

International Baccalaureate Middle Years Programme Year 4

A Curriculum Guide for Students, Parents and
Guardians

INTERNATIONAL COMMUNITY SCHOOL

2010 – 2011



CURRICULUM GUIDE • IB MYP YEAR 4

TABLE OF CONTENTS

Middle Years Programme Curriculum

Page 4

LANGUAGE A

Philosophy

Page 7

Learning Objectives

Page 7

Course Topics

Page 8

Assessment Criteria

Page 8

Resources

Page 8

LANGUAGE B

Philosophy

Page 9

Learning Objectives

Page 9

Course Topics for Spanish/ French

Page 10

Assessment Criteria

Page 11

Resources

Page 11

HUMANITIES

Philosophy

Page 12

Learning Objectives for History

Page 12

Learning Objectives for Geography

Page 13

Course Topics for Humanities

Page 14

Assessment Criteria

Page 15

Resources

Page 15

SCIENCE

Philosophy

Page 16

Learning Objectives

Page 16

Course Topics

Page 17

Assessment Criteria

Page 24

Resources

Page 26

CURRICULUM GUIDE • IB MYP YEAR 4

MATHEMATICS

Philosophy	Page 27
Course Topics	Page 27
Assessment Criteria	Page 28
Resources	Page 28

PHYSICAL EDUCATION

Philosophy	Page 27
Learning Objectives	Page 27
Course Topics	Page 29
Assessment Criteria	Page 31

ARTS

Philosophy [Visual Arts]	Page 32
Learning Objectives [Visual Arts]	Page 32
Course Topics for the Visual Arts	Page 33
Assessment Criteria [Visual Arts]	Page 33
Philosophy [Music]	Page 34
Learning Objectives [Music]	Page 34
Course Topics [Music]	Page 35
Music Resources	Page 36
Assessment Criteria [Music]	Page 36

TECHNOLOGY

Philosophy	Page 41
Learning Objectives	Page 42
Course Topics	Page 42
Assessment Criteria	Page 44

CURRICULUM GUIDE • IB MYP YEAR 4

IB MIDDLE YEARS PROGRAMME CURRICULUM – an overview

The International Baccalaureate (IB) Middle Years Programme (MYP) has been offered by the IB since 1994. It was adopted by the International Community School in August 2005 and the school was accredited in August 2008. ICS is now an IB World School.

The MYP sits in between the IB Primary Years Programme (PYP) and the IB Diploma Programme, both offered by ICS, so offering students a comprehensive and coherent educational framework from ages 3 – 18. Each programme focuses on the development of the whole child emphasising intellectual, emotional, social and physical growth, involving the traditions of learning in languages, humanities, science, mathematics and the arts.

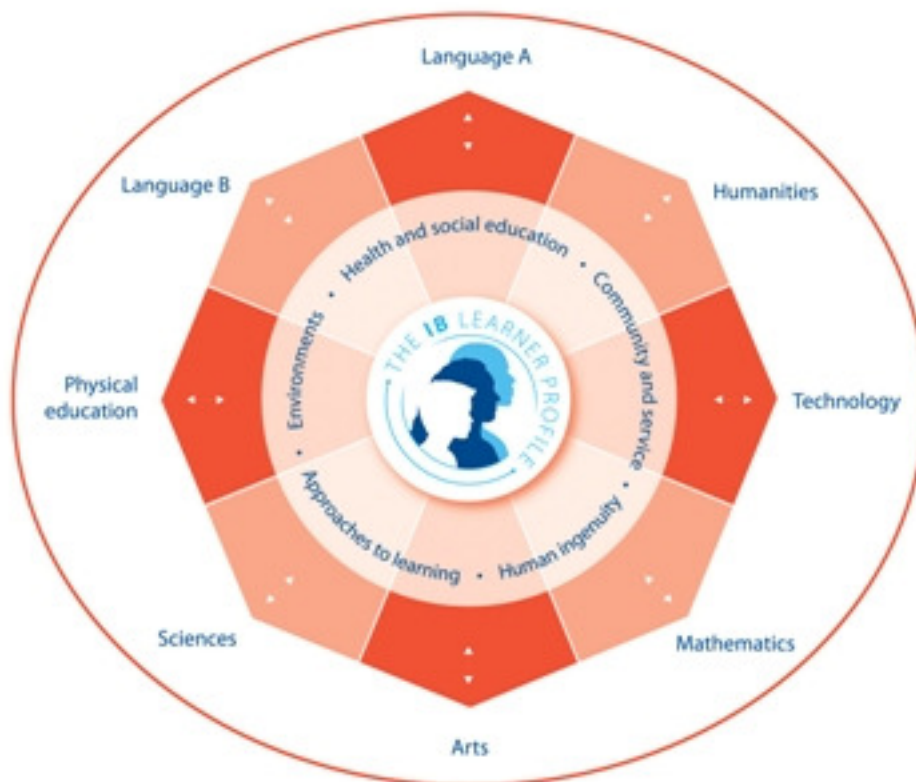
At ICS the IB framework is enhanced by three key strategic strands:

1. A strong focus on the integration of **Information Communication Technology (ICT)**. Each student is given, for the duration of their time at the school, a Netbook which they utilise at school and home to enhance their learning experience. Teaching and learning as a result are more collaborative, dynamic and engaging. This strategy is transforming the school's learning environment into an inspirational learning space where students interact, create, collaborate and build knowledge. As a result we are actively preparing our students to compete in the new global economy, developing 21st century work force skills and preparing them to be effective 21st century world citizens.
2. Personalising the educational experience for each individual. **Personalising Learning** is a strategy focusing all of the school's resources to ensure that the potential of each student is realised by ensuring that the learning experience is appropriate to them personally and that they are able, with support, to decide what they learn, how they learn, when they learn and who they learn with. There is therefore a focus throughout the programme of teaching students how to learn (Approaches to Learning); a focus on individual assessment; teaching strategies that differentiate and engage students at their level; mentoring and support for students through form tutors, academic tutors and an array of teaching specialists; and opportunities for students to select topics, projects, activities themselves to fulfil course expectations.
3. Maximising the use of the **Outdoor Classroom** across the curriculum and extended curriculum. The school's central London location is used to the full by the teaching faculty to enhance learning and explore things that are not possible within the classroom. Each unit of study is enriched by well planned visits and activities that link to the fundamental concepts being studied. These visits aim to provide excellent cross-curricular opportunities so embedding 'deep learning'; are inquiry led so that students take charge of their own learning, are fun and enjoyable and place the students in authentic locations where they can meet experts outside the school. They are also opportunities for our teaching faculty to learn about our students in new settings. In addition an extensive **Travel and Learn** programme offering optional

CURRICULUM GUIDE • IB MYP YEAR 4

adventure trips outside London and to international locations runs throughout the school year.

