



MYP 4 and 5
Curriculum Booklet
2019 - 2020

Dear parents, guardians and students,

The purpose of this booklet is to enable you to better understand the MYP framework and the courses we proudly offer at the FIS. We hope that the information inside will help you make the best curricular choices as you begin High School.

You will find an overview of the main philosophy and central tenants of the MYP as well as important information about the program in the German context.

Over the last past 25 years the MYP has aimed to develop active learners and internationally minded young people who can empathize with others and pursue lives of purpose and meaning. This program aligns with the FIS mission and vision, and empowers students to inquire into a wide range of issues and ideas of significance locally, nationally and globally. Aligning with our strategic plan, the MYP helps students to become creative, critical and reflective thinkers.

Schools choose to the MYP because [Research](#) shows that it offers students the opportunity to:

- build confidence in managing their own learning
- learn by doing, connecting the classroom to the larger world
- consistently have greater success in IB Diploma Program examinations
- develop an understanding of global challenges and a commitment to act as responsible citizens. (Adapted from “About the MYP”)

We welcome any feedback about the usefulness of this booklet, please contact me with any suggestions or comments.

All the best,

Dr. Chandra McGowan
IB Continuum Coordinator

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The FIS High School consists of Grades 9 through Grade 12. Our Grade 9 and 10 curriculum is made up of several components that address academic, physical, social and emotional learning objectives. The MYP framework aligns closely with the FIS Mission and Vision:

FIS Mission

To foster international-mindedness through a challenging curriculum in a caring and cooperative environment, inspiring students to become well-rounded citizens committed to the service of humanity.

FIS Vision

A community exemplifying progressive pedagogy, innovative technology, and service learning. Our students will exhibit integrity and the desire to make a positive impact in the world.

International Mindedness

All members of the FIS community are open, respectful and accepting. We seek to learn about others, recognizing both our differences and similarities, to create a better world.

The MYP, that begins in Middle School with the first three years of the program (MYP 1 to 3), continues into High School for its final two years in Grades 9 and 10 (MYP 4 and 5) and provides sound preparation for students who will be participating in the International Baccalaureate Diploma Programme (IBDP) in Grades 11 and 12. Every student is also given the opportunity to graduate in Grade 12 with the FIS High School Diploma.

Grade 9 and 10 Courses in MYP 4 and 5



The International Baccalaureate® (IB) Middle Years Programme (MYP) comprises eight subject groups:

- Language acquisition
- Language and literature
- Individuals and societies
- Sciences
- Mathematics
- Arts
- Physical and health education
- Design

The MYP requires at least 50 hours of teaching time for each subject group in each year of the program. In MYP years 4 and 5, students have the option to take courses from six of the eight subject groups within certain limits, to provide greater flexibility in meeting local requirements and individual student learning needs (MYP curriculum).

Compulsory Courses

All courses are two years in length. All students must study the following.

English and German: These may both be as Language and Literature (LL), or one as Language and Literature and one as Language Acquisition (LA). There will be exceptions to this for some students who must initially take both languages as LA, but unless they proceed and are assessed in at least one language at LL level in MYP 5, they will not be able to then receive the MYP Certificate awarded by the IB.

One Individuals and Societies Course: In addition, a second may be taken.

Science

Mathematics

Physical and Health Education

Global Perspectives: School based course, closely supports the MYP though not a part of it.

Advisory: School based program, closely supports the MYP though not a part of it.

Elective Courses

Electives are designed to match the developing needs and interests of students as they enter High School.

Careful thought should be given to the choice of electives, as decisions made now will have implications for a student's future choices and direction. If in any doubt, avoid early specialization and keep options open.

Because of timetabling and staffing constraints, not all combinations may be possible. Each year, a straw poll will be conducted to determine the most popular combinations.

