

Queensland Academy for
Science Mathematics and
Technology

***International Baccalaureate
Year 10 Subject Selection
Information***

Course structure of the Year 10 Program

All students at QASMT undertake the International Baccalaureate Diploma Programme (IBDP), which leads to the awarding of the International Baccalaureate Diploma.

Terms 1-3:

Our Year 10 students study a Pre-IB Program in Terms 1-3. In the Pre-IB Program, students should select the subjects they want 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: The IB Diploma Programme curriculum overview

Term 4:

Term 4 is when the Year 10 students formally enter the IB Diploma Programme. Students finalise their subject selections (including their levels of study) and begin completing course work for the Diploma.

Subjects offered in the Pre-IB 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.

Group	Subject
1 – Studies in language and literature	English
	Chinese Literature (Advanced only)
2 – Language acquisition	French
	German
	Spanish
	Japanese
3 – Individuals and societies	Business Management
	Economics
	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, follow 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, 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	✓	✓
	Chinese A Language & Literature	✓	✓
	Language A Literature (School Supported Self-Taught – Mother Tongue)	✓	
2 – Language acquisition	French ab initio	✓	
	German ab initio	✓	
	Japanese ab initio	✓	
	Spanish ab initio	✓	
	English B	✓	✓
	French B	✓	
	German B	✓	
	Japanese B	✓	
3 – Individuals and societies	Spanish B	✓	
	Business Management		✓
	Economics		✓
4 - Sciences	Psychology		✓
	Biology	✓	✓
	Chemistry	✓	✓
	Computer Science		✓
	Health Science (Sports, Exercise & Health Science)		✓
5 - Mathematics	Physics	✓	✓
	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.

Subject overviews

Group 1 – Studies in language and literature

The Pre-IB Program is designed to prepare students for the IB Language and Literature subjects and therefore preparatory elements of all subjects are studied during Pre-IB English. All Year 10 students at QASMT study a common curriculum with the aim of developing 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 we offer Group 1 in Chinese and also a range of other languages through the School Supported Self-Taught (SSST) program. 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 subjects offered in this group are included below, as previously noted however all students will study a common English program in Pre-IB.

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.

Chinese A Language and Literature

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. Students enrolling in Language A – Chinese may wish to study English as a second language (Group 2) or Language A – English (an additional Group 1) when they commence the IB Diploma Programme in Term 4.

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 Literature School Supported Self-Taught (SSST)

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. It is a requirement for all SSST 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

All IB students are required to take a language acquisition course, therefore these courses are designed for non-native speakers of the language. Group 2 provides the opportunity to learn an additional language and also the means of learning, appreciating and effectively interacting in a culture different from the student's own. The Pre-IB Program is designed to prepare students to select from either Language ab initio or Language B offered in a number of languages, subject to resource availability. Therefore differentiation based on students' previous language abilities is an important aspect of this program. Students wanting to study subjects offered at Language B in the IB Diploma Programme will need approval from the Group 2 Head of Department, based on an assessment of suitability in Term 1.

Ab Initio (Beginner) – French, German, Spanish and Japanese

Language ab initio (Latin: from beginning) is a language course for students with no or some experience of the language. Most students at QASMT are studying a Language ab initio course. The main focus of the courses is on the acquisition of language required for purposes and situations usual in everyday social interaction. Language ab initio courses are only available at Standard Level.

Language ab initio 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.

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

- communicate information and some basic ideas clearly and effectively, in a defined range of situations;
- understand and use accurately the essential spoken and written forms of the language in a familiar range of situations;
- understand and use a defined range of vocabulary in common usage;
- use a register that is generally appropriate to the situation;
- show an awareness of some elements of the culture(s) related to the language studied.

Please note that German ab initio students will sit their final IB exam in May of their final year, however students commence their studies in term 2 of year 10 which provides them with the equivalent time of other ab initio courses.

Language B (Advanced) – French, German, Spanish, Japanese and English

Language B is a language course for advanced learners of the language. Students should be able to speak, write and read across a variety of topics. A typical Language B student would have done MYP, GCSE, IGCSE, Language Immersion Programs etc. The following topics should have already been covered before starting at QASMT.

Prescribed topics

Individual and society	Leisure and work	Urban and rural environment
Daily routines	Employment	Environmental concerns
Education	Entertainment	Global issues
Food and drink	Holidays	Neighbourhood
Personal details, appearance and character	Media	Physical geography
Physical health	Sport	Town and services
Relationships	Technology	Weather
Shopping	Transport	

Group 3 – Individuals & Societies

Business Management

Business Management is a rigorous, challenging and dynamic discipline in the individuals and societies subject group. The role of businesses, as distinct from other organizations and actors in a society, is to produce and sell goods and services that meet human needs and wants by organizing resources. Profit-making, risk-taking and operating in a competitive environment characterize most business organizations.

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

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

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.

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 level of analysis demonstrates what all humans share, whereas the cognitive and sociocultural levels of analysis 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 (10^{24} m). 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

As with the study of Group 1 - English, Year 10 students at QASMT study a common curriculum with the aim of developing a strong mathematical foundation which extends their numeracy skills. The Pre-IB Program is designed to prepare students to select from either the IB Mathematics or the IB Mathematical Studies subjects.

Mathematics

The Mathematics Standard Level (SL) courses cater for students who already possess knowledge of basic mathematical concepts, and who are equipped with the skills needed to apply simple mathematical techniques correctly. The majority of these students will expect to need a sound mathematical background as they prepare for future studies in subjects such as chemistry, economics, psychology and business administration.

The Mathematics Higher Level (HL) 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.

Mathematical Studies

The Mathematical Studies Standard Level (SL) course caters for students with varied backgrounds and abilities and whose interests lie outside the area of mathematics. For many students, this course will be their final experience of being taught formal mathematics. The course concentrates on mathematics that can be applied to contexts related as far as possible to other subjects being studied; to common real world occurrences.

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, Ensemble Soiree, 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

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. Fees are established at the start of the academic year.

Queensland Academy of Science, Mathematics & Technology

Year 10 Subject Selection – 2018

Subject selections are completed online at www.subjectselections.com/student

Individual usernames and passwords will be emailed with the timelines for subject selection.

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 in addition to English (select three subjects in preference order):
 - a. French
 - b. German
 - c. Japanese
 - d. Spanish
 - e. Chinese Literature * (This study is for mother tongue language students and leads to the Chinese A Language and Literature subject in the IB Diploma Programme Group 1).
2. Humanities (select two subjects in preference order):
 - a. Business Management
 - b. Economics
 - c. Psychology
3. Science (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
5. Optional - Instrumental Music Ensemble (select one only):
 - a. Woodwind
 - b. Brass
 - c. Strings
 - d. Percussion
6. Optional - Instrumental Music Lesson (select one only):
 - a. Woodwind
 - b. Brass
 - c. Strings
 - d. Percussion

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