The MYP curriculum is illustrated by an octagon with eight academic groups (or subject groups) surrounding five 'areas of interaction'. The areas of interaction (Approaches to Learning, Community and Service, Health and Social education, Environments, and Human Ingenuity) provide the MYP with its unique core. Teaching subject areas through these contexts allows teaching and learning to focus on attitudes, values and skills. The personal project (a MYP Year 5 project) appears at the centre of the octagon.



Each student studies the whole MYP programme which consists of eight academic groups, consisting of 13 subject areas. There is also an emphasis on the interrelatedness of the academic groups so that departments work together during the academic year to complete projects utilising skills, concepts and content from several subject areas. Aspects of the Areas of Interaction are addressed through the distinct disciplines.

The overall philosophy of the programme is expressed through three fundamental concepts that support and strengthen all areas of the curriculum.

CURRICULUM GUIDE • IB MYP YEAR 4

These concepts are based on:

- Intercultural awareness
- Holistic learning
- Communication

Taken as a whole, the curriculum provides a balanced and challenging education that will equip young people for effective participation in the modern world and is designed to prepare them for pre-university courses such as the IB Diploma or Advanced Placement courses (AP's).

This Curriculum Guide is deigned to give you an overview of the major academic areas and courses that students will study at ICS. The programme is led by the school's IB MYP Coordinator, Ean Alleyne and directed by the Secondary Principal, Brenda Murray and the Head of School, Rose Threlfall. This team also works closely with the school's PYP and Diploma Coordinator in order to provide a seamless educational experience for our students.

This Curriculum Guide is correct as of 1/0/10. Any updates will be contained within the on-line version.

CURRICULUM GUIDE • IB MYP YEAR 4

LANGUAGE A - ENGLISH

PHILOSOPHY

The Language A course at ICS aims to provide our students with the ability to use language as a vehicle for thought, creativity, learning and self-reflection. Students will also be able to use language as a tool for personal growth, social interaction and for developing relationships within our international community. Through the study of differing texts students will understand more clearly aspects of their own culture and those of other cultures. At ICS there is an emphasis on the celebration of diversity, which is a fundamental part of our learning at school.

The Language A course will enable students to develop the skills involved in speaking, listening, reading, writing and viewing in a variety of contexts. Students will analyse literature in a critical and creative way and consider the role of literature both culturally and historically. Students will develop language skills through interdisciplinary work and become better learners as they reflect on the learning process.

LEARNING OBJECTIVES

By the end of the year, students should be able to:

- understand and comment on the language, content, structure, meaning and significance of both familiar and previously unseen pieces of writing.
- demonstrate a critical awareness of a range of written and visual texts.
- use language to narrate, describe, analyse, explain, argue, persuade, inform, entertain and express feelings.
- compare texts and connect themes to show similarities or differences across genres.
- express an informed personal response to literary and non-literary texts and demonstrate the ability to approach works independently.
- understand connotations within a language in order to interpret the author's or speaker's intentions.
- express ideas with clarity and coherence in both oral and written communication.
- structure ideas and arguments, both orally and in writing, in a sustained and logical way, and support them with relevant examples.
- distinguish the main ideas in a text from the secondary ideas.
- use and understand an appropriate and varied range of vocabulary and idiom.
- use correct grammar with appropriate and varied sentence structure.
- show awareness of the need for an effective choice of register suited to the audience in both oral and written communication.

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS

- Poetry Studies
- Novel Studies : Lord of the Flies by William Golding
- Media Studies
- Drama Studies – The Crucible by Arthur Miller
- Shakespeare Studies - Othello

LANGUAGE A ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	Content (receptive and productive)	10
Criterion B	Organization	10
Criterion C	Style and Language Mechanics	10

RESOURCES

- **Lord of the Flies**
- **The Crucible** 978-0198321491
- **Othello**

CURRICULUM GUIDE • IB MYP YEAR 4

LANGUAGE B - SPANISH/FRENCH

PHILOSOPHY

At the International Community School we believe that learning a second or third language is not only useful but also essential. In our multicultural world, where we have students from all over the world, it is a priority to extend the knowledge of different languages, cultures and social issues.

Learning French or Spanish or any other second language has become a requirement due to the huge demand from the global economy and the necessity to communicate and compete in business or as an individual.

Students do not learn a language isolated with just grammar rules, they become socially involved with the language. They learn about ideology, history, politics and economy of the countries of the target language. Our main goal is to prepare our students for today's competitive world.

LEARNING OBJECTIVES [SPANISH/ FRENCH]

Those who have had Spanish/ French before will go faster and start the other units before. The plan for the term will depend on the level of command of the topics presented in the introductory units.

The four primary language skills to be developed in an integrated way are: Listening, Speaking, Reading and writing.

Competence in each of the primary language skills will involve an understanding of three interrelated areas:

- Language: handling the language system accurately (grammar, syntax, etc)
- Cultural interaction: Selecting language appropriate to a particular cultural and social context.
- Message: understanding ideas and how they are organized in order to communicate them appropriately.

In order to accomplish our philosophy our Modern Language department will try to develop within every student the following:

- Communicative competence in the target language.
- Develop meta-cognitive skills and apply them in the process of learning a foreign language.
- Appreciation and knowledge of the culture of the target language.
- Use and development of new technologies related to areas of learning a second language.

- Give students the opportunity to acquire and develop a foreign language and to help them to be more successful members of society.
- A sense of social responsibility based on respect and tolerance to others and the environment.

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS FOR SPANISH/ FRENCH

TERM I

- Greetings
- Names
- Alphabet
- Language for the classroom
- Countries and nationalities.
- Professions
- Places of work Numbers
- free time, jobs and money.
- Daily routine.
- Talking about yourself, your family and pets.
- Home life and school
- House chores
- Pocket money

TERM II

- Self family and personal relationships
- Holidays and special occasions
- Talk about your friends,
- Describe your house and your local area
- Talking about future plans and projects
- Food / health and fitness

TERM III

- Home town and local area
- Shopping / Public services
- Giving and understanding directions.
- Finding the way
- Give and ask for opinions
- Describe the seasons
- Weather
- Travel and transport.
- Environmental /issues

CURRICULUM GUIDE • IB MYP YEAR 4

LANGUAGE B ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	Speaking and listening—message and interaction	8
Criterion B	Speaking—language	8
Criterion C	Writing—message and organization	8
Criterion D	Writing—language	8
Criterion E	Reading comprehension	16

RESOURCES

SPANISH	FRENCH
<p><u>Main resources</u></p> <p>Listos do rojo 0-435-42960-4 (Heinemann)</p> <p><u>Supplementary resources</u></p> <p>Spanish Dictionary 9780007122912 Collins</p>	<p><u>Main resources</u></p> <p>Expo 4/5 Vert by John Meier (Heinemann 2003) Expo 4/5 Vert CD Expo 4/5 Vert Workbook</p> <p><u>Supplementary resources</u></p> <p>Expo 4/5 Rouge by John Meier (Heinemann, 2003) Metro 4/5 Vert by Rosi McNab (Heinemann, 2001)</p>

CURRICULUM GUIDE • IB MYP YEAR 4

HUMANITIES

PHILOSOPHY

The aim of the Humanities programme at ICS is to encourage students to gain and develop knowledge, conceptual understanding, research skills, analytical and interpretive skills, and communication skills, which contribute to the development of the student as a whole. The Humanities course aims to encourage students to respect and understand the world around them and to provide a skills base to facilitate further study. This is achieved through the study of individuals, societies and environments in a wide context: historical, contemporary, geographical, political, economic, religious, technological and cultural.

