Revised 2005

BILLINGS PUBLIC SCHOOLS
SCIENCE
Learning Objectives
First 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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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. (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 personal interest and become aware of career opportunities in areas of science. (I, D, **E**, A)
2.____identify careers that is 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)

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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)

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

Summary of Study: This unit is designed to provide students with opportunities for an in-depth study of plants and animals. Children will use words, symbols, graphic models and pictures to communicate their predictions, observations and conclusions to compare, classify and categorize. The habitat study of wetlands will emphasize plants and animals found in these ecosystems.

Plants & Animals/Wetlands (Meadow & Pond Habitats)

1.____differentiate between living plants and living animals. (I, D, **E**, A)
2.____communicate observations of plants and animals. (I, D, **E**, A)
3.____classify animals by looking for similarities. (I, D, **E**, A)
4.____identify the parts of plants and their functions (roots, seeds, stems, leaves and flowers.) (I, D, **E**, A)
5.____illustrate various plants and animals. (I, D, **E**, A)
6.____match animal parents and their offspring. (I, D, **E**, A)
7.____discuss the aspects of proper care of domestic and wild animals. (I, D, **E**, A)
8.____examine what plants and animals need to grow. (I, D, **E**, A)
9.____communicate ways in which various living things are affected by their environment. (I, D, **E**, A)
10.___examine careers dealing with plant and animal care. (I, D, **E**, A)

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Earth Science

Summary of Study: This unit is designed to provide students with opportunities for an in-dept study of daily weather and seasonal changes. This unit will expand on the kindergarten unit of seasons and weather as the first graders begin to form weather pattern and seasonal generalization.

Seasons and Weather

1.____discuss the sun's effect on the earth's weather. (I, D, **E**, A)
2.____use weather instruments to observe changes in temperature, wind precipitation. (I, D, **E**, A)
3.____observe clouds and explain that they are made of water droplets that fall in the form of precipitation. (I, D, **E**, A)
4.____identify the characteristics of seasonal weather and activities. (Spring, Winter, Summer, Fall). (I, D, **E**, A)
5.____examine the careers dealing with the study and prediction of the weather. (I, D, **E**, A)
6.____analyze the effect that weather has on people, plants, animals and the earth. (I, D, **E**, A)
7.____recognize the dangers associated with the various weather conditions. (I, D, **E**, A)
8.____identify some different types of climate. (I, D, **E**, A)

Rocks & Soil

Summary of Study: This unit is designed to provide students with opportunities for an in-depth study of the physical characteristics and observations of rocks and soil.

1.____describe and categorize the physical characteristics of rocks (color, shape, feel, etc.) (I, D, **E**, A)
2.____analyze the properties of sand. (I, D, **E**, A)
3.____describe how rocks and sand are used. (I, D, **E**, A)
4.____compare and contrast what different kinds of soil contain. (I, D, **E**, A)
5.____demonstrae the presence of air and water in the soil. (I, D, **E**, A)
6.____describe and demonstrate ways animals and people use soil. (I, D, **E**, A)

Physical Science

Magnets

Summary of Study: This unit is designed to provide students with opportunities for an in-depth study of magnets and their properties. Through observations and discussions, students will make generalizations about the properties and forces of magnets.

1.____classify objects as attracted or not attracted by a magnet. (I, D, **E**, A)
2.____demonstrate that magnets can exert objects that pushes or pulls. (I, D, **E**, A)
3.____predict which objects are magnetic. (I, D, **E**, A)
4.____state some of the uses of magnets. (I, D, **E**, A)
5.____recognize that magnets only attract metals. (I, D, **E**, A)
6.____identify the poles as the place where the pull is the strongest. (I, D, **E**, A)
7.____measure magnetic strengths. (I, D, **E**, A)
8.____observe that magnets can be a variety of sizes, shapes and strengths. (I, D, **E**, A)