Students choose three different courses, one from each group (A, B and C):

A	B	C
Geography	Art	Design
History	Drama	Spanish (Language Acquisition)
	Music	Geography
	Design	
<p>By school recommendation, Academic English Support (AES) may be offered as an alternative to one of the above subjects.</p> <p>Learning Support (LS) may also be arranged as an alternative to one of the above subjects.</p>		

Recognition in Germany

The MYP is recognized by the Zeugnisanerkennungsstelle für den Freistaat Bayern as an equivalent to the Mittlerer Schulabschluss, a school graduation title awarded at age 16.

Authoritative and detailed information on MYP recognition is published by the Zeugnisanerkennungsstelle and should be carefully consulted. FIS students will prepare for examinations (“eAssessments”) at the end of MYP 5 (Grade 10) which, in turn, lead to the award of the MYP Certificate by the IB, and recognition by the Zeugnisanerkennungsstelle. More detailed information on the examinations for the MYP Certificate will be provided to students and parents at the beginning of Grade 9 (MYP 4).

The process of recognition has to be undertaken by the parents/students themselves, on an individual basis, at the Zeugnisanerkennungsstelle für den Freistaat Bayern. It is recommended to make initial contact with the Zeugnisanerkennungsstelle by the end of Grade 9, to confirm requirements, process and timeline, in case you need to transcribe the MYP results. Please note that, as of 2019, the office where IB MYP and Diploma Programme recognitions are received and processed is in Gunzenhausen (formerly in Munich).

Bayerisches Landesamt für Schule

Zeugnisanerkennungsstelle

Stuttgarter Straße 1

91710 Gunzenhausen

Telephone: 09831 / 686 – 252

Email: zast@las.bayern.de

Further details and opening times at:

<https://www.km.bayern.de/schueler/abschluesse/zeugnisanerkennung.html>

Access to Learning

The following summarizes the FIS approach to ensuring access to learning and how classes are designed, together with the supporting philosophy.

All children have the potential and capacity to learn. Children have different strengths, encounter different challenges, work at different paces, have different language, cultural and educational backgrounds and they may favor different approaches to learning. A totally homogenous group of students does not exist and any attempt to group students as such will always be imperfect.

This recognition of children as individuals is one of the great strengths of international schools. Learning about diversity, as well as what we have in common, amongst our community, contributes to international mindedness and inter-culturalism. To learn to listen, debate, collaborate and achieve with others, even when they do not necessarily believe and act as we do, provides an opportunity for our students to “exhibit integrity and a desire to make a positive impact in the world”. (FIS Vision)

At the FIS, our classes are comprised of students of different backgrounds and abilities, enriching the learning environment. The positive impact is felt in academic as well as social and emotional learning. The curriculum, in its written and taught form, supports learning for all through differentiation. That is, a teacher responding to the needs of the individuals within the class to support effective learning for all. Teachers proactively and collaboratively plan varied approaches to what students need to learn, how they will learn it, and/or how they will demonstrate their learning.

Students following courses described in this booklet are, thus, taught in groups of mixed ability. To foster “a caring and cooperative environment”, at the FIS, the curriculum is differentiated to ensure it is challenging and appropriate to the needs of our students.

Student Support

The Learning Support Department arranges co-taught, push-in and pull-out support to aid learning in all areas, sometimes with individual students or groups of students. At the recommendation of the department, a student may substitute one or more academic courses by a timetabled ‘Learning Strategies’ course.

The High School Counselor supports all students in matters relating to social and emotional welfare, and careers and university counseling, working closely with a student’s Advisor.

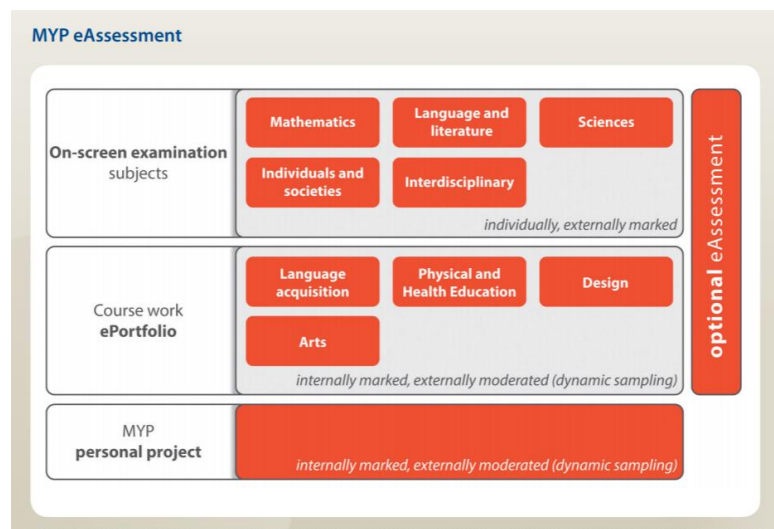
English as an Additional Language (EAL)

