

Science - Subject Overviews – MYP 5



* All units taught in MYP Years 1-5 are continuously being developed and improved to best meet the needs of the students at LIS. Therefore, the following Subject Overview is only a reflection of current plans for the course. Some changes to this document may occur as a result of planning done throughout the academic year.

	Unit	Concepts	Global Context	Statement of Inquiry	Inquiry Questions	MYP Objectives ATL Skills	Content
Unit 1	Genetics and Biotechnology	Relationships Evidence	Identities and relationships	The human physical form is dictated by genetic relationships and patterns and this knowledge provides evidence for identification and decision-making.	<p>Factual: What is DNA? In what way is DNA the basis for inheritance and evolution?</p> <p>Conceptual: How does the genetic code produce physical characteristics?</p> <p>Debatable: To what extent should humans manipulate human reproduction or genetic characteristics?</p>	<p>Criterion B: i; ii; iii; iv</p> <p>Criterion D: i; ii; iii; iv</p> <p>ATL Skills Communication</p>	<p>DNA</p> <p>Inheritance</p> <p>Mitosis/Meiosis</p> <p>Genetic Disease</p> <p>Resources: Science Bits Laboratory Equipment</p>
Unit 2	Evolution	Change Environment	Globalisation and Sustainability Sustainable	Species change over time through interactions with their environment: the evolution of	<p>Factual: What is evolutionary change?</p>	<p>Criterion A: i; ii; iii</p> <p>Criterion D: i; ii; iii; iv</p>	<p>Defining a species</p> <p>Formation of new species</p>

			Development	humans has impacted global biodiversity in ways that may not be sustainable.	<p>Conceptual: Why do species change over time?</p> <p>Debatable: Is the current human population sustainable? Could this inadvertently impact the process of natural selection?</p>	<p>ATL Skills Communication Affective Information literacy Media literacy Critical thinking</p>	<p>Species extinction</p> <p>Lamarckism</p> <p>Darwinism</p> <p>Resources: Science Bits Laboratory Equipment</p>
Unit 3	Quantitative Chemistry (Stoichiometry)	Change Transformation	<p>Scientific and technical innovation</p> <p>Innovation and sustainability</p>	<p>Understanding of stoichiometry and states of matter change contribute to innovation and sustainability through the transformation of materials and resources</p>	<p>Factual: What is chemical change?</p> <p>Conceptual: How do elements and compounds transform from one to another in a chemical reaction?</p> <p>Debatable: Could the scientific community be more innovative and sustainable in</p>	<p>Criterion B: i, ii, iii</p> <p>Criterion C: i, ii, iii, iv, v</p> <p>ATL Skills Communication Affective Information literacy Critical thinking Transfer</p>	<p>Chemical reactions</p> <p>The mole</p> <p>Types of mixtures</p> <p>Concentration of a solution</p> <p>Acidic and Basic solutions</p> <p>Model of a chemical reaction</p> <p>Stoichiometry</p>

					the way in which chemical wastewater is disposed off in a factory?		<p>Calculations and chemical reactions</p> <p>Controlled discharges</p> <p>Resources: Science Bits Laboratory Equipment</p>
Unit 4	Waves	<p>Systems</p> <p>Energy</p>	<p>Orientation in space and time</p> <p>Frequency</p>	Understanding how energy and waves interact is essential for understanding natural phenomena in real world systems.	<p>Factual: What is a wave?</p> <p>Conceptual: How do waves interact in different mediums?</p> <p>Debatable: Could some waves be harmful to health?</p>	<p>Criterion A: i, ii, iii</p> <p>ATL Skills Communication Organisation Reflection Information literacy</p>	<p>What is a wave?</p> <p>Sound waves</p> <p>Electromagnetic waves Light waves</p> <p>Light waves and colour</p> <p>Texts/Resources: Science Bits Laboratory equipment</p>
Unit 5	Electricity and Magnetism	<p>Relationships</p> <p>Form</p>	<p>Orientation in space and time</p> <p>Constraints and adaptation</p>	Electrical and magnetic forces fill space as fields; understanding their form and relationships allows us to transform energy in useful ways.	<p>Factual: What is electricity and magnetism?</p> <p>Conceptual: How does the relationship between electricity and magnetism allow us to transfer energy in useful ways? From one form to another?</p>	<p>Criterion B: i, ii, iii, iv</p> <p>Criterion C: i, ii, iii, iv, v</p> <p>ATL Skills Communication Collaboration Organisation Affective Critical-thinking</p>	<p>Balloons, Lightning and Circuits</p> <p>Electric charge</p> <p>Electric force and electric field</p> <p>Series and parallel circuits</p> <p>Electricity production and distribution</p>

					<p>Debatable: How would a reduction of electrical output have an impact on society? Would society be able to adapt?</p>		<p>Magnetism and magnetic forces</p> <p>Electromagnetism</p> <p>Texts/Resources: Science Bits Lab Equipment</p>
Unit 6	Organic Chemistry	Systems Balance	Globalisation and sustainability Natural	Exploring organic chemistry as a system governed by balance, students investigate the natural processes and interactions underlying the formation, structure, and functions of organic compounds in the environment?	<p>Factual: What is an organic compound?</p> <p>Conceptual: How are organic compounds such as alkanes and alkenes manufactured?</p> <p>Debatable: Should the benefits of synthetic organic compounds in pharmaceuticals and materials outweigh the potential environmental and health risks associated with their production and usage?</p>	<p>Criterion A: i, ii, iii</p> <p>Criterion D: i, ii, iii, iv, v</p> <p>ATL Skills Communication Collaboration Affective Information Literacy Media literacy Critical-thinking Transfer</p>	<p>Formula writing</p> <p>Hydrocarbons</p> <p>Oxygenated compounds</p> <p>Nitrogenated compounds</p> <p>Texts/resources: Science Bits Laboratory equipment</p>