LEARNING OBJECTIVES

HISTORY

A. Knowledge and Understanding

- Know and apply historical terms
- Demonstrate factual recall
- Demonstrate an understanding of chronology
- Describe historical events.

B. Understanding and Application of Concepts

- Make relevant connections (where they exist) between present and past events
- Understand events and issues in the context of the time period
- Recognize similarity and difference
- Understand continuity and change.

C. Application of Skills

Evaluation of Evidence

- Detect forms of bias: visual, graphic, tabular and printed
- Question the authenticity and reliability of historical sources
- Interpret and evaluate a wide range of historical sources and evidence.

Historical Analysis

- Analyse and interpret data and information
- Make balanced judgements on issues and problems, and draw valid conclusions
- Identify key questions and issues
- Present clear and reasoned arguments based on historical concepts, using relevant examples.

CURRICULUM GUIDE • IB MYP YEAR 4

D Presentation and Organisation of Information

- Select material, which is relevant to the topic
- Organize information in a logically sequenced manner
- Express historical information and ideas in a clear and precise manner
- Clearly document the sources of information used
- Use a variety of media and technologies to present data

LEARNING OBJECTIVES

GEOGRAPHY

A. Knowledge

- Express ideas clearly in the subject discourse.
- Demonstrate subject knowledge and provide supporting information
- Demonstrate an understanding of cause and consequence
- Use inference in texts.

B. Concepts

- Make relevant connections between different concepts and ideas
- Understand events and issues in context .
- Be able to draw comparisons and use analogies to effect
- Understand the limitations of concepts and ideas in a fast changing world.

C. Skills

- Use, interpret and produce visual, graphic, tabular and printed data
- Select information from different data sources
- Test hypotheses and substantiate or modify where necessary
- Investigate places, environments using geographical skills
- Utilise inquiry and research skills to investigate various hypotheses
- Develop critical awareness
- Be able to work collaboratively
- Make balanced judgements on issues and problems

D. Organisation

- Select material, which is relevant to the topic
- Structure information in a logically sequenced manner
- Present arguments/ information coherently
- Demonstrate an ability to manage time
- Use a variety of media and technologies to present data

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS FOR HUMANITIES

TERM 1

History: World War 1	Short & long term causes Assassination of Franz Ferdinand Key Battles US involvement End of WW1
History: The League of Nations	The rise and fall. The Treaty of Versailles
Population and settlement	Interpret data Analyse and evaluate statistical data Understand the interrelationships between physical/social economic environment on settlement and population movement - Interpret and use demographic transition models
Climate, weather and hurricanes	Recording & Reading weather maps and understanding high/low pressure, depressions.weather symbols Researching a natural disaster caused by weather.

TERM 2

South Africa	Colonisation Apartheid Continuing issues
Hurricanes -Why and where do they happen? -How do you reduce the impact?	Understanding the differences between LEDCs and MEDCs when coping with disaster. Producing clear instructions and information in the form of a leaflet.
Global warming -what is it? -what can we do to reduce the impact?	Understanding the cause and solutions of global warming. To understand both sides of a debate and constructively discuss both

TERM 3

Persecution	The Salem Witch Trials McCarthyism The War on Terror
Coastal Processes - Bawdsey Fieldwork project	Field work - Measuring beach

CURRICULUM GUIDE • IB MYP YEAR 4

- Erosion and longshore drift	profile and long shore drift Calculating cliff height.
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HUMANITIES ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	Knowledge	10
Criterion B	Concepts	10
Criterion C	Skills	10
Criterion D	Organization and presentation	8

RESOURCES

GEOGRAPHY	HISTORY
IGCSE GEOGRAPHY, Longmann The New Wider World, Nelson Thornes	Modern World History: patterns of interaction

CURRICULUM GUIDE • IB MYP YEAR 4

SCIENCES

PHILOSOPHY

Never stop asking questions.

Albert Einstein

In Science we learn to view the world objectively without bias, preconceived ideas or prejudice. We learn how to formulate a question and how to investigate it using the accepted scientific theories of our time as reference points.

By understanding how man's understanding of the world has advanced and then retreated across time and cultures, we can put our current understanding in context, and accept that our deeply held theories could be proved wrong, and then we are able to advance in understanding.

Science is taught as an integrated science course in years MYP 1-3 and as separate sciences, Biology, Chemistry and Physics in Years 4 and 5.

LEARNING OBJECTIVES

The study of science aims to provide students with a body of knowledge, content, and an understanding of the scientific approach to problem solving, skills.

The ability to formulate hypotheses, design and carry out experiments to test them, and evaluate results constitutes the framework within which scientific content is presented.

Students are expected to:

- Use basic laboratory equipment safely and efficiently, considering the health and safety of themselves and those around them.
- Make sensible estimates and take accurate measurements.
- Make scientifically supported arguments.

Students are also encouraged to relate the content of the classroom and laboratory to the wider world as they develop critical thinking, and problem-solving skills. Students will develop an awareness of the increasingly international context of scientific activity, its impact and ideas of the constant evolution of scientific knowledge and understanding is also promoted.

Students are encouraged to consider Science as constantly evolving, cooperative venture involving individuals and members of the international scientific community, influenced by social, economic, technological, ethical and cultural factors.

