

Curriculum Map GIS 2018-19	Curriculum: GCSE double award Synergy and MYP												
Subject: Biology, Chemistry and Physics	Subject Lead: Robin Benton												
Key Concepts: Change, Systems, Relationships	Global Context (Main): Scientific and Technical Innovation												
Related Concepts: Balance, Environment, Transformation, Consequences, Energy, Evidence, Form, Function, Interaction, Models, Movements, Patterns	ATL: Thinking skills, Social skills, Communication skills, Self-management skills, Research Skills.												
<p>Aims</p> <p>The aims of MYP sciences are to encourage and enable students to:</p> <ul style="list-style-type: none"> • understand and appreciate science and its implications • consider science as a human endeavour with benefits and limitations • cultivate analytical, inquiring and flexible minds that pose questions, solve problems, construct explanations and judge arguments • develop skills to design and perform investigations, evaluate evidence and reach conclusions • build an awareness of the need to effectively collaborate and communicate • apply language skills and knowledge in a variety of real-life contexts • develop sensitivity towards the living and non-living environments • reflect on learning experiences and make informed choices. <p>Assessment</p> <p>Assessment for Science courses in all years programme is criterion-related, based on four equally weighted assessment criteria:</p> <table border="0" data-bbox="80 890 965 1002"> <tr> <td>Criterion A</td> <td>Knowing & Understanding</td> <td>Maximum 8</td> </tr> <tr> <td>Criterion B</td> <td>Inquiring & Designing</td> <td>Maximum 8</td> </tr> <tr> <td>Criterion C</td> <td>Processing & Evaluating</td> <td>Maximum 8</td> </tr> <tr> <td>Criterion D</td> <td>Reflecting on the impacts of science</td> <td>Maximum 8</td> </tr> </table>	Criterion A	Knowing & Understanding	Maximum 8	Criterion B	Inquiring & Designing	Maximum 8	Criterion C	Processing & Evaluating	Maximum 8	Criterion D	Reflecting on the impacts of science	Maximum 8	<p>Objectives</p> <p>A. Knowing and understanding</p> <p>Students develop scientific knowledge (facts, ideas, concepts, processes, laws, principles, models and theories) and apply it to solve problems and express scientifically supported judgments. Assessment of this objective must be done using tests or exams. To reach the highest level students must make scientifically supported judgments about the validity and/or quality of the information presented to them. Assessment tasks could include questions dealing with “scientific claims” presented in media articles, or the results and conclusions from experiments carried out by others, or any question that challenges students to analyse and examine the information and allows them to outline arguments about its validity and/or quality using their knowledge and understanding of science.</p> <p>B. Inquiring and designing</p> <p>Intellectual and practical skills are developed through designing, analysing and performing scientific investigations. Although the scientific method involves a wide variety of approaches, the MYP emphasizes experimental work and scientific inquiry. When students design a scientific investigation they should develop a method that will allow them to collect sufficient data so that the problem or question can be answered. To enable students to design scientific investigations independently, teachers must provide an open-ended problem to investigate. An open-ended problem is one that has several independent variables appropriate for the investigation and has sufficient scope to identify both independent and controlled variables. In order to achieve the highest level for the strand in which students are asked to design a logical, complete and safe method, the student would include only the relevant information, correctly sequenced.</p> <p>C. Processing and evaluating</p> <p>Students collect, process and interpret qualitative and/or quantitative data, and explain conclusions that have been appropriately reached. MYP sciences helps students to develop analytical thinking skills, which they can use to evaluate the method and discuss possible improvements or extensions.</p> <p>D. Reflecting on the impacts of science</p> <p>Students gain global understanding of science by evaluating the implications of scientific developments and their applications to a specific problem or issue. Varied scientific language will be applied in order to demonstrate understanding. Students are expected to become aware of the importance of documenting the work of others when communicating in science. Students must reflect on the implications of using science, interacting with one of the following factors: moral, ethical, social, economic, political, cultural or environmental, as appropriate to the task. The student’s chosen factor may be interrelated with other factors.</p>
