

INSTRUCTIONAL UNITS
Grade Six Science Syllabus
David Williams
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Because our primary goal is to maximize student achievement, material may be added, deleted, and/or substituted at the teacher's discretion based upon the individual needs, levels, and learning styles of each class. Creative projects, written assignments and supplemental materials may be included also throughout the year as opportunities arise. Likewise there will be on going assessments in technology and inquiry and standardized test preparations.

According to the South Carolina science standards sixth graders continue to develop the investigative skills they have been acquiring since kindergarten, now expanding them to include the skill of differentiating between observation and inference. Specifically, students explore the life, earth, and physical sciences within the framework of the following topics: Structures, Processes, and Responses of Plants; Structures, Processes, and Responses of Animals; Earth's Atmosphere and Weather; and Conservation of Energy. The science standards for the sixth grade provide the foundation for a course that is based on a rich and wide variety of learning experiences that actively engage students and accommodate a broad range of student learning styles through varied materials and instructional strategies.

First Semester

Standard 6-1 Scientific Inquiry – Chapter 1 and throughout the book

- 6-1.1 Use appropriate tools and instruments (including a spring scale, beam balance, barometer, and sling psychrometer) safely and accurately when conducting a controlled scientific investigation.
- 6-1.2 Differentiate between observation and inference during the analysis and interpretation of data.
- 6-1.3 Classify organisms, objects, and materials according to their physical characteristics by using a dichotomous key.
- 6-1.4 Use a technological design process to plan and produce a solution to a problem or a product.
- 6-1.5 Use appropriate safety procedures when conducting investigations.

Standard 6-2 Structure, Processes and Responses of Plants – Chapters 3, 4 & 5

- 6-2.1 Summarize the characteristics that all organisms share.
- 6-2.2 Recognize the hierarchical structure of the classification (taxonomy) of organisms.
- 6-2.3 Compare the characteristic structures of various groups of plants.
- 6-2.4 Summarize the basic functions of the structures of a flowering plant for defense, survival, and reproduction.
- 6-2.5 Summarize each process in the life cycle of flowering plants.
- 6-2.6 Differentiate between the processes of sexual and asexual reproduction of flowering plants.
- 6-2.7 Summarize the processes required for plant survival.
- 6-2.8 Explain how plants respond to external stimuli.
- 6-2.9 Explain how disease-causing fungi can affect plants.

Standard 6-3 Structure, Processes and Responses of Animals - Chapters 6, 7, 8, 9 & 10

- 6-3.1 Compare the characteristic structures of invertebrate animals.
- 6-3.2 Summarize the basic functions of the structures of animals that allow them to defend themselves, to move, and to obtain resources.
- 6-3.3 Compare the response that a warm-blooded (endothermic) animal makes to a fluctuation in environmental temperature with the response that a cold-blooded (ectothermic) animal makes to such a fluctuation.
- 6-3.4 Explain how environmental stimuli cause physical responses in animals.
- 6-3.5 Illustrate animal behavioral responses to environmental stimuli.
- 6-3.6 Summarize how the internal stimuli of animals ensure their survival.
- 6-3.7 Compare learned to inherited behaviors in animals.

Second Semester

Standard 6-4 Earth's Atmosphere and Weather - Chapters 11, 12 & 13

- 6-4.1 Compare the composition and structure of Earth's atmospheric layers.
- 6-4.2 Summarize the interrelationships among the dynamic processes of the water cycle.
- 6-4.3 Classify shapes and types of clouds according to elevation and their associated weather conditions and patterns.
- 6-4.4 Summarize the relationship of the movement of air masses, high and low pressure systems, and frontal boundaries to storms and other weather conditions.
- 6-4.5 Use appropriate instruments and tools to collect weather data.
- 6-4.6 Predict weather conditions and patterns based on weather data collected from direct observations and measurements, weather maps, satellites, and radar.
- 6-4.7 Explain how solar energy affects Earth's atmosphere and surface.
- 6-4.8 Explain how convection affects weather patterns and climate.
- 6-4.9 Explain the influence of global winds and the jet stream on weather and climatic conditions.

Standard 6-5 Conservation of Energy - Chapters 14, 15, 16, 17 & 18

- 6-5.1 Identify the sources and properties of heat, solar, chemical, mechanical, and electrical energy.
- 6-5.2 Explain how energy can be transformed from one form to another in accordance with the law of conservation of energy.
- 6-5.3 Explain how magnetism and electricity are interrelated by using descriptions, models, and diagrams of electromagnets, generators, and simple electrical motors.
- 6-5.4 Illustrate energy transformations.
- 6-5.5 Illustrate the directional transfer of heat energy through convection, radiation, and conduction.
- 6-5.6 Recognize that energy is the ability to do work.
- 6-5.7 Explain how the design of simple machines helps reduce the amount of force required to do work.
- 6-5.8 Illustrate ways that simple machines exist in common tools and in complex machines.