and implementation of IT solutions. While the methodology used to solve problems in computer science may take a wide variety of forms, the Computer science course emphasizes the need for both a theoretical and practical approach.

GROUP 5 – Mathematics

The Year 10 Mathematics course aims to develop a strong mathematical foundation which extends their numeracy skills. The Pre-IB Program is equivalent to an extension mathematics course, and is designed to prepare students to select from either the IB Mathematics: Analysis and Approaches course or the IB Mathematics: Applications and Interpretation course.

Both subjects are designed to appeal to students with varying levels of ability and motivation in mathematics, but will be developing their mathematics fluency, their ability to think mathematically, to recognise mathematics around them and to be able to use their mathematics in either abstract or contextual settings.

These subjects are new in 2019, and are unlike the previous IB Mathematics and Mathematical Studies courses. In the new syllabus Mathematics becomes like most other subjects in the IB Diploma Programme, where the SL course is a subset of the HL course. This means that HL students will complete the 150 hours of the SL course as part of the total 240 hours of the HL course.

Mathematics: Analysis and approaches

This course is designed for students who enjoy developing their mathematics, to become fluent in the construction of mathematical arguments and develop strong skills in mathematical thinking. They will explore real and abstract applications, sometimes with technology, and will enjoy mathematical problem solving and generalisation. 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.

Mathematics: Applications and interpretation

This course is designed for students who are interested in developing their mathematics for describing our world, modelling and solving practical problems using the power of technology. Students who take Mathematics: Applications and Interpretation will be those who enjoy mathematics best when seen in a practical context. This subject is aimed at students who will go on to further education in order to study subjects such as social sciences, natural sciences, statistics, business, some economics, psychology, and design, for example.

Group 6 – The arts

Visual art

Visual Art entails the practice and theory of art including understanding of the cultural history and the philosophical framework of art-making. The QASMT art program also includes a focus on design and design thinking, because the edges are blurred between these two creative domains and both art and design offer creative thinking approaches that intersect with ideas in science and technology. The practice of art and design means a focus on the creative studio, where students have the opportunity to explore materials, develop skills in media and apply them to the development of their own creative ideas. A second focus is the investigation of important ideas in art and design history and theory, and assessment is based on both practical and theoretical responses.

The Visual Art program is designed to lay a foundation for creative thinking and creative approaches to working in the studio and with a wide range of materials and media approaches. It will establish key ways of working including documentation of the creative process and a grasp of formative art and design theories and principles.

The IB Visual Art program is designed for students with a strong interest in art and design who want to develop their creative potential and apply creative thinking in a wide range of other disciplines and career pathways. It is also suitable for students who want to develop more extensive practical folios both to expand their own personal creative potential and in preparation for tertiary programs or future pathways in creative and arts industries.

Instrumental Music Programme

The QASMT Instrumental Music Programme is a comprehensive tuition program in which students learn orchestral or band instruments. It provides the opportunity for musical development of students through instrumental instruction on a group basis and ensemble experience so that students develop ensemble performance skills as an integral part of their music education. Instrumental music provides students with an opportunity for immense enjoyment, expansion of their musical horizons and knowledge enrichment through ensemble and tuition work. Additionally, there is comprehensive research suggesting studying music improves overall academic achievement.

The Instrumental Music Programme at QASMT works independently from the Academic agenda of the Academy and therefore all ensembles and music lessons take place as extracurricular; before and after school. It is with this that commitment and strong organisational skills are imperative.

The vision for the Instrumental Music department is to foster high quality collaborative performances and innovation. To fulfil this, students are required to be involved in both instrumental lessons and a school ensemble.

Instrumental Lessons

QASMT offers small group instrumental lessons for 30 minutes once per week with a specialist tutor. Students may select to enrol in the areas of:

**Woodwind,
Brass,
Strings or
Percussion.**

Alternatively, students may wish to seek outside tuition, in which case a letter certifying details of this tuition is required.

Ensembles

QASMT offers a combination of open and auditioned ensembles including choirs, string ensembles and wind bands, which are set at the start of the academic year based on student numbers, ability and interest. Weekly rehearsals culminate in performances throughout the year, including the annual Arts Showcase event and school assemblies, as well as external competitions and performance opportunities.

Curriculum and Assessment

As a Department of Education and Training school, QASMT follows the EQ Instrumental Music Curriculum and Assessment program. This Instrumental Music program is built upon the goal of “students becoming musicians” and is subdivided into 10 levels. Assessment occurs once per term during weekly lessons, against the objectives of Literacy, Technique and Performance.

Fees and Enrolment

All students in ensembles are required to pay a levy to contribute towards the cost of purchasing and copying music, servicing instruments, buying new instruments and other equipment for the Instrumental Music Programme at QASMT, and to cover other costs such as transport to events, tuition by visiting specialists and workshops. The fee is annually invoiced through the school fees, should your student be involved in more than one ensemble then only one fee (the ensemble fee) is to be paid. Details about enrolment and fees in the Instrumental Music programs will be communicated at the start of the academic year.

Queensland Academy of Science, Mathematics & Technology
Year 10 Subject Selection – 2019

Subject selections are completed online at www.subjectselections.com/student. Individual usernames and passwords will be emailed with the timelines for subject selection when subject selections open in Term 3.

As students are preparing for their IB Diploma Programme, students should select the subjects they intend to study for the Diploma. As in the IB Diploma Programme subjects are organised in groups to ensure a balanced course of study. Each student studies six subjects across the groups of subjects identified in the IB Diploma Programme.

All students study English and Mathematics.

The four additional subjects must be selected from the subject groups below. Students are required to indicate preferences for each subject group; whilst we endeavor to place all students in their first preference, timetabling constraints may result in students being placed in their next preference.

1. Language acquisition (select three subjects in preference order):
 - a. French
 - b. German
 - c. Japanese
 - d. Spanish

2. Individuals and societies (select two subjects in preference order):
 - a. Economics
 - b. Information technology in a global society
 - c. Psychology

3. Sciences (select three subjects in preference order):
 - a. Biology
 - b. Chemistry
 - c. Computer science
 - d. Health science
 - e. Physics

4. Additional Science or Visual Art (select one only):
 - a. Science (second preference from Science group above)
 - b. Visual Art

Please refer any questions about subject selections to the Deputy Principal – Mrs Tanya Haggarty 07 3377 9333.