Criterion A	Knowing & Understanding	Maximum 8											
Criterion B	Inquiring & Designing	Maximum 8											
Criterion C	Processing & Evaluating	Maximum 8											
Criterion D	Reflecting on the impacts of science	Maximum 8											

Units	MYP1	MYP2	MYP3	MYP4	MYP5
Unit 1 KC RC GC SOI Criteria ATL Content	Theme: Chemistry Change Form, Patterns S&TI The form of patterns determines change A & C Thinking skills Elements and Compounds	Theme: Chemistry Change Transformation, Patterns S&TI Transforming patterns causes changes B & C Thinking skills Causing chemical reactions	Theme: How Science Works Systems Evidence, Patterns S&TI Systems of patterns provide evidence A & C Thinking skills, Research Skills Biology, Chemistry, Physics	Theme: Biology and Physics Change Transformation, Energy S&TI The transformation of energy during changes A & B Thinking skills Transport over larger distances	Theme: Chemistry and Physics Change Transformation, Patterns S&TI Changes of pattern transform dynamics A & B Thinking skills Interactions over small & large distances
Unit 2 KC RC GC SOI Criteria ATL Content	Theme: Physics Change Transformation, Movements S&TI Changing movements determine transformations A & B Thinking skills Solids, liquids and gases	Theme: Physics Change Transformation, Patterns S&TI Transforming patterns causes changes A & D Thinking skills Electricity	Theme: Maths in Science Change Models, Patterns S&TI Patterns of change inform models B & C Thinking skills Biology, Chemistry, Physics	Theme: Biology and physics Change Transformation, Energy S&TI The transformation of energy during changes B & D Thinking skills Interactions with the environment	Theme: Chemistry and Physics Change Transformation, Energy S&TI The transformation of energy during changes A & B Thinking skills Movement and Interactions
Unit 3 KC RC GC SOI Criteria ATL Content	Theme: Biology Change Form, Interaction S&TI Changes of interaction determine form B & D Thinking skills Building the human body	Theme: Biology Change Form, Interaction S&TI Changes of interaction determine form A & B Thinking skills What gives us energy?	Theme: Biology and Physics Change Form, Patterns S&TI The pattern of forms endures during changes A & B Thinking skills Building Blocks	Theme: Biology and Physics Change Form, Patterns S&TI The pattern of forms endures during changes A & B Thinking skills Explaining changes	Theme: Chemistry and Physics Change Form, Patterns S&TI The pattern of forms endures during changes S&TI C & D Thinking skills Movement and Interactions
Unit 4 KC RC GC SOI Criteria ATL Content	Theme: Physics Change Transformation, Energy S&TI Energy transforms during changes A & B Thinking skills Forces	Theme: Biology Change Transformation, Patterns S&TI Transforming patterns causes changes C & D Thinking skills Who do you think you are?	Theme: Biology and Physics Change Transformation, Function S&TI Functions change during transformations C & D Thinking skills, Research Skills Building Blocks	Theme: Biology and Physics Change Transformation, Patterns S&TI Patterns change systematically during transformation C & D Thinking skills, Communication skills Explaining Change	Theme: Physics: Space Change Transformation, Environment S&TI Transforming the environment through innovative changes C & D Thinking skills Guiding Spaceship Earth
Unit 5 KC RC GC SOI Criteria ATL Content	Theme: Physics Change Transformation, Energy S&TI Energy transforms during changes C & D Thinking skills Making Energy work for us	Theme: Chemistry Change Transformation, Patterns S&TI Transforming patterns causes changes A & C Thinking skills The Earth and its materials	Theme: Biology and Physics Change Transformation, Consequences S&TI The consequences of transformations is irreversible change C & D Thinking skills Building Blocks	Theme: Chemistry and Physics Change Transformation, Patterns S&TI Patterns change systematically during transformation C & D Thinking skills Building Blocks for Understanding	Theme: Exam revision Change Transformation, Patterns S&TI Patterns change systematically during transformation A B C D Thinking skills
Unit 6 KC RC GC SOI Criteria ATL Content	Theme: Biology Change Transformation, Patterns S&TI Patterns change systematically during transformation A & B Thinking skills Studying the Environment	Theme: Physics Change Transformation, Patterns S&TI Patterns change systematically during transformation A & B Thinking skills Waves	Theme: Biology and Physics Change Transformation, Patterns S&TI Patterns change systematically during transformation A & B Thinking skills Transport over larger distances	Theme: Chemistry and Physics Change Transformation, Patterns S&TI Patterns change systematically during transformation A & C Thinking skills Building Blocks for Understanding	Theme: Exams Change Transformation, Patterns S&TI A B C D Thinking skills