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS

TERM I

CELLULAR ORGANISATION AND FUNCTION	<ul style="list-style-type: none"> -appreciate that all living organisms are made up of cells -know the structure of a typical animal cell and a typical plant cell (cell membrane, cytoplasm, nucleus, cell wall, vacuole, chloroplast only) -be able to interpret light micrographs and simple electron micrographs of plant and animal cells -understand the functions of the parts of animal and plant cells -understand the significance of the differences in structure between animal and plant cells -appreciate that different types of cells perform different functions and that their structure is related to their function -know that cells are arranged in groups to form tissues -know that osmosis is the diffusion of water molecules through a partially permeable membrane and be able to relate this to the effects of solutions of different concentrations on animal and plant cells
ATOMIC STRUCTURE	<ul style="list-style-type: none"> •Atoms and Molecules •Elements and Compounds •Atomic Theory •Kinetic Theory •Atomic Number and Mass Number •Isotopes •Electron Configuration
FORCE AND MOTION/ GRAVITY	<ul style="list-style-type: none"> -understand the meaning of the terms speed and acceleration -recognize the existence of errors in measurements and understand how these may be reduced by taking the average of a number of readings -understand how distances travelled can be derived from the area under a speed-time graph -understand the relationships between distance, time, speed and acceleration and recognize how graphs may be used to display these relationships -be able to use the relationships $v = at$ and $s = \frac{1}{2} at^2$ when applied to an object accelerating uniformly from rest -understand the difference between speed and velocity -recognize that a body may accelerate by change in velocity, but without a change in speed -know that force is measured in newtons -understand that unbalanced forces change motion and that in the absence of an unbalanced force, an object will either remain at rest or travel with a constant velocity -recognize that friction often provides an opposing force acting on moving bodies

CURRICULUM GUIDE • IB MYP YEAR 4

	<ul style="list-style-type: none"> -know the relationship between force, mass and acceleration given by the equation $F=ma$ and be able to use the relationship in simple problems -recognize qualitatively that the acceleration of a body depends both on its mass and on the size of the unbalanced force acting on it -recognize that gravity is a force which acts between bodies even though they are not in contact -know that the Earth is the source of a gravitational field -understand the part air resistance plays in the way objects fall when close to the Earth's surface -recognize why it is possible for objects to orbit the Earth without falling to its surface
Support and movement	<ul style="list-style-type: none"> -understand the importance of lignin supporting woody parts of plants and turgid cells in supporting non-woody parts of plants -know that the skeleton of a mammal is made of bone and cartilage and appreciate the differences in properties of these substances -know the structure of the skeleton and muscles of the human arm (ulna, radius, humerus, scapula, tendons, biceps and triceps only) -understand how the antagonistic muscles and bones act together to flex or extend the arm - be able to - appreciate that the contraction of the biceps produces a turning effect, with the elbow joint as pivot -know that a joint occurs where two bones meet -know that a synovial joint allows the movement of two bones and that cartilage and synovial fluid reduce friction between the bones -understand that the small distance between the attachment of the biceps and the pivot means that a large force is required to produce a large effect and be able to relate this to the ability of muscles to produce large forces and their inability to contract over large distances
THE PERIODIC TABLE AND TRENDS	<p>Groups and Periods</p> <ul style="list-style-type: none"> •Metals and Non-metals •Electron configuration in the Periodic Table •Patterns and Trends in the Periodic Table
PHOTOSYNTHESIS	<ul style="list-style-type: none"> -understand the significance of photosynthesis in making food -appreciate that photosynthesis transfers energy from sunlight into energy in chemicals such as glucose and starch -understand the significance of chlorophyll as a light-absorbing molecule -understand the requirements for photosynthesis; the nature of the products formed; the effects of altering the conditions on the rate of photosynthesis -appreciate the variety of factors that

CURRICULUM GUIDE • IB MYP YEAR 4

	<p>limit the rate of photosynthesis and ways of overcoming the limitations when growing plants for food or other uses</p> <ul style="list-style-type: none"> -know the word equation for photosynthesis -appreciate how the structure of a leaf enables photosynthesis to occur effectively -be able to perform starch tests on leaves -understand how photosynthesis affects the concentrations of carbon dioxide and oxygen in water or the atmosphere -understand that plants need nitrate ions for making proteins and that they may absorb these from the soil
CHEMICAL BONDING	<ul style="list-style-type: none"> •Physical and Chemical Changes •Ionic Bonding •Covalent Bonding •Macromolecules •Metallic Bonding •Alloys
GASEOUS EXCHANGE IN ANIMALS	<ul style="list-style-type: none"> -know the structure of the mammalian breathing system (larynx, trachea, epiglottis, bronchi, bronchioles, alveoli, pleural membranes, diaphragm and intercostal muscles) -understand how the structure of the alveoli and blood capillaries enable gaseous exchange to occur and the importance of diffusion in gaseous exchange across the alveoli -understand how movements of the intercostal muscles and diaphragm enable inhalation and exhalation to occur through changes in pressure in the thorax -understand the role of goblet cells and cilia in keeping the lungs free from infection -understand the effects of smoke and air pollution on the breathing system -be able to discuss the effects of cigarette smoke on health and the reasons why people smoke -know that air breathed out contains more carbon dioxide and less oxygen than air breathed in -be able to state the percentage composition of inspired and expired air and to explain the reasons for the differences
CHEMICAL REACTIONS	<ul style="list-style-type: none"> • Revision of chemical and physical change •Types of chemical reactions •Equations for chemical reactions • Balancing Chemical Equations •Tests for hydrogen, oxygen, carbon dioxide and water
RADIOACTIVITY	<ul style="list-style-type: none"> -recognize that radiations from radioactive materials are capable of breaking up other atoms and molecules

CURRICULUM GUIDE • IB MYP YEAR 4

	<ul style="list-style-type: none"> -understand the meaning of the term ionising radiation -recognize the link between ionisation and electric charge -know how radioactivity may be detected and measured -understand the meaning of the term background radiation -be able to relate radioactivity to the structure of an atom -recognize how radioactivity changes with time and understand the concept of half-life -recognize the idea of randomness in the decay process and relate this to half-life
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TERM 2

<p>TRANSPORT SYSTEMS</p>	<ul style="list-style-type: none"> -know that plants take up water and inorganic ions through root hairs -know that xylem transports water and inorganic ions and that phloem transports the products of photosynthesis -know that transpiration provides a 'pull' which draws water through xylem vessels -understand how environmental conditions may alter the transpiration rate and thus the rate of water uptake by a plant -know that red blood cells carry oxygen, attached to haemoglobin, around the body of a mammal -know that white blood cells prevent infection becoming established -appreciate the roles of phagocytes and antibodies in destroying invading micro-organisms -know that platelets help in clotting and that plasma transports glucose, carbon dioxide, hormones and urea -understand that arteries carry blood away from the heart, veins carry blood towards the heart and capillaries link arteries with veins and are the sites of exchange with the tissues -be able to relate the structure of arteries, veins and capillaries to their functions -know the external and internal structure of the mammalian heart and understand its function -be able to explain the events leading to a heart attack and a stroke and appreciate how life-style may affect the risk of heart attacks or strokes
<p>CHEMICAL CALCULATIONS</p>	<ul style="list-style-type: none"> • Calculating formula mass • Quantitative mass balancing • The mole and Avogadro's number • Molar calculations