The English as an Additional Language (EAL) department arranges push-in and pull-out support to individual students or groups of students enrolled in the EAL program, in addition to running the MYP English Language Acquisition course and the Academic English Support elective.

eAssessment

As a leader in international education, the International Baccalaureate (IB) is committed to preparing students for the challenges of today's world. IB programs assess understanding and skills that go beyond memorizing facts and figures. In an era of rapid change and an ever-increasing flow of information, students need to demonstrate their ability to organize knowledge and use it critically and creatively. The IB knows that students are increasingly digitally aware and engaged with technology, which is why the Middle Years Programme (MYP) is pioneering an innovative assessment model for Grade 5 students that goes beyond traditional examinations.

MYP external assessment provides a balanced and age-appropriate strategy that schools can use to validate student achievement. Students demonstrate their understanding and skills through classroom performance, onscreen final examinations and a personal project conducted over an extended period of time.



(MYP Guide to Assessment) To learn more about eAssessment in Grade 10, MYP 5, please click [here](#).

MYP Subject Groups and Courses

Arts

In MYP arts, students function as artists as well as learners of the arts. Artists have to be curious. By developing curiosity about themselves, others and the world, students become effective learners, inquirers and creative problem-solvers. Students create, perform and present arts in ways that engage and convey feelings, experiences and ideas.

Through this practice, students acquire new skills and master those developed in prior learning. Development in the arts is a dynamic process, and not necessarily linear. Students move freely through a creative process towards a deeper understanding of the arts. The process of creating artwork, as well as the product, demonstrates what students have experienced, learned and attempted to convey. Arts in the MYP stimulate young imaginations, challenge perceptions, and develop creative and analytical skills.

The course encourages students to understand the context and cultural histories of artworks, supporting the development of an inquiring and empathetic world view. Arts challenge and enrich personal identity and build awareness of the aesthetic in a real-world context.

MYP arts has four objectives of equal importance and value: knowing and understanding; developing skills; thinking creatively; responding. Although the objectives can be addressed separately to scaffold learning, collectively they enrich teaching and learning of the arts. More information about the structure of the subject group can be found by following this link ([MYP Arts Subject Brief](#)).

All courses in the Arts subject group share the same Aims, Objectives, and Criteria. The MYP offers the Drama, Music, and Visual Arts as elective courses. The topics covered are course specific and can be found below.

Music

Music in the MYP gives students access to musical experiences that allow for the development of thinking skills, intuitive skills, practical abilities, communication and the ability to relate to others. Engagement with existing and emerging music from the local community and from around the world allows students to understand the significance of music to the cultures of the world and, by engaging in practical work, to develop understanding of how the act of making music is a significant and universal aspect of human expression.

What might students know and understand in music?

- Traditions and musical heritage from different parts of the world, for example, popular music, the music industry, musical theatre, developments in music technology
- Current and emerging musical practices
- Methods of recording and communicating musical ideas such as various notation systems

What skills might students develop in music?

- Their ability to develop and carry out performances
- Skills, techniques and processes to create their own music, finding ways to capture it in performance, notation, recording or presentation
- An ability to experiment with sound sources, improvisation, practice and rehearsal routines

How might students think creatively in music?

- By experimenting with the artistic processes involved in making music
- By initiating, exploring and developing projects that are rewarding and challenging
- By creating their own music or improvising sections added to published musical scores

How might students respond to, or through, music?

