Revised 2005

BILLINGS PUBLIC SCHOOLS
SCIENCE
Learning Objectives
Fifth 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

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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Inquiry: Use methods and materials that are developmentally appropriate for individual grade level.

Scientific Process

1. ____ construct questions that can be answered by collecting and interpreting data in a scientific investigation.
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.
3. ____ use collected data to make inferences, explanations, models, or predictions.
4. ____ communicate scientific procedures and explanations.

Technology

1. ____ select the appropriate technology, tools and/or techniques to gather, analyze and interpret data.
2. ____ examine various topic specific programs which will enhance their global awareness in relation to scientific application and integration into other curriculum area, taking advantage of current technology.
3. ____ recognize that technology is essential to science because it provides tools for investigations, inquiry, and analysis.

Lab Safety

1. ____ identify and demonstrate safe procedures in using scientific investigation.
2. ____ identify and select tasks and responsibilities, and use materials in a safe manner.
3. ____ have available and learn to properly use materials and equipment necessary in investigations.

Historical Contributions & Careers

1. ____ use various resources to explore topics of personal interest and become aware of career opportunities in areas of science.
2. ____ identify careers that are dependent on a knowledge of science.
3. ____ use historical example to understand scientific inquiry, the nature of scientific knowledge, and the interactions between science and society.
4. ____ utilize the knowledge developed through discovery by women and men scientist.
5. ____ engage in scientific activities and processes that rely on basic human qualities, such as reasoning, insight, energy, skill, and creativity.

Ecology

1. ____ describe interactions and the complexity of all components in a local environment and community that distinguishes it from others.
2. ____ develop a more conceptual understanding of ecological concerns.

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Critical Thinking

1. ____ observe, explore, and experiment to promote his/her understanding of basic generalization, relationships and principles of science.
2. ____ use thinking and process skills to analyze, resolve, and apply scientific knowledge and technological solutions to relevant real-world problems.

Life Science

Ecology/Habitat – General Ecosystem

1. ____ recognize that the sun is the primary source of energy for the earth.
2. ____ examine populations and cycles within ecosystems to determine that environmental changes often result in extinction of a species.
3. ____ identify the basic characteristics (physical, geological, and biological) of appropriate ecosystems.
4. ____ recognize the relationship that exists between the ecosystem and the earth and the effects they have on each other.

Plants

1. ____ differentiate between plant structures which serve a variety of functions in growth, survival and reproduction.
2. ____ assess whether plant exhibit traits that are inherited or the result of environmental influences.

Taxonomy

1. ____ identify the major structures of plants, animals, and protests that are used for classification.

Physical Science

Energy and Sound

1. ____ recognize that energy exist in many forms such as; heat, light, chemical, nuclear, mechanical and electrical.
2. ____ investigate sources of energy, including wind, geothermal, solar, nuclear, fossil fuel, biomass, and water.
3. ____ discuss the principle of the law of conservation of energy.
4. ____ observe sounds, identify the source of the sounds, and describe how sounds are alike and different.
5. ____ classify and sequence sounds as high or low, loud or soft.
6. ____ demonstrate how to make a sound louder, softer, higher, and lower.
7. ____ recognize that sounds are produced by vibrations and they travel through matter in waves.
8. ____ state the properties of sound.
9 ____ model how sound waves move.

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Simple Machines

1. ____ verify that simple machines make work easier.
2. ____ classify different kinds of simple machines.
3. ____ identify situations in which forces are exerted.
4. ____ observe that pushes and pulls are forces.
5. ____ demonstrate that forces cause changes in motion.
6. ____ demonstrate that friction can keep an object from moving or slow down its movement.
7. ____ discuss that inertia is the tendency of matter to resist any change in motion.
8. ____ make a model of a simple machine.
9. ____ recognize careers that apply the study of engineering.
10. ____ measure forces that push and pull.

Technology

1. ____ describe the historical perspective that our present knowledge is built upon and the societal implications of technology.

Earth Science

Geology

1. ____ recognize that fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.
2. ____ identify the major components of soil, and their properties of color and texture, capacity to contain water and ability to support the growth of many kinds of plants, including those in our food supply, and describe the importance of soil to life on earth.
3. ____ recognize that rocks are mixtures of different materials.
4. ____ interpret data collected from rock tests.
5. ____ examine careers that apply to the study of geology.

Pollution

1. ____ recognize the kinds of pollution and their sources.

Solar System

1. ____ describe the basic component for the solar system as well as major theories that have been proposed throughout history.
2. ____ recognize gravity as a force in the solar system which keeps planets in orbit around the sun and governs the rest of the motion of the solar system. These motions explain the day, the year, phases of the moon, and eclipses.
3. ____ demonstrate the relationship between the tilt of the earth's rotational axis and seasonal changes.

Space Exploration

1. ____ examine some major events and contributions to space exploration and relate them to benefits to society