Revised 2005

BILLINGS PUBLIC SCHOOLS
SCIENCE
Learning Objectives
Sixth Grade

Listed below by grade level are the Science Modules to be taught at each grade level. This will ensure that the Science curriculum (encompassing Life Science, Earth Science, Physical Science, and Scientific Inquiry) has not been fractured. After teaching these modules teachers have the flexibility to teach any of the other modules in their grade level.

Grade Level	Science Modules to be taught
K	**Looking at the Sky** **Exploring with the Senses**
1	**Kinds of Living Things** **Weather and Seasons**
2	**Earth Through Time** **Light and Color**
3	**Life Cycle** **Earth's Water**
4	**Animals** **Weather and Climate** **Properties of Matter**
5	**Populations and Ecosystems** **The Solid Earth** **The Solar System and Beyond**
6	**The Changing Earth** **The Nature of Matter** **Forces and Motion**

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Scientific Process

1.____construct questions that can be answered by collecting and interpreting data in a scientific investigation. (I, D, **E,** A)
2.____use or make systematic observations, accurate measurements, and control variables to formulate and conduct investigations, and to draw conclusions based on specific scientific data. (I, D, **E,** A)
3.____use collected data to make inferences, explanations, models, or predictions. (I, D, **E,** A)
4.____communicate scientific procedures and explanations. (I, D, **E,** A)

Technology

1.____select the appropriate technology, tools and/or techniques to gather, analyze and interpret data. (I, D, **E,** A)
2.____examine various topic specific programs which will enhance their global awareness in relation to scientific application and integration into other curriculum areas, taking advantage of current technology. (I, D, **E,** A)
3.____recognize that technology is essential to science because it provides tools for investigations, inquiry, and analysis. (I, D, **E,** A)

Lab Safety

1.____identify and demonstrate safe procedures in using scientific investigation. (I, D, **E,** A)
2.____identify and select tasks and responsibilities, and use materials in a safe manner. (I, D, **E,** A)
3.____have available and learn to properly use materials and equipment necessary in investigations. (I, D, **E,** A)

Historical Contributions & Careers

1.____use various resources to explore topics of personal interest and become aware of career opportunities in areas of science. (I, D, **E,** A)
2.____identify careers that are dependent on a knowledge of science. (I, D, **E,** A)
3.____use historical examples to understand scientific inquiry, the nature of scientific knowledge, and the interactions between science and society. (I, D, **E,** A)
4.____utilize the knowledge developed through discovery by women and men scientists. (I, D, **E,** A)
5.____engage in scientific activities and processes that rely on basic human qualities, such as reasoning, insight, energy, skill, and creativity. (I, D, **E,** A)

Ecology

1.____describe interactions and the complexity of all components in a local environment and community that distinguishes it from others. (I, D, **E,** A)
2.____develop a more conceptual understanding of ecological concerns. (I, D, **E,** A)

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Critical Thinking

1.____observe, explore, and experiment to promote his/her understanding of basic generalization, relationships and principles of science. (I, D, **E,** A)
2_____interpret, predict, modify and test scientific concepts using both oral and written forms. (I, D, **E,** A)
3.____use thinking and process skills to analyze, resolve, and apply scientific knowledge and technological solutions to relevant real-world problems. (I, D, **E,** A)

Life Science

Cells

1.____examine cells of plants and animals to recognize that all organisms are composed of cells which carry on the many functions to sustain life. (I, D, **E,** A)
2.____recognize and identify the major cellular components of cells such as nucleus, cytoplasm, cell membrane, cell wall. (I, D, **E,** A)
3.____explore the life processes of organisms such as respiration, waste removal, reproduction, growth, response, movement, energy transformation. (I, D, **E,** A)

Ecology

1.____examine populations and cycles within ecosystems, discovering that the number of organisms that can be supported vary according to the availability of resources. (I, D, **E,** A)
2.____identify the basic characteristics (physical, geological, and biological) of appropriate ecosystems. (I, D, **E,** A)
3.____describe the relationship existing between the ecosystem and the earth and the effects they have on each other. (I, D, **E,** A)

Microorganisms

1.____examine the effect of microbes on the environment. (I, D, **E,** A)
2.____discuss the life processes of organisms. (I, D, **E,** A)

Oceanography

1.____identify animals that are in danger of becoming extinct within the ecosystem. (I, D, **E,** A)
2.____examine the careers dealing with the conservation and preservation of ecosystems. (I, D, **E,** A)
3.____categorize different types of life ecosystems. (I, D, **E,** A)

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Physical Science

Chemistry

1.____demonstrate the characteristics of density, boiling point, and solubility. (I, D, **E,** A)
2.____separate mixtures into original substances. (I, D, **E,** A)
3.____discuss chemical reactions of substances that form new compounds. (I, D, **E,** A)
4.____describe how known elements are combined to produce compounds that can be classified as living and nonliving. (I, D, **E,** A)
5.____observe changes and classify them as physical or chemical. (I, D, **E,** A)
6.____observe materials and classify them as elements and compounds. (I, D, **E,** A)

Force

1.____classify objects possessing kinetic and potential energy. (I, D, **E,** A)

Motion

1.____practice activities that demonstrate the laws of motion. (I, D, **E,** A)

Technology

1.____describe the historical perspective that our present knowledge is built upon and the societal implications of technology. (I, D, **E,** A)

Earth Science

Geology

1.____recognize the relationship of solid rocks and soils, liquid water and the gases of the atmosphere which have different physical and chemical properties. (I, D, **E,** A)
2.____demonstrate knowledge of the earth's constant changes such as erosion, weathering, landslides, volcanoes, earthquakes. (I, D, **E,** A)
3.____investigate the relationships between the earth's structure, plate tectonics and the rock cycle. (I, D, **E,** A)