CURRICULUM GUIDE • IB MYP YEAR 4

<p>ENERGY - KINETIC ENERGY/ MOMENTUM</p>	<ul style="list-style-type: none"> •Molar volume and calculations involving gases -understand the meaning of the terms kinetic energy and momentum -be able to use kinetic energy and momentum to solve simple, quantitative problems involving force, motion and recoil -be able to find both the kinetic energy and momentum of a moving body from a knowledge of its mass and velocity -be able to use kinetic energy to solve simple, qualitative problems involving force and motion -be able to use momentum in simple, qualitative problems involving recoil -recognize that, in collisions between objects, their total momentum is unchanged ('conservation of momentum') -recognize the relationship between the transfer of energy to a gas by heating and the rise in its temperature and the increase in the kinetic energy of its particles
<p>RESPIRATION</p>	<ul style="list-style-type: none"> -understand that aerobic respiration involves transferring energy from glucose to a cell; oxygen is needed and carbon dioxide is produced -be able to state the word equation for aerobic respiration-appreciate the uses of transferred energy to organisms (e.g. movement, growth and warming the body) -understand that anaerobic respiration can occur in human muscles and that lactic acid is produced and must later be removed with the use of oxygen -appreciate that respiration occurs in all living cells
<p>FRACTIONAL DISTILLATION AND THE HYDROCARBONS</p>	<ul style="list-style-type: none"> •Formation of fossil fuels •Fractional distillation •The Carbon Cycle •Hydrocarbons •Tests for hydrocarbons •Alcohols •Carboxylic acids
<p>ENERGY RESOURCES</p>	<ul style="list-style-type: none"> -understand the meaning of the term efficiency when it is applied to energy transfer processes -understand how energy may be released from the nuclei of atoms by both nuclear fission and nuclear fusion -recognize some of the problems involved in the use of nuclear fission as an energy resource -understand that there are alternative (renewable)

CURRICULUM GUIDE • IB *MYP* YEAR 4

	<p>energy resources, but understand that no single renewable energy source is likely to act as a total replacement for present energy resources -recognize that greater efficiency in the use of energy can be as helpful as finding alternative sources</p>
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CURRICULUM GUIDE • IB MYP YEAR 4

TERM 3

DIET AND HEALTH	<ul style="list-style-type: none"> -know that a balanced diet contains protein, fat, carbohydrate, vitamins, minerals (inorganic ions), roughage (fibre) and water -be able to perform tests for starch (iodine solution), reducing sugar (Benedict's reagent), protein (biuret test) and fat (ethanol test) -know that energy input should approximately equal energy output and that fat and carbohydrate provide most of the energy input of a balanced diet -know that protein is an essential body-building food -understand that proteins have a wide variety of roles in the human body and be able to describe a range of these roles -understand the uses in the human body of iron, calcium, vitamin C and vitamin D -know examples of foods which are good sources of each of the components of a balanced diet -appreciate local dietary problems (for example too much fat, insufficient protein) and how these may affect health -be able to discuss the problems and possible solutions of inadequate diet in one or more parts of the world
USEFUL ORGANIC PRODUCTS	<ul style="list-style-type: none"> •Cracking •Polymerisation •Recycling of plastic waste •Biological polymers •Esterification •Soaps and Detergents
ENERGY DISTRIBUTION/ ENERGY TRANSFER	<ul style="list-style-type: none"> -understand that energy can be transferred from fuels to electricity by dynamos -recognize the problems involved in the electrical transmission of energy -recognize that when change takes place, energy is transferred -know that work, measured as force x distance moved, is a measure of energy transfer -recognize that heat engines cannot function without transferring substantial amounts of energy to the surroundings -understand that liquids can be used to send forces where they are required -know that pressure is related to the size of the force and the area over which the force acts

CURRICULUM GUIDE • IB MYP YEAR 4

	<ul style="list-style-type: none"> -be able to use the relationship $\text{pressure} = \frac{\text{force}}{\text{area}}$ -understand that power is the rate at which energy is transferred -know that hydraulic systems are force multipliers and describe everyday applications of hydraulic systems (car braking systems and hydraulic jacks) -recognize that there is an energy cost in making this happen -recognize that machines are devices enabling the transfer of energy, but that the energy cost of doing a job is still at least the same as if the job were to be done without the help of a machine -understand that engines are devices for transferring energy from fuels to enable force-using jobs to be done -recognize that the use of machines and engines always means some wastage of energy -understand the importance of transformers in the electrical transmission of energy -be able to describe the work of a transformer in terms of the currents induced by changing magnetic fields -be able to use the equation $V_p / V_s = N_p / N_s$ -recognize the possible advantages of other methods of distributing energy, including the use of petrol for cars and the use of hydraulics
DIGESTION	<ul style="list-style-type: none"> -understand that digestion breaks large molecules of food into small ones, which can then pass through the wall of the gut into the blood -appreciate that the gut is a coiled tube and is the site of digestion and absorption -know the internal structure of a human tooth and how the different types of human teeth are used when eating -understand the role of bacteria forming acids in the mouth leading to tooth decay -be able to identify the gross structure of the alimentary canal and its associated organs (mouth, oesophagus, stomach, small and large intestine, rectum, anus, pancreas and liver) -appreciate that food is moved along the gut by peristalsis -appreciate that digestion is brought about by enzymes, acting as catalysts -appreciate that enzymes are used in many industrial processes and products

CURRICULUM GUIDE • IB MYP YEAR 4

	<ul style="list-style-type: none"> -understand how the rate of an enzyme reaction can be affected by temperature and pH -know the functions of amylase, protease and lipase -know the sites of production and action of amylase, protease and lipase in the human alimentary canal -know that the small intestine is the site of absorption of the products of digestion -know that villi in the small intestine increase surface area for absorption and that absorbed products are taken in the hepatic portal vein to the liver -know that indigestible food, such as fibre, is removed through the anus by the process of egestion
<p>RATES OF REACTION AND CHEMICAL EQUILIBRIUM</p>	<ul style="list-style-type: none"> • Factors affecting the rate of reaction • Experiments showing different reaction rates • Chemical equilibrium • Le Chatelier's Principle • The effect of temperature and pressure • Industrial applications
<p>BIOLOGICAL CLASSIFICATION AND DIVERSITY OF ORGANISMS</p>	<ul style="list-style-type: none"> -appreciate why organisms are classified into groups -be able to use the binomial system of naming organisms and know the binomial names for two different organisms -appreciate that organisms belong to different species, which are discrete breeding groups -be able to use a simple dichotomous identification key -be able to construct a simple dichotomous key to enable identification of organisms -know the main features of the five main classes of vertebrates (fish, amphibians, reptiles, birds, mammals) -know the main features of three classes of arthropods (insects, crustaceans and arachnids only)
<p>ACIDS AND BASES</p>	<ul style="list-style-type: none"> • Acids and bases in daily life • Defining acids and bases • The pH scale • Neutralisation reactions and indicators • Typical reactions of acids • The ionic nature of acid and base solutions

CURRICULUM GUIDE • IB MYP YEAR 4

SCIENCE ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	One world	6
Criterion B	Communication in science	6
Criterion C	Knowledge and understanding science	6
Criterion D	Scientific inquiry	6
Criterion E	Processing data	6
Criterion F	Attitudes in science	6

RESOURCES

So You Really Want to Learn Science, published by Galore Park is strongly recommended as additional support, this book covers MYP YEAR 4-5.