- By developing their own musical style inspired by a particular genre or artist
- Through participating in “listen and respond” activities
- By creating music that demonstrates their exposure to various musical cultures

Drama

Drama in the MYP engages students in an active relationship with theatre and encourages autonomous learning and exploration. It encourages the growth of creative, reflective and communication skills through practical work. Emphasis is placed on the artistic process and the students' understanding of this process as an essential component to their artistic development through continuous investigation, planning, goal setting, rehearsing, performing, reflection and evaluation.

What might students know and understand in drama?

- Theatre from a variety of performance practices, genres, movements or styles
- The context and conditions from which drama emerges
- The language of drama, the production elements, and how they interplay in developing and communicating ideas and feelings through drama

What skills might students develop in drama?

- The various artistic processes involved in “making drama”, that is, the processes involved in transforming a performance concept into live action
- The various planning processes and methods of structuring the actual “making of drama” such as brainstorming, storyboards, scripts, rehearsal schedules and techniques
- The production elements to translate ideas into dramatic form, for example, dramatic writing, direction, costume, lighting, scenery, use of masks, sound and so on

How might students think creatively in drama?

- Through storyboarding narratives, designing sets and props, interpreting text visually
- By improvising scenarios and creating collaborative drama
- Through creative writing, character design and creating alternative endings to performances

How might students respond to, or through, drama?

- A stimulus and/or a personal concern could be interpreted using a dramatic form, style or genre, for example, a text, a song, a photo, a newspaper article and so on
- By developing a performance to address a particular theme, concern or issue within a context
- By reviewing theatrical performances and production elements encountered

Visual Arts

Visual art has contributed to all cultures and societies throughout time. Experience in a wide range of visual art activities adds a creative and cultural dimension to student development that will benefit them for the rest of their lives. While traditional practices in the arts (for example, painting, sculpture, ceramics and architecture) have historically provided cultural records, contemporary practice and access to technology have given the tools of visual art a very broad palette. Digital technology, time-based art, installation and performance, to name but a few, add to traditional practice and bring an extra dimension and meaning to the students’ experience in the visual art. The process of making ideas a reality using the skills and practices of visual art is an integral part of the substance of the MYP arts curriculum.

What might students know and understand in visual art?

- Art styles, movements, artists’ practices, and specific artworks
- The use of specialist terminology and principles required by the visual art form being developed, for example, the vocabulary of expressionist painting
- The language of visual communication

What skills might students develop in visual art?

- Technical skills, skills of observation and practical aspects of visual art that allow students to incorporate ideas into their own work
- Skills to investigate and respond to art styles, art movements, artists' practices and specific artworks
- Knowledge of existing visual art practice(s) to influence and shape their artwork

How might students think creatively in visual art?

- Through creative approaches to art-making
- Through manipulation of medium and tool to influence the presentation of artworks
- By developing series of visual images to document thought processes in the creation of art

How might students respond to, or through, visual art?

- Use of stimuli or a personal concern that can be interpreted using an art form, style or genre
- By developing an artwork in response to the works of a particular genre, style or artist by deconstructing the elements of art in an artwork and reconstructing them differently

(Taken from the MYP Arts Guide)

Design

Design, and the resultant development of new technologies, has given rise to profound changes in society, transforming how we access and process information, adapt our environment, communicate with others, solve problems, work and live.

MYP design challenges students to apply practical and creative-thinking skills to solve design problems, encourages students to explore the role of design in historical and contemporary contexts, and raises students' awareness of their responsibilities when making design decisions and taking action. Inquiry and problem-solving are at the heart of design. MYP design requires the use of the design cycle as a tool, which provides the methodology to structure the inquiry and analyze problems, the development of feasible solutions, the creation of solutions, and the testing and evaluation of the solution. In MYP design, a solution can be a model, prototype, product or system independently created and developed by students.

Design is an optional course in MYP 4 and 5 and includes both digital and product design elements. MYP design enables students to develop not only practical skills but also strategies for creative and critical thinking. More information about Design can be found by following this [link](#) (MYP Design Subject Brief).

