

CURRICULUM MAP

Science Grade 7

1 st Nine Weeks	2 nd Nine Weeks
<p>Body Plans / Diversity</p> <p>(Body Systems)</p> <p>Life Science BM:A</p> <p><i>Explain that the basic functions of organisms are carried out in cells and groups of specialized cells form tissues and organs; the combination of these cells make up multicellular organisms that have a variety of body plans and internal structures.</i></p> <p><i>A-1 Investigate the great variety of body plans and internal structures found in multicellular organisms.</i></p> <p><i>B-8 Investigate the great diversity among organisms.</i></p>	<p>Matter</p> <p>Introduction to Elements, Compounds and Periodic Table</p> <p>Physical Science BM:A</p> <p><i>Relate uses, properties and chemical processes to the behavior and/or arrangement of the small particles that compose matter.</i></p> <p><i>A-1 Investigate how matter can change forms but the total amount of matter remains constant.</i></p> <p>Energy Transformations</p> <p>Physical Science BM:D</p> <p><i>In simple cases, describe the motion of objects and conceptually describe the effects of forces on an object.</i></p> <p><i>D-2 Describe how an object can have potential energy due to its position or chemical composition and can have kinetic energy due to its motion.</i></p> <p><i>D-5 Trace energy transformation in a simple closed system (e.g., a flashlight).</i></p> <p>Physical Science BM:D</p> <p><i>D-3 Identify different forms of energy (e.g., electrical, mechanical, chemical, thermal, nuclear, radiant and acoustic).</i></p> <p><i>D-4 Explain how energy can change forms but the total amount of energy remains constant.</i></p>

5/1/2006

Power Indicators are in italics.

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3 rd Nine Weeks	4 th Nine Weeks
<p>Theme – Weather Earth Science BM:C <i>Describe interactions of matter energy throughout the lithosphere, hydrosphere and atmosphere (e.g., water cycle, weather and pollution)</i> Weather Unit <i>C-1 Explain the biogeochemical cycles which move materials between the lithosphere (land), hydrosphere (water) and atmosphere (air).</i> C-2 Explain that Earth’s capacity to absorb and recycle materials naturally (e.g., smoke, smog and sewage) can change the environmental quality depending on the length of time involved (e.g., global warming). C-3 Describe the water cycle and explain the transfer of energy between the atmosphere and hydrosphere. C-4 Analyze data on the availability of fresh water that is essential for life and for most industrial and agricultural processes. Describe how rivers, lakes and groundwater can be depleted or polluted becoming less hospitable to life and even becoming unavailable or unsuitable for life. C-5 Make simple weather predictions based on the changing, cloud types associated with frontal systems. C-6 Determine how weather observations and measurements are combined to produce weather maps and that data for a specific location at one point in time can be displayed in a station model. C-7 Read a weather map to interpret local regional and national weather. C-8 Describe how temperature and precipitation determine climate zones (biomes) (e.g., desert, grasslands, forests, tundra and alpine). C-9 Describe the connection between the water cycle and weather-related phenomenon (e.g., tornadoes, floods, droughts and hurricanes). Resources: GLOBE Atmosphere protocols, NSTA meteorology, Prentice Hall Weather & Climate, It’s About Time IES Weather & Climate.</p>	<p>Ecology Life Science BM:C <i>Explain how energy entering the ecosystems as sunlight supports the life of organisms through photosynthesis and the transfer of energy through the interactions of organisms and the environment.</i> C-2 Investigate how organisms or populations may interact with one another through symbiotic relationships and how some species have become so adapted to each other that neither could survive without the other (e.g., predator-prey, parasitism, mutualism and commensalism). Ecosystems Life Science BM:C C-3. Explain how the number of organisms an ecosystem can support depends on adequate biotic (living) resources (e.g., plants, animals) and abiotic (non-living) resources (e.g., light, water and soil). C-7. Explain that photosynthetic cells convert solar energy into chemical energy that is used to carry on life functions or is transferred to consumers and used to carry on their life functions. <i>C- 6. Summarize the ways that natural occurrences and human activity affect the transfer of energy in Earth's ecosystems (e.g., fire, hurricanes, roads and oil spills).</i> Overpopulation/Sustainable Development Life Science BM:D <i>Explain how extinction of a species occurs when the environment changes and its adaptive characteristics are insufficient to allow survival (as seen in evidence of the fossil record).</i> 4. Investigate how overpopulation impacts an ecosystem. 5. Explain that some environmental changes occur slowly while others occur rapidly (e.g., forest and pond succession, fires and decomposition).</p>

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Embedded throughout are the following:

Scientific Ways of Knowing

- A. Use skills of scientific inquiry processes (e.g., hypothesis, record keeping, description and explanation).
- B. Explain the importance of reproducibility and reduction of bias in scientific methods.
- C. Give examples of how thinking scientifically is helpful in daily live.
 1. Show that the reproducibility of results is essential to reduce bias in scientific investigations.
 2. Describe how repetition of an experiment may reduce bias.
 3. Describe how the work of science requires a variety of human abilities and qualities that are helpful in daily life (e.g., reasoning, creativity, skepticism, and openness).

Scientific Inquiry

- A. Explain that there are differing sets of procedures for guiding scientific investigations and procedures are determined by the nature of the investigation, safety considerations and appropriate tools.
- B. Analyze and interpret data from scientific investigations using appropriate mathematical skills in order to draw valid conclusions.
 1. Explain that variables and controls can affect the results of an investigation and that ideally one variable should be tested at a time; however, it is not always possible to control all variables.
 2. Identify simple independent and dependent variables.
 3. *Formulate and identify questions to guide scientific investigations that connect to science concepts and can be answered through scientific investigations.*
 4. Choose the appropriate tools and instruments and use relevant safety procedures to complete scientific investigations.
 5. Analyze alternative scientific explanations and predictions and recognize that there may be more than one good way to interpret a given set of data.
 6. Identify faulty reasoning and statements that go beyond the evidence or misinterpret the evidence.
 7. Use graphs, tables and charts to study physical phenomena and infer mathematical relationships between variables (e.g., speed and density).

Scientific and Technology

- A. Give examples of how technological advances, influenced by scientific knowledge, affect the quality of life.
- B. Design a solution or product taking into account needs and constraints (e.g., cost, time, trade-offs, properties of materials, safety and aesthetics).
 1. Explain how needs, attitudes and values influence the direction of technological development in various cultures.
 2. Describe how decisions to develop and use technologies often put environmental and economic concerns in direct competition with each other.
 3. Recognize that science can only answer some questions and technology can only solve some human problems.
 4. *Design and build a product or create a solution to a problem given two constraints (e.g., limits of cost and time for design and production or supply of materials and environmental effects).*

4/4/06