

SCIENCE Sixth Grade

VALUES AND ATTITUDES	The student will: Recognize the diversity, complexity and adaptability of life. Understand that life is classified by structure and function. Understand that the Sun is the source of energy for most living things. Recognize that our nurturing Earth is a reflection of God’s love for His creations. Understand that the Earth is dynamic and resilient, yet fragile and finite. Appreciate the order of the physical world. Understand some of the connections between elements of the physical world. Understand that careful collection and comparison of information is important in advancing science. Recognize that limiting the scope of initial investigations is important.
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STANDARD A Life Science

OBJECTIVES

<p><u>The following objectives are recommended for Grade 6</u></p> <ul style="list-style-type: none">• Examine evidence that plants convert light energy into stored energy.• Identify some cell organelles in plant cells.• Identify the characteristics of seedless and seed-bearing plants.• Examine and differentiate the terrestrial and aquatic food webs.• Describe interaction of organisms with each other and with non-living parts of the environment.• Determine the consequences of disrupting food webs.• Identify characteristics that place organisms in each of the six Kingdoms of Life.• Sort a wide variety of organisms into six Kingdoms.• Analyze the characteristics of living and non-living things (review).• Describe how different living things satisfy their basic life needs.

STANDARD B Earth Science

OBJECTIVES

<p><u>The following topics are recommended for 6th grade.</u></p> <p>Geology, Meteorology, Astronomy, and Oceanography comprise Earth Science</p> <ul style="list-style-type: none">• Identify Characteristics of the Earth’s main layers – crust, mantle, and core.• Identify common components of soil.• Determine how soil is formed.• Identify how physical and biological agents and processes affect soil characteristics.• Analyze soil properties that can be observed and measured to predict soil quality.

- Determine the effects of human activities on the Earth's pedosphere.
- Identify strategies to modify harmful effects of human activities.
- Identify and classify the parts of our solar system.
- Interpret selected scientific theories concerning the solar system.
- Compare and contrast the earth to other planets.
- Relate the orbit's of sun and moon to the gravitational effects produced on Earth.
- Associate seasons to the revolution of Earth around the sun and the tilt of the Earth's axis.
- Identify technologies used to explore space.
- Analyze the spin-off benefits generated by space exploration technology.

STANDARD C Physical Science

OBJECTIVES

The following topics are recommended for 6th grade.

- Distinguish between potential and kinetic energy.
- Demonstrate some ways in which potential energy can become kinetic energy or kinetic energy can become potential.
- Analyze energy transfer in vibrating materials.
- Understand that waves transmit heat, sound, and light energy.
- Interpret a model or diagram of a wave identifying: crest, amplitude, and wavelength.
- Determine how convection and radiation transfer energy.
- Analyze heat flow.
- Evaluate data associated with energy transfer and/or transformation.
- Analyze the physical interactions of light and matter.
- Examine the law of conservation of energy.

STRAND D Nature of Science

OBJECTIVES

Science process skills

- Develop habits of careful observation.
- Select and use appropriate tools and technology to perform tests, collect data, and display data.
- Develop a hypothesis by evaluating observations and known information.
- Identify variables in a data table.
- Construct a data table and record changes in values of two related variables obtained during an investigation.
- Identify graphs as a form of data display and communication.
- Understand why scientists use graphs.
- Interpret data from a bar, circle and line graph and decide which type of graph best displays given data.
- Identify the elements required to construct a line graph from data table obtained in an investigation.
- Understand that measurement is a quantitative observation.

- Relate past experience to a current problem.
- Communicate steps and results from investigation in written reports and oral presentations.
- Recognize different types of questions.
- Recognize whether evidence is consistent with a proposed explanation.
- Develop habits of questioning information that lacks supporting data.
- Write hypothesis and conclusion statements as part of a scientific investigation.
- Write direction statements as part of developing a scientific investigation.
- Write simple sentences and paragraphs describing observations made during investigations using appropriate vocabulary.
- Identify and use chemical symbols.
- Use a variety of print and electronic resources to collect information and evidence for research.
- Compare SI (metric) and English measurements.
- Use mathematical formulas to describe a scientific principle.