Individuals and Societies

Students have the opportunity to study either History or Geography in MYP Years 4 and 5. At the end of MYP 3, students opt for either History or Geography, which they then go onto study throughout Grades 9 and 10. In recognition of the strong interest, many of our students have in Business and Economics, and its availability at Diploma Programme level, the Geography and History course will both include a Business/Economics unit.

The aims of MYP Individuals and Societies are to encourage and enable students to:

- Appreciate human and environmental commonalities and diversity
- Understand the interactions and interdependence of individuals, societies and the environment
- Understand how both environmental and human systems operate and evolve
- Identify and develop concern for the well-being of human communities and the natural environment
- Act as responsible citizens of local and global communities
- Develop inquiry skills that lead towards conceptual understandings of the relationships between individuals, societies and the environments in which they live

Through the study of History and Geography, students will have the opportunity to explore a variety of issues and concepts which will allow students to build a conceptual understanding of the subjects whilst also exploring different case studies. (MYP Individuals and Societies Subject Brief)

Both subjects will be assessed through the eAssessment at the end of MYP 5. For both subjects, there is a selection of areas which will be examined.

Geography

- Changing population: natural increase, structure and migration
- Sustainable management of urban systems and environments
- Globalization: trade, aid, exchange and flows
- Resource management: management of the extraction, production, consumption of natural resources and their security
- Impacts and management of tourism
- Sustainable management of physical processes: river and coastal environments
- Global climate change: causes, consequences, and responses
- Impacts and management of natural disasters
- Impacts and management of tectonically active areas
- Sustainable management of natural environments: characteristics and human impact on aquatic, deserts, forests, grasslands, and Arctic/Tundra
- Application of geographic information systems (GIS) to enhance the understanding of Geography

Geographical concepts and a “Nexus Approach” to contemporary issues, at a variety of scales, are threaded throughout the MYP 4 and 5 Geography syllabus at the FIS. Students will think critically about the relationship between physical and human geographies whilst exploring a variety of means to express these complex relationships. Fieldwork skills, data presentation and analysis are used to utilize both primary and secondary sources of information. These transferable skills will be used to reinforce project aims and prove or disprove hypotheses based on geographic theories and concepts.

History

- Superpowers, empires and supranational institutions and organizations
- Peace and conflict
- Significant individuals
- Independence and national identity
- Rights and social protest
- Industrialization, industry and labor
- Globalization: trade, aid, exchange and flows
- Intellectual and ideological movements/developments
- Pioneers, innovators and developers
- Health and medicine
- Individual, household and daily life
- Social, cultural and artistic developments

The History course will allow students the opportunity to explore the history of countries in different regions, as well as to explore countries and events which are of interest to them. Students will be empowered to direct their own research through a project completed in both MYP 4 and 5.

In MYP the project will be on a fixed topic of ‘Witches’, but students will be able to develop their own research question and plan. In MYP 5, students will be able to choose their own research area and by so doing they will be able to pursue their own passions. The intention is to allow students to develop an understanding of the themes and concepts through exploring the history of the following core countries:

- Germany
- India
- South Africa
- United Kingdom
- United States of America
- China

Language Acquisition (English, German and Spanish)

The ability to communicate in more than one language is essential to the concept of an international education that promotes intercultural understanding, and is central to the IB's mission. The study of additional languages in the MYP provides students with the opportunity to develop insights into the features, processes and craft of language and the concept of culture, and to realize that there are diverse ways of living, behaving and viewing the world.