CURRICULUM GUIDE • IB MYP YEAR 4

MATHEMATICS

PHILOSOPHY

The principle philosophy of the department of Mathematics at International Community School is to instil in each pupil of Mathematics a high level of critical thinking skills.

All courses of Mathematics provide an environment that cultivates these skills. In order for each student to achieve success, develop logical thought, and adapt to the approach of critical thinking, the department recognises fully that each student must be given multiple opportunities.

Success in Mathematics is contingent upon each student's ability to formulate questions, create various models based on problem-situations, make general correlations between mathematical relationships, and challenge his/ her thinking at a higher level.

Students develop these necessary *academic* skills through researching, thinking, planning, designing, negotiating, creating, processing, presenting, and reflecting.

The Mathematics curriculum encompasses a wide- range of subjects: Arithmetic, Pre-Algebra, Algebra 1 & 2, Geometry, Pre Calculus with Trigonometry, Single Variable and Multi-Variable Calculus. Infused within the aforementioned subjects are the strands of Number Sense, Patterns, Relations, Algebra, Geometry Fundamentals, Measurement, Data Analysis, Statistics, and Probability.

The department has an accelerated program, APEX [Advanced Placement for Excellence], designed for gifted and talented students in the area of Mathematics.

APEX students are taught within the parameters of the department's philosophy and are challenged to solve deeper, broader, more sophisticated problems, and are introduced to thought provoking questions, often linking the disciplines of Science [physical sciences] and mathematics.

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS

COURSE TITLE	ALGEBRA 1B-2
APEX [ADVANCE PLACEMENT FOR EXCELLENCE] LEVEL	
	TOPICS
TERM I	<ul style="list-style-type: none"> ◆ Logic, Reasoning and Proof ◆ Parallel and Perpendicular Lines ◆ Congruent Triangles and Quadrilaterals ◆ Similarity
TERM II	<ul style="list-style-type: none"> ◆ Right Triangles, Trigonometry ◆ Vectors and Bearings ◆ Matrices and Transformations ◆ Area of Polygons and Sectors ◆ Laws of Sines and Cosines
TERM III	<ul style="list-style-type: none"> ◆ Surface Area and Volume ◆ Circle Theorems ◆ Probability and Statistics

COURSE TITLE	ALGEBRA 1
STANDARD LEVEL	
	TOPICS
TERM I	<ul style="list-style-type: none"> • Set theory and Axiom for Real Numbers • Equations and Inequalities • Linear Equations and Functions • Systems of Linear Equations and Inequalities
TERM II	<ul style="list-style-type: none"> • Systems of Linear Equations and Inequalities • Matrices and Determinants • Quadratic Functions
TERM III	<ul style="list-style-type: none"> • Right Triangles, the Pythagorean Theorem, and Bearings, Basic Trigonometric Ratios • Measurement, Area, Surface Area and Volume • Perpendicular and Parallel Lines, Congruence and Properties of Triangles • Data Analysis and Probability

CURRICULUM GUIDE • IB MYP YEAR 4

MATHEMATICS ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criteria A	Knowledge and understanding	8
Criteria B	Investigating patterns	8
Criteria C	Communication	6
Criteria D	Reflection and evaluation	6

RESOURCES

- PRENTICE HALL MATHEMATICS GEOMETRY
- BLITZER THINKING MATHEMATICALLY, 4TH EDITION
- PRENTICE HALL ALGEBRA 1
- OXFORD MATHEMATICS STUDY DICTIONARY ISBN 0-199-15118-0
- SCIENTIFIC CALCULATOR OR GRAPHIC DISPLAY CALCULATOR - TEXAS INSTRUMENT [TI] TI-83 OR TI-83 PLUS

CURRICULUM GUIDE • IB MYP YEAR 4

PHYSICAL EDUCATION

PHILOSOPHY

The Physical Education Department is dedicated to helping our students understand and appreciate the basic principles of physical education and their relationship to a healthy, active lifestyle. Moreover, the curriculum is designed to promote skills and confidence to enhance both students' physical well-being and also their social and personal development.

To work towards these aims, the PE Department embraces the International Baccalaureate's four-tiered approach to physical education, which promotes understanding, independence, performance, and social awareness. By focusing on knowledge and understanding, we seek to demonstrate the importance of physical activity to a healthy lifestyle and illustrate how strength, fitness, and flexibility contribute to physical well-being. By evaluating composition and performance, we hope to encourage students to develop the skills and tactics necessary to express themselves through a variety of physical activities. Finally and perhaps most importantly, we hope that students will learn through team and individual sports to value one another and to work cooperatively, supporting and encouraging others, regardless of differences in opinions and abilities.

LEARNING OBJECTIVES

The purpose of this class is to help the student understand and appreciate the basic principles of physical education and their relationship to a healthy, active lifestyle. In particular, it is the hope that students will develop skills and confidence in the following areas:

1. Knowledge & Understanding of:

- The importance of physical activity to a healthy lifestyle
- How strength, fitness, and flexibility contribute to physical well-being.

2. Performance & Application of:

- Acquired motor skills necessary to perform a variety of physical activities
- Tactics, strategies, and rules in both individual and group activities
- Health and fitness principles effectively through a variety of physical activities.

CURRICULUM GUIDE • IB MYP YEAR 4

3. Social Skills:

- Work cooperatively
- Support and encourage others
- Develop positive attitudes and strategies for dealing with challenges
- Show sensitivity to other cultures

4. Personal Engagement:

- Show initiative, creativity, and a willingness to improve yourself
- Take responsibility for your own learning and actively participate in class
- Demonstrate self-motivation, organization, and responsible behaviour
- Recognize, analyze, and evaluate the effects of a variety of physical activities
- Reflect upon and evaluate your own performance and set goals for future development

DURING CLASS

Appropriate Dress – students are expected to wear:

- Flexible clothing such as T-shirts and athletic trousers
- (NO jeans!)
- Trainers or other footwear appropriate for running and jumping

Warm-up Activities – students are required to participate in the following activities:

- Warm-up run to improve fitness
- Stretches to improve flexibility
- Exercises to improve strength

Attitude & Sportsmanship – students will be assessed based on their ability to demonstrate:

- Listening and self-reflection
- Initiative and personal engagement
- Teamwork and respect for others
- Positive attitudes (regardless of outcome)
- Sensitivity to the needs/abilities of others

