Ms. Knapp

7th Grade Science

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**Course Goals:**

* Understand motion, the effects of forces on motion and the graphical representations of motion.
* Understand balanced and unbalanced forces.
* Identify an atom as the smallest unit of matter.
* Understand how the cycling of matter (water and gases) in and out of the atmosphere relates to Earth’s atmosphere, weather and climate and the effects of the atmosphere on humans.
* Understand the processes, structures and functions of living organisms that enable them to survive, reproduce and carry out the basic functions of life.
* Understand the role of decomposers in an ecosystem.
* Understand the interactions of matter and energy and the changes that occur.
* Understand the relationship of the mechanisms of cellular reproduction, patterns of inheritance and external factors to potential variation among offspring.

**Objectives:**

*One World*

* Understand the interdependence of science and society.
* Expected to discuss how science is applied and used to solve specific problems in life and society.
* 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*

* Demonstrate understanding when communicating scientific information.
* Use appropriate scientific language, a range of communication modes and the most appropriate communication format.

*Knowledge and Understanding*

* Show understanding of the main scientific ideas and concepts of science, by applying these to solve problems in familiar and unfamiliar situations.
* Develop critical-thinking skills to analyze and evaluate scientific information.

*Scientific Inquiry*

* 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*

* Organize and transform data by numerical calculations into diagrammatic form (tables, graphs and charts) and draw and explain appropriate conclusions.

*Attitudes in Science*

* Carry out scientific investigations using materials and techniques skillfully and safely and showing respect for the living and non-living environment
* 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 Investigation
* Pre-published and teacher-made worksheets
* Interactive notebook
* Gizmos and other computer software
* Videos
* Projects

**Curriculum Schedule:**

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| *Time Frame* | *Topics Studied* | *Standard* | *Big Idea* |
| July | Scientific Method; Information Systems and Technology; Safety Procedures |  | Man constantly explores the best way to find the truth. |
| August- November | Cycles of Matter; Composition, Properties and Structure of Atmosphere; Measure and Predict Air Quality; Evaluate How Humans Affect Air Quality; Predict Atmospheric Conditions and Hazardous Weather; Assess Use of Technology to Predict Weather | 7.E | While there is constantly change, the World favors balance. |
| December-March | Body Systems; Homeostasis; Growth and Development of Humans; Effects of Environmental Influences on Human Health | 7.L | Every action has a consequence.  Structure defines a system. |
| March-April | Structure of Living Organisms; Evolution; Cell Division; DNA; Heredity and Genetics; Reproduction | 7.L | Patterns can be used to make predictions. |
| May | Forces; Motion; Gravity, Friction, and Pressure; Work; Simple Machines; Energy Transfer | 7.P | The outcome depends on the input. |
| June | Review | All |  |