Acquiring an additional language, and exploring and reflecting on the cultural perspectives of our own and other communities:

- Is central to developing critical thinking and international-mindedness
- Provides an intellectual framework to support personal development, cultural identity and conceptual understanding
- Greatly contributes to the holistic development of students and to the strengthening of lifelong learning skills
- Equips students with the necessary multiliteracy skills and attitudes to communicate successfully in various global contexts

The aims of MYP language acquisition are to encourage and enable students to:

- Gain proficiency in an additional language while supporting maintenance of their mother tongue and cultural heritage
- Develop respect for, and understanding of, diverse linguistic and cultural heritage
- Develop the communication skills necessary for further language learning, and for study, work and leisure in a range of contexts
- Develop multi-literacy skills through the use of a range of learning tools
- Develop an appreciation of a variety of literary and non-literary texts and to develop critical and creative techniques for comprehension and construction of meaning
- Recognize and use language as a vehicle of thought, reflection, self-expression and learning in other subjects
- Understand the nature of language and the process of language learning
- Gain insight into the cultural characteristics of the communities where the language is spoken
- Gain awareness and understanding of the perspectives of people from own and other cultures
- Develop curiosity, inquiry and a lifelong interest in, and enjoyment of, language learning

More information about the aims and objectives of all Language Acquisition options at the FIS can be found by following this [link](#) (MYP Language Acquisition Subject Brief).

MYP 4 and 5 Language Acquisition Courses at the FIS

- All students take German either as a Language Acquisition course or as additional Language and Literature Course, depending on the student's readiness level
- Students may take Spanish as an additional option in MYP 4 and 5
- Students take English as a Language Acquisition course until they reach the end of Phase 4, at which point they may transition to English Language and Literature

German

The course content is organized around five broad topic areas which provide contexts for the acquisition of vocabulary and the study of grammar and structures. Through the study of these topic areas, candidates gain insight into target language countries and communities.

The topic areas are:

- Family
- Friends
- Hobbies
- School
- Jobs
- Food
- House
- Clothes
- Media
- Health Body parts
- Weather
- Environment
- Holidays and celebrations
- City
- Future plans
- Dreams

IB Topics:

- Social relationships
- Communication and media
- Global issues
- Cultural diversity
- Customs and traditions
- Health
- Leisure
- Science and technology

Spanish

The course content is organized around five broad topic areas which provide contexts for the acquisition of vocabulary and the study of grammar and structures. Through the study of these topic areas, candidates gain insight into target language countries and communities.

The topic areas are:

- Everyday activities
- Personal and social life
- The world around us
- The world of work
- The international world

English Language Acquisition

Topics (phases 2 to 4) include:

- Technology
- Exploration
- Environment and Wildlife
- Transport
- Competition
- Fashion
- Health
- Young and Old
- Culture and Society
- Happiness and Fulfilment
- Migrations
- Bilingualism and Multilingualism
- Human Rights

Language and Literature (English and German)

Language is fundamental to learning, thinking and communicating, as well as providing an intellectual framework to support conceptual development. It plays a central role in developing critical thinking, cultivating international-mindedness, exploring and sustaining personal development and cultural identity, and responsibly participating in local, national and global communities.

MYP language and literature courses equip students with linguistic, analytical and communicative skills that help to develop interdisciplinary understanding. Students develop skills in six domains—listening, speaking, reading, writing, viewing and presenting—both independently and with others. MYP language and literature courses include a balanced study of genres and literary texts, including a world literature component.

Students' interactions with texts generate moral, social, economic, political, cultural and environmental insights. Through their studies, students learn how to form opinions, make decisions, and engage in ethical reasoning. Depending on students' readiness level, they may take English, and or German Language and Literature courses. More information about Language and Literature shared aims and objectives can be found by following this [link](#) (MYP Language and Literature Subject Brief).

Topics covered in both the German and English Language and Literature courses include:

- Identity, heritage, culture, diversity
- Communities, globalization, migration, displacement
- Social history, civilizations, journeys
- Media and mass communication
- Childhood, adolescence, youth, rebellion, innocence and experience
- Families, friendships, relationships
- Systems, power and protest, justice, peace and conflict, freedom and independence
- Health and well-being, environment, lifestyle
- Social roles, norms and expectations, gender, inclusion, minorities, class
- Utopias, dystopias, survival
- Religion, faith, values, ritual, spirituality, taboos
- Allegiance, betrayal, revenge, atonement, forgiveness (MYP eAssessment Topic List)

Mathematics

The framework for MYP mathematics outlines four branches of mathematical study:

1. Number
2. Algebra
3. Geometry and trigonometry
4. Statistics and probability

The study of mathematics is a fundamental part of a balanced education. It promotes a powerful universal language, analytical reasoning and problem-solving skills that contribute to the development of logical, abstract and critical thinking. The MYP mathematics and extended mathematics courses promote both inquiry and application, helping students to develop problem-solving techniques that transcend the discipline and are useful in the world outside school. Mathematics in the MYP is tailored to the needs of students, seeking to intrigue and motivate them to want to learn its principles. Students should see authentic examples of how mathematics is useful and relevant to their lives and be encouraged to apply it to new situations. More information about Mathematics can be found by following this [link](#) (MYP Mathematics Subject Brief).

At the FIS, students may take Standard Mathematics or Extended Mathematics depending on readiness level.

Topics covered in Standards Mathematics and the additional topics covered in Extended can be found by following [this link](#).

Physical and Health Education

MYP physical and health education aims to empower students to understand and appreciate the value of being physically active while developing the motivation for making healthy and informed life choices. To this end, physical and health education courses foster the development of knowledge, skills and attitudes contributing to a balanced and healthy lifestyle. Students engaged in physical and health education will explore a variety of concepts that help foster an awareness of physical development and health perspectives, as well as positive social interaction.

Physical activity and health are of central importance to human identity and global communities, creating meaningful connections among people, nations, cultures and the natural world. Through physical and health education, students learn to appreciate and respect the ideas of others, and develop effective collaboration and communication skills. This subject area also offers many opportunities to build positive interpersonal relationships that can help students to develop a sense of social responsibility and intercultural understanding. At the FIS, PHE is a required course for all students. More information about Physical and health education can be found by following this [link](#).

The aims of MYP physical and health education are to encourage and enable students to:

- Use inquiry to explore physical and health education concepts
- Participate effectively in a variety of contexts
- Understand the value of physical activity
- Achieve and maintain a healthy lifestyle
- Collaborate and communicate effectively
- Build positive relationships and demonstrate social responsibility
- Reflect on their learning experiences

MYP eAssessment: Students seeking IB-validated physical and health education course results must demonstrate their achievement of the subject group's objectives by submitting a Portfolio at the end of Year 5 in which they:

- Identify a target that incorporates physical and psychological dimensions of performance in physical and health education
- Create, implement and document progress towards their goal through multiple interim cycles of analysis
- Record and evaluate their final performance
- Reflect on their personal growth and interpersonal skills (MYP PHE Subject Brief)

Sciences

With inquiry at the core, the MYP sciences framework aims to guide students to independently and collaboratively investigate issues through research, observation and experimentation. The MYP sciences curriculum explores the connections between science and everyday life. As they investigate real examples of science applications, students discover the tensions and dependencies between science and morality, ethics, culture, economics, politics, and the environment. Scientific inquiry fosters critical and creative thinking about research and design, as well as the identification of assumptions and alternative explanations. Students learn to appreciate and respect the ideas of others, gain good ethical-reasoning skills and further develop.

More information about the Sciences can be found by following this [link](#). (MYP Sciences Subject Brief)

In the Middle School, MYP 1 to 3, the Science course incorporates multiple disciplinary perspectives. Starting in Grade 9, MYP 4, students take discrete courses focused on individual disciplines, while all discrete courses in the subject group share the same Aims, Objectives, and Criteria.

The FIS offers the Biology, Chemistry or Physics as a mandatory course. The course specific topics that are covered can be found below:

Biology

- Cells (tissues, organs, systems, structure and function; factors affecting human health; physiology; vaccination)
- Organisms (habitat, ecosystems, interdependency, unity and diversity in life forms; energy transfer and cycles [including nutrient, carbon, nitrogen]; classification)
- Processes (photosynthesis, cell respiration, aerobic and anaerobic, word and chemical equations)
- Metabolism (nutrition, digestion, biochemistry and enzymes; movement and transport, diffusion; osmosis; gas exchange; circulation, transpiration and translocation; homeostasis)
- Evolution (life cycles, natural selection; cell division, mitosis, meiosis; reproduction; biodiversity; inheritance and variation, DNA and genetics)
- Interactions with the environment (tropism, senses, nervous system, receptors and hormones)
- Interactions between organisms (pathogens/parasites, predator/prey, food chains and webs; competition, speciation and extinction)
- Human interactions with environments (human influences, habitat change or destruction, pollution/conservation; overexploitation, mitigation of adverse effects)
- Biotechnology (genetic modification, cloning; ethical implications, genome mapping and application, 3D tissue and organ printing)