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS

TERM 1

<p>Fitness What is the influence of exercise on my well being?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> -mental, emotional, social and physical wellbeing -How to execute basic fitness movements -different body parts and positions. -exercise physiology concepts, such as: heart rate, endorphins, repetitions, respiratory, vascular etc -possible diseases, illnesses and conditions as a result of a sedentary life style. <p>Students will develop skills in:</p> <ul style="list-style-type: none"> -creating an essay on a chosen topic
<p>Volleyball How do I know what type of sports I like?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> - rules in volleyball -techniques in volleyball -strategies in volleyball -how to give feed-back/communicate effectively -volleyball techniques (Dig pass, volley pass and underhand serve) -coaching and observing others -Giving feed-back to others. -being a referee and coach -what different characteristics sports can have. <p>How to categorise sports</p> <p>Students will develop skills in:</p> <ul style="list-style-type: none"> -basic volleyball techniques -communication -applying strategy -creating a product that can be used to put any sports in a category.
<p>Gymnastics How can successful group work influence my well-being?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> -composition techniques -postures, balance and body shapes -different stands of, postures and gymnastics techniques. -how to work collaboratively -working towards a common goal, teambuilding, feelings related to success and working together. <p>Students will develop skills in:</p> <ul style="list-style-type: none"> -different gymnastic techniques: candle, forward role, handstand, cartwheel, round-of. -checking for safety within their own and other people execution of activities. -Listening to others -Using other people's ideas -expressing their opinion -reflecting on collaborative working

CURRICULUM GUIDE • IB MYP YEAR 4

TERM 2

<p>Indoor invasion game What is the influence of sports on the immediate environment?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> -rules in a given indoor invasion game. -techniques in a given indoor invasion game. -dimensions and materials needed for a game. -impact of game grounds and materials on their environments. <p>Students will develop skills:</p> <ul style="list-style-type: none"> -in techniques of a give indoor invasion game -in applying strategies and rules in a given invasion game. -in creating the ultimate sports grounds for the next Olympics.
<p>Kung fu/Karate How can I choreograph a fights scene?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> -basic Karate and Kung Fu exercises -rules, concepts and strategies in kung fu/karate -camera angles and filming techniques. <p>Students will develop skills in:</p> <ul style="list-style-type: none"> -Kung fu and Karate -working in choreographed order.
<p>Ball room dancing How can I Learn/Teach dance?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> -basic ball room dances and the moves within. Walls, cha cha cha, jive.

TERM 3

<p>Athletics How can I help others doing physical activity?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> -project management -aspects involved in organising a sports day -basic athletics techniques <p>Students will develop skills in:</p> <ul style="list-style-type: none"> -doing a good warm-up, stretching and cooling down. -communicating -organising -basic athletics techniques -working collaboratively
<p>Football Is professional football good?</p>	<p>Students will develop knowledge of:</p> <ul style="list-style-type: none"> -basic football techniques

CURRICULUM GUIDE • IB MYP YEAR 4

	<ul style="list-style-type: none"> -rules and strategies in football -controversial topics related to top sport such as gender, doping, commercialism. <p>Students will develop skills in:</p> <ul style="list-style-type: none"> -Writing an essay. -basic football techniques -setting goals and assessing if they achieve goals. -changing rules, dimensions and materials in a game to create the ultimate football game.
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PHYSICAL EDUCATION ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	Use of Knowledge	8
Criterion B	Movement composition	6
Criterion C	Performance	10
Criterion D	Social skills and Personal engagement	8

CURRICULUM GUIDE • IB MYP YEAR 4

ARTS

VISUAL ART

PHILOSOPHY

It is the philosophy of the Art department that Art education is fundamental to human growth and provides students with intellectual and creative experiences that connect them to the world around them. Art provides invaluable opportunities for students to use their imagination and problem solve using their own creativity. Whether Art is being pursued as a career or simply being studied as an opportunity to develop their creative abilities, Art education will heighten an appreciation for visual literacy and the challenges of creative self-expression.

LEARNING OBJECTIVES

These Art courses encourage students to develop:

- creative and imaginative powers and the practical skills for communicating and expressing ideas, feelings and meanings in art, craft and design;
- investigative, analytical, and experimental elements, aesthetic understanding and critical skills;
- understanding of different areas of art, craft and design and awareness of contexts in which they operate;
- knowledge and understanding of art, craft and design in contemporary societies and in other times and cultures.

The Learning Objectives of these Art courses encourage the students to:

- record observations, experiences and ideas in forms that are appropriate to intentions;
- analyse and evaluate images, objects and artefacts showing understanding of context;
- develop and explore ideas using media, processes and resources, reviewing, modifying and refining work as it progresses;
- present a personal response, realising intentions and making informed connections with the work of others.

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS FOR THE VISUAL ARTS

TERM 1

MEDIA / TECHNIQUES	By the end they should be able to work in various media/ use various techniques By end of unit they should be familiar with oil pastel, pastel, gouache, clay etc. and know the effect each creates.
WORKING FROM OBSERVATION	Students should be able create the illusion of 3-D on 2-D surface, understand proportion/ measurements, etc.

TERM 2

Work from observation	Students should be able to put the knowledge they've acquired into practice Students should become aware of negative shapes between objects. Students should understand how light/ shade can make objects look solid
MOVEMENT	Students should be able to depict movement on 2-D surface and possibly also 3-D Students should have studied different kinds of movement (slow, fast, mechanical etc.) how water moves, etc.

TERM 3

MOVEMENT	Students should be able to depict movement on 2-D surface and possibly also 3-D Students should have studied different kinds of movement (slow, fast, mechanical etc.) how water moves, etc.
PORTRAITS	Students will be able to do portrait to express personality, identity. Students will study work of artists, e.g: cubist, realistic etc.

CURRICULUM GUIDE • IB *MYP* YEAR 4

VISUAL ARTS ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	Knowledge and Understanding	8
Criterion B	Application	10
Criterion C	Reflection and Evaluation	8
Criterion D	Personal Engagement	8

CURRICULUM GUIDE • IB MYP YEAR 4

music

PHILOSOPHY

Music plays an integral part in each student's education, as well as his/ her own self-expression. It is the responsibility of the music department to provide well prepared quality instruction to help each student realise his or her own individual potential and ability. It is the belief of the music department that all students, no matter what challenges they are faced with, can benefit from music instruction. Music itself is a unique discipline in that it can integrate many other subjects and disciplines such as Science, Mathematics, and History into its curriculum, thus, providing students with a more well-rounded and holistic education.

LEARNING OBJECTIVES

- To enable students to consolidate a range of basic music skills, knowledge and understanding, through activities of listening, performing and composing.
- To help students recognize and understand the music of various non-Western traditions and to form appreciation of cultural similarities and differences.
- Provide foundation for further study in music for students who wish to pursue their studies at a higher level.

Listening

Throughout the school year students are expected to identify and comment on a range of music from different cultures, using appropriate music expressions and language.

Performing

Students will be expected to show interpretative understanding of the music performed.

Composing

Using discrimination and imagination in guided and free composing.
Using staff notation and other suitable systems.

CURRICULUM GUIDE • IB MYP YEAR 4

COURSE TOPICS

TERM 1

Overview of Western Classical music styles -Baroque Music, Classicism and Romantic Era.	Understanding the role and function of the ground bass, Different melodic variation techniques used in 1700-1850. Composing variations over a repeating bass.
20 th Century Music Expressionism, Serialism and Minimalism	Identifying the difference between expressionism and impressionism. Understanding how a serial piece of music is composed.

