<table>
<thead>
<tr>
<th>Unit Name</th>
<th>Weeks</th>
<th>Unit Length</th>
<th>Key Concepts</th>
<th>Standard</th>
<th>Subject-group overview: Sciences Level 2 (Grade 7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scientific Method and Processes</td>
<td>4 weeks + ongoing</td>
<td>8 weeks</td>
<td>Relationships in sciences indicate the connections found among variables through observation or experimentation. These relationships also can be tested through experimentation. Scientists often search for the connections between form and function.</td>
<td>ETS1-1</td>
<td>Lucile Erwin Middle School an IB World School</td>
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<tr>
<td>Chemistry of Living Things</td>
<td>8 weeks</td>
<td>8 weeks</td>
<td>Change- Exploring change allows students to examine forces that shape the world past, present and future. Inquiry into the concept of change moves students to consider causes, processes and consequences natural and artificial, intentional and unintentional.</td>
<td>ETS1-3</td>
<td>2 weeks</td>
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<tr>
<td>Genes and Genetics</td>
<td>8 weeks</td>
<td>8 weeks</td>
<td>(Darwin’s Evidences, How Genes Act w/Evolution, How does Climate Drive Evolution, Commonalities between living and non-living species on the Earth)</td>
<td>ETS1-1</td>
<td>Energy</td>
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<tr>
<td>Evolution</td>
<td>8 weeks</td>
<td>8 weeks</td>
<td>(Abiotic and Biotic Factors work together to protect to provide resources essential to the success of the organism)</td>
<td>ETS1-2</td>
<td>2 weeks</td>
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<td>Ecology</td>
<td>8 weeks</td>
<td>2 weeks</td>
<td>(Understand the relationships between kinetic and potential energy, How does mass influence speed? Planets, gravitational potential energy, Transformation of energy. Chemical change, what evidence exists? What are examples of physical vs chemical changes. Law of conservation of mass).</td>
<td>ETS1-4</td>
<td>2 weeks</td>
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*Design your own exercise lab - understanding body system interactions.
*Bio Ethics Essay, GMO Presentation, Fish Population Lab
* Me as a Scientist, Virulent Viruses, Protist Labs, Simulations
* Biome Bottles, Minamato Bay Lab, Ecosystems
* Simulations, pendulum lab différent mass objects. Neal Armstrong on the moon.

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Systems</th>
<th>Change</th>
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<th>Relationships</th>
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<tbody>
<tr>
<td>in sciences describe the sets of components that function due to their interdependence or complementary nature.</td>
<td>Systems are sets of interacting or interdependent components. Everything in the known universe is a component of a system and generally also a part of multiple interacting and interdependent systems. Systems provide structure and</td>
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</table>
Related Concepts

**Models**

Representations used for testing scientific theories or proposals that can be accurately represented and validated; simulations used for explaining or predicting processes, which may not be observable or to understand the dynamics of multiple underlying phenomena of a complex system.

**Patterns**

The distribution of variables in time or space; sequences of events or features.

**Balance (biology)**

The dynamic equilibrium that exists among members of a stable natural community, the regulation of the internal environment of an organism.

**Evidence**

Support for a proposition derived from observation and interpretation of data.

**Environment (biology)**

All of the basic and abiotic factors that act on an organism, population or community and influence its survival, evolution and development.

**Interactions**

The effect or effects two or more systems, bodies, substances or organisms have on one another, so that the overall result is not simply the sum of the separate effects.

**Evidence**

Support for a proposition derived from observation and interpretation of data.

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**Energy**

The capacity of an object to do work or transfer heat.

Global Context

**Scientific and technical innovation**

How do we understand the world in which we live?

Students will explore the natural world and its limits, the interaction between people and the natural world; how humans use their understanding of scientific principles; the impact of scientific and technological advances on communities and environments; the impact of environments on human activity; how humans adapt environments to their needs.

Possible explorations to develop:

- Systems, models, methods, products, processes and solutions
- Adaptation, ingenuity and progress
- Opportunity, risk, consequences and responsibility
- Modernization, industrialization and engineering
- Digital life, virtual environments and the Information Age
- The biological revolution
- Mathematical puzzles, principles and discoveries

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**Criterion objectives/strand assessment task**

**B-Inquiring and Designing**

i. explain a problem or question to be tested by a scientific investigation

ii. formulate a testable hypothesis and explain it using scientific reasoning

iii. explain how to manipulate the variables, and explain how data will be collected

**A-Knowing and Understanding**

i. explain scientific knowledge

ii. apply scientific knowledge and understanding to solve problems set in familiar and unfamiliar situations

iii. analyse and evaluate information to make scientifically supported judgments

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**C-Processing and evaluating**

i. present collected and transformed data

ii. interpret data and explain results using scientific reasoning

iii. evaluate the validity of a hypothesis based on
<table>
<thead>
<tr>
<th>ATL Skill</th>
<th>Thinking Skills</th>
<th>Research Skills</th>
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<th>Research Skills</th>
<th>Social Skills</th>
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<tbody>
<tr>
<td>Thinking Skills</td>
<td>(critical thinking - interpret data, evaluate evidence)</td>
<td>Make connections between scientific research and related moral, ethical, social, economic, political, cultural or environmental factors.</td>
<td>(affective skills - demonstrate persistence and perseverance)</td>
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<td>Self-management skills</td>
<td>Communication Skills</td>
<td>Present information in a variety of formats and platforms</td>
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<td>Statement of Inquiry</td>
<td>Scientists use experimentation to develop models and establish patterns through scientific inquiry.</td>
<td>Relationship, balance, and interactions of a system can be understood or explained by using models.</td>
<td>Exploring changes in patterns and their consequences helps us make informed decisions regarding our world.</td>
<td>Gathering and analyzing evidence to explain the impact of environmental factors on change over time.</td>
<td>A system can be affected by its interactions with others and needs to maintain balance in order to survive.</td>
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<td>Transformation of energy through various interactions establishes unique and predictable relationships.</td>
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<td>LDC</td>
<td>Argumentative or Informational/Explanatory Length of Writing</td>
<td>Yes argumentative multi-paragraph</td>
<td>Yes argumentative multi-paragraph</td>
<td>Common Assignment</td>
<td>Yes informational multi-paragraph</td>
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