Chemistry

- Periodic table (metals and non-metals; transition metals, noble gases, trends, periods, groups)
- International Union of Pure and Applied Chemistry (IUPAC naming and classification of alkanes, alkenes, alcohols, carboxylic acids and esters; structural formulas)
- The atmosphere (characteristics of gases; atmospheric composition, testing and treatment; extraction, emission and environmental implications)
- Matter (states and properties of matter; particle/kinetic theory, diffusion; atomic structure [including Isotopes]; electron configuration and valency)
- Pure and impure substances (types of mixtures [solutions, oils, alloys, emulsions]; separation techniques, including filtration, distillation [including crude oil], chromatography)
- Bonding (structure and bonding, properties, chemical formulas, chemical reactions and the conservation of mass; balancing equations, the mole concept and chemical calculations; reaction kinetics [rates, and factors affecting rates/collision theory]; equilibria/reversible reactions; energy changes in reactions, endo- and exothermicity; combustion of fuels)
- Types of chemical reaction (acids and bases, neutral solutions, acid/base reactions, pH and indicators, formation of salts, uses of salts; redox reactions, reactivity series; extraction of metals, and corrosion, electrochemical cells)

Physics

- Forces and energy (measurement in science; states and properties of matter, kinetic theory, density; forces and effects of forces; forces and motion, speed, motion graphs, Newton's laws; pressure; work and power, efficiency; gravity and gravitational fields; energy sources and resources, fuels and environmental impact; energy transfer and transformation, conservation of energy)
- Electromagnetism (magnetism, electric and magnetic fields; static electricity; electromagnetic forces and induction, AC & DC; current, voltage, power, generation and transmission of electricity; electric circuits)
- Astrophysics (the solar system, planets and satellites, the Big Bang theory)
- Heat, light and sound (thermal physics; heat transfer, condensation and evaporation)
- Waves (longitudinal and transverse waves, sound waves; wave phenomena including reflection, refraction, diffraction; wave equation; electromagnetic spectrum, imaging and applications)
- Atomic physics (atomic structure, particles, charges and masses; radioactivity, decay and half-life, forms of radiation; uses and dangers) (MYP eAssessment Topic List)

Sources:

MYP Curriculum:

<https://www.ibo.org/programmes/middle-years-programme/curriculum/>

MYP Guide to Assessment: <https://www.ibo.org/globalassets/digital-toolkit/brochures/1503-myp-eassessment-factsheet.pdf>

MYP Arts Subject Brief: https://www.ibo.org/globalassets/digital-toolkit/brochures/myp-brief_arts_2015.pdf

MYP Design Subject Brief:

https://www.ibo.org/globalassets/digital-toolkit/brochures/myp-brief_design_2015.pdf

MYP Individuals and Societies Subject Brief: https://www.ibo.org/globalassets/digital-toolkit/brochures/myp-brief_individuals-societies_2015.pdf

MYP Language Acquisition Subject Brief:

https://www.ibo.org/globalassets/digital-toolkit/brochures/myp-brief_language-acquisition_2015.pdf

MYP Language and Literature Subject Brief: https://www.ibo.org/globalassets/digital-toolkit/brochures/myp-brief_language-literature_2015.pdf

MYP Mathematics Subject Brief: https://www.ibo.org/globalassets/digital-toolkit/brochures/myp-brief_mathematics_2015.pdf

MYP PHE Subject Brief:

https://www.ibo.org/globalassets/digital-toolkit/brochures/myp-brief_phys-health-ed_2015.pdf

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