TERM 2

Composing an arrangement for four parts	Work on understanding arrangement of music in four parts, Working on understanding of chord progression. Work on understanding melodic climax, repetition of climax and cadences.
Film Music	Gain knowledge of combining the elements of music in order to create effective film music. Using different techniques to create music that reflects the emotional and narrative messages of a film.

TERM 3

Embellishing Notes and Rhythm	Developing understanding of independent notes which are not harmonised, known as embellishing notes. Understanding of different meaning of rhythm in music working on developing rhythmic plans for a composition.
Secret Symphonies	For students to explore composing in free-style, using learned techniques. Working on individual initiative and exploration of

CURRICULUM GUIDE • IB MYP YEAR 4

	desired form, style of music
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RESOURCES

- Opus 4 Progression in Music 15-16, Heinemann, ISBN 976-0-435812-30-0
- www.soundjunction.org
- RIFF Music Software

MUSIC ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	Knowledge and Understanding	8
Criterion B	Application	10
Criterion C	Reflection and Evaluation	8
Criterion D	Personal Engagement	8

CURRICULUM GUIDE • IB MYP YEAR 4

TECHNOLOGY

PHILOSOPHY

The Technology Department primarily aims to equip students with the knowledge, skills, values and attitudes needed to understand the role and impact of *technology* in the modern world. Students understand that Technology is a tool used to identify needs or problems. They use creativity, innovation, team work and personal experience to meet the need or solve the problem. Students learn that Technology is an all-encompassing discipline, in which direct links are made with other subjects and daily life contexts and scenarios. Students address three fundamental branches of Technology: information, materials and systems.

Students use the Design Cycle, a cyclic approach to problem solving that involves investigation, planning, creation and evaluation in order to achieve technological goals. The Design Cycle is used to generate ideas; when making a new product, improving on an existing one, or solving problems through research, analysis and reflection.

The flexible nature of the Technology curriculum empowers students, providing them with numerous opportunities for expression of ideas and opinions. Students reflect on their achievements, recognise strengths and areas for improvement, and enhance future learning experiences. Students are supported as independent thinkers, while still showing mutual respect for the viewpoint of others. Moreover, students feel comfortable that technology is more than a means to an end, but a way of thinking and doing used to improve the quality of life.

CURRICULUM GUIDE • IB MYP YEAR 4

LEARNING OBJECTIVES

Through the topics listed above students are expected to meet the following standards when being assessed within the technology subject group:

- During the investigative phase of the design cycle students are expected to identify the problem, develop a design brief and formulate a design specification. Students are expected to acknowledge the sources of information and document these appropriately.
- Students are expected to generate several feasible designs that meet the design specification and to evaluate these against the design specification.
- Students are expected to construct a plan to create their chosen product/solution that has a series of logical steps, and that makes effective use of resources and time.
- Students are expected to document, with a series of photographs or a video and a dated record, the process of making their product/solution, including when and how they use tools, materials and techniques. Students are expected to follow their plan, to evaluate the plan and to justify any changes they make to the plan while they are creating the product/solution.
- Students are expected to evaluate the product/solution against the design specification in an objective manner based on testing, and to evaluate its impact on life, society and/or the environment. They are expected to explain how the product/solution could be improved as a result of these evaluations.
- Personal engagement is an integral component of technology and this is acknowledged through a student's *self*-motivation, independence, and general positive attitude when working through the phases of a project's design.
- Attitudes towards maintaining a safe and cooperative working environment and showing respect for others is critical to obtaining successful outcomes in this subject group.

COURSE TOPICS

2 wks	The Design Cycle and Practical Technology Skills Strand: Information, Systems	<ul style="list-style-type: none"> • Students can identify and explain all the components of the Design Cycle • Students can carry out effective research using the internet or otherwise to find out about an advancement of a chosen technology over a period of time • Students can explain how technological advancements have helped society • Students can identify some of the negative impacts of technological advancements • Students can produce a PP presentation that depicts how a technology has advanced over time • Students can present with confidence to their classmates and teacher using a PP or poster • Students can demonstrate a positive and engaged attitude to Technology
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CURRICULUM GUIDE • IB MYP YEAR 4

		<ul style="list-style-type: none"> • Students can demonstrate effective time management
10 wks	<p>Structural Technology: Designing and Creating a Model Stadium Strand: Materials, Systems</p>	<ul style="list-style-type: none"> • Students can identify how the structure of stadiums have changed over time • Students can explain the importance of loads on structures • Students can carry out experiments to test how a lintel works • Students can carry out experiments to compare compressive and tensile forces • Students can generate several designs of a stadium that contains at least one arch, a lintel and a tensile roof • Students can develop a plan to create a stadium that clearly shows the effective use of time, resources, materials and equipment • Students can work effectively as a team and adhere to deadlines • Students can create a model stadium that contains at least one arch, a tensile structure and at least one lintel • Students can demonstrate a positive attitude when working on a lengthy technology project that requires lateral thinking and collaboration
2 wks	<p>Revision, Consolidation and Examinations</p>	<ul style="list-style-type: none"> • Students can define technology and explain the role of technology and technological processes in the international society • Students can use the Investigate, Design and Plan components of the Design Cycle with confidence • Students can make relevant inferences from a given texts, case studies and scenarios • Students can generate a number of designs to match a devised design brief and design specification • Students can produce a plan that follows the required number of logical steps • Students can produce a plan that shows effective time management and safe use of equipment and resources • Students can work independently when engaging in problem-solving and when applying their knowledge of technology and the Design Cycle • Students can evaluate a plan and make valid suggestions for improvement • Students can demonstrate a positive and engaged attitude when working in the abstract realm of technological problem solving

CURRICULUM GUIDE • IB MYP YEAR 4

TERM 2 10 wks	Mini Personal Project	<ul style="list-style-type: none"> ● Students generate a meaningful design brief ● Students can carry out effective research relating to their personal project ● Students can write a meaningful design specification pertinent to their product ● Students can generate three designs based on their design specification ● Students can select one design and justify their selection ● Students can effectively create a product or solution ● Students can evaluate their product and make suggestions for improvement ● Students can demonstrate a positive attitude when working in technology and work independently
TERM 3 8 wks	Manufacturing Technology: Designing and Creating Teacher Aided Materials Strands: Information, Materials	All/Any: Links will depend on the form of Technology selected by the students

TECHNOLOGY ASSESSMENT CRITERIA

ASSESSMENT CRITERIA		MAXIMUM SCORE
Criterion A	Investigate	6
Criterion B	Design	6
Criterion C	Plan	6
Criterion D	Create	6
Criterion E	Evaluate	6
Criterion F	Attitudes in technology	6