Year 2 Science

Subject Group Overview

| Unit title | Key concept | Related Concept(s) | Global context & Exploration | Statement of inquiry | MYP subject specific objectives and strands | Content (topics, knowledge, skills) |
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| Nature of Science | Relationship | Interaction<br>Patterns | GC: Scientific and Technical Innovation<br><br>Ex: Methods | Relationships in systems, processes and solutions are based on patterns and interactions between variables. | A, B, C, D: All strands | Scientific investigations of various types are carried out by<br>defining a problem, identifying variables, collecting and interpreting data, and forming conclusions.<br><br>Scientific knowledge is a result of a great deal of debate within the scientific community.<br><br>Scientific models have many limitations and benefits.<br><br>Theories and laws have different meanings in science.<br><br>Empirical evidence is an accumulation of data that supports scientific ideas. |

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| Energy<br><br>Transformation | Change | Energy Transformation | GC: Scientific and Technical Innovation<br><br>Ex: Processes and solutions | Observing changes in movement allows scientists to detect and understand the transformation of energy. | B: all strands | Energy transformations can occur from one form to another.<br><br>The law of conservation of energy states that energy cannot be created nor destroyed only changed from one form to another.<br><br>Adding or removing heat from a system may result in a temperature change and possibly a change of state.<br><br>Heat is transferred from warmer to colder areas until they reach the same temperature. |
| Interdependence and Relationships among Organisms (20 days) | Systems | Balance Interactions | GC: Identities and Relationships<br><br>Ex: Competition and Cooperation | Competition & cooperation interactions within a system affects its balance. | D: All strands | -Producers, consumers, and decomposers play specific roles in the energy transfers within a food web.<br>-Organisms establish relationships within a community. (Examples: mutualism, parasitism, predation, competition, and commensalism.)<br>-Limiting factors include: food, shelter, water, space, disease, |

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| | | | | | | parasitism, predation, reproductive habitat such as nesting.<br>-Human activity and natural events impact changes in the environment, ex: deforestation, urbanization, desertification, erosion, air quality, water quality, changing the flow of water. |
| DNA and Heredity (15 days) | Relationships | Consequences<br>Transformation | GC: Orientation in Space and Time<br><br>Ex: variability | Transformation of relationships have variety of consequences. | A: all strands | DNA is located in chromosomes within the cells of living things and carries genetic information to be passed to future generations known as heredity.<br><br>Punnett squares can be used to determine the probability of phenotypes and genotypes.<br><br>Sexual reproduction requires the process of meiosis. Asexual reproduction requires the process of mitosis.<br><br>Specific ways that biotechnology impacts society, individuals, and the environment are cloning, artificial selection, and genetic engineering. |

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| Light and Sound (15 days) | Relationships | Interaction<br>Movement | GC: Orientation in Space and Time<br><br>Ex:exchange and interaction | There is a relationship between movement and interactions of various materials. | D: All strands | The electromagnetic spectrum displays varying wavelengths of energy.<br><br>Light and sound travel at different speeds through different materials.<br><br>The properties of light are reflection, refraction, and absorption. |
| Diversity and Evolution (20 days) | Change | Environment<br><br>Evidence | GC: Scientific and Technical Innovation<br><br>Ex: Adaptation | Evolution and adaptations are evidence of environmental change. | C: all strands | Fossil evidence supports the scientific theory of evolution that organisms evolved from earlier species.<br><br>Genetic variations and environmental factors contribute to evolution by natural selection and diversity of organisms.<br><br>Inability of a species to adapt within an environment can contribute to the extinction of that species. |
| Earth's Structures/Forms of Energy/Heat Transfer (30 days) | Change | Consequences<br><br>Evidence | GC: Orientation in Space and Time<br><br>Ex:Natural and human landscapes and resources | Consequences of changing landscapes are supported by evidence. | A: all strands<br>C: all strands | Composition and layers of the solid Earth include the lithosphere, mantle, metallic liquid and solid core.<br><br>The patterns within the rock |

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| | | | | | | cycle include plate tectonics, erosion, weathering, and mountain building.<br><br>Geologists apply radioactive data and the law of superposition to explain the age of the Earth.<br><br>Heat flows within Earth causing movement such as earthquakes and volcanic eruptions, and creates mountains and ocean basins.<br><br>Evidence supports the theory of plate tectonics, that Earth's crustal plates cause slow and rapid changes in Earth's surface. |