Ms. Knapp

8th Grade Science

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**Course Goals:**

* Understand balanced and unbalanced forces.
* Identify an atom as the smallest unit of matter.
* Understand the conservation and transfer of energy.
* Understand the interactions of matter and energy and the changes that occur.
* Understand Earth systems, structures, and processes.
* Recognize the importance of the hydrosphere to various life forms.
* Understand the history of Earth and its life forms based on fossil records and landforms.
* Understand evolution and genetics of organisms.
* Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.
* Understand how organisms interact in different ecosystems.

**Objectives:**

*One World*

* The learner should understand the interdependence of science and society.
* The learner is expected to discuss how science is applied and used to solve specific problems in life and society.
* The learner should be given the opportunity to explore local and global scientific issues and evaluate the interaction between science and scientific developments with social, economic, political, environmental, cultural and ethical factors.

*Communication*

* The learner should be able to demonstrate understanding when communicating scientific information.
* The learner should use appropriate scientific language, a range of communication modes and the most appropriate communication format.

*Knowledge and Understanding*

* The learner should show his or her understanding of the main scientific ideas and concepts of science, by applying these to solve problems in familiar and unfamiliar situations.
* The learner should develop critical-thinking skills to analyze and evaluate scientific information.

*Scientific Inquiry*

* The learner is expected to design and carry out scientific investigations independently.
* The learner should be able to (i) state a problem that can be tested by an investigation; (ii) formulate a suitable hypothesis; (iii) identify and manipulate variables; (iv) plan an appropriate investigation including the method and materials; (v) evaluate the method.

*Processing Data*

* The learner should be able to organize and transform data by numerical calculations into diagrammatic form (tables, graphs and charts) and draw and explain appropriate conclusions.

*Attitudes in Science*

* The learner should carry out scientific investigations using materials and techniques skillfully and safely and showing respect for the living and non-living environment
* The learner should work effectively as a member of a team, collaborating, acknowledging and respecting the views of others as well as ensuring a safe working environment.

**Resources:**

* Textbook
* Labs and Investigations
* Pre-published and teacher-made worksheets
* Interactive notebook
* Gizmos and other computer software
* Projects

**Curriculum Schedule:**

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| --- | --- | --- | --- |
| *Time Frame* | *Topics Studied* | *Standard(s)* | *Big Idea* |
| July | Technology; Remote Sensing; Reflective Curves; Satellites |  | Man continually searches for new ways to explain the World. |
| August | Landforms; Weathering and Erosion; Natural Disasters | 8.E | Past actions can shape the future. |
| September | Pangaea; Plate Tectonics; Earthquakes; Continental Drift | 8.E | Single events can impact the broader picture. |
| October-December | Evolution; Geologic Time Scale; Fossils; Law of Superposition  | 8.E, 8.L | Order impacts the outcome. |
| January-February | Cell Theory; Protista; Eukaryotes; Plants; Functions of Life; Relationships Between Living Organisms; Osmosis; Diseases and Viruses; DNA; Biotechnology | 8.L | Systems rely on one underlying principle or rule. |
| March-April | Classifying and Identifying Elements; The Periodic Table; Changes in Matter and Energy; Chemistry and Chemical Reactions; Conservation of Matter; pH Scale; Balancing Chemical Equations; Environmental Implications of Different Energy Sources | 8.P, 8.L | The World favors balance and rules. |
| May | Density and Buoyancy; Factors Affecting Dissolving; Phases of Water; Properties of Water; Water Distribution; The Water Cycle; Uses of Water; The Hydrosphere | 8.P, 8.E | There is symmetry and patterns everywhere. |
| June | Review | All |  |