

Course Title: Grade 6 Science
Board Approval Date: January 17, 2019
Credit / Hours: N/A

Course Description:

Sixth Grade Science focuses on the mastery of PA Academic Standards for Science and Technology and Engineering Education and the Sixth Grade Science Standards Framework. Sixth Grade Science aims to improve students' abilities in the areas of Nature of Science, Physical Science, and Earth and Space Sciences. The focus is on STEM skills, problem solving, collaboration, communication through written composition, and research skills.

Learning Activities / Modes of Assessment

Small Group/ Guided Reading	Text Dependent Analysis
Whole Group	Writing Pieces
Independent	Presentations
Classwork Activities	Research with Technology
Tests	Hands-On Activities (Labs, Experiments)
Quizzes	

Instructional Resources:

Science Textbook
Science Online Resources
Science-Related Apps for iPads or 1:1 Devices
Science-Related Classroom Materials

Curriculum: Science

Course: 6th Grade

Know	Understand	Do
S.6.A.1 Reasoning and Analysis	S.6.A.1.1 Explain, interpret, and apply scientific, environmental, or technological knowledge presented in a variety of formats (visuals, scenarios, graphs).	S.6.A.1.1.1 Explain how certain questions can be answered through scientific inquiry and/or technological design (e.g., consumer product testing, common usage of simple machines, modern inventions). S.6.A.1.1.2 Use evidence to support inferences and claims about an investigation or relationship (e.g., common usage of simple machines). S.6.A.1.1.3 Predict the outcome of an experiment based on previously collected data.
S.6.A.2 Processes, Procedures, and Tools of Scientific Investigations	S.6.A.2.1 Apply knowledge of scientific investigation or technological design in different contexts to make inferences to solve problems.	S.6.A.2.1.1 Use evidence, observations, or a variety of scales to describe relationships. S.6.A. 2.1.2 Identify variables that cause changes

		in natural or human-made systems.
	<p>S.6.A.2.2 Apply appropriate instruments for specific purposes and describe the information the instruments can provide.</p>	<p>S.6.A.2.2.1 Describe ways technology extends and enhances human abilities for specific purposes (e.g., make observations of cells with a microscope and planets with a telescope).</p>
<p>S.6.A.3 Systems, Models, and Patterns</p>	<p>S.6.A.3.1 Explain the parts of a simple system, their roles, and their relationships to the system as a whole.</p>	<p>S.6.A.3.1.1 Describe a system as a group of related parts with specific roles that work together to achieve an observed result.</p> <p>S.6.A.3.1.2 Explain how components of natural and human-made systems play different roles in a working system.</p>
	<p>S6.A.3.2 Apply knowledge of models to make predictions, draw inferences, or explain technological concepts.</p>	<p>S.6.A.3.2.1 Describe how scientists use models to explore relationships and make predictions about natural systems (e.g., weather conditions, the solar system).</p>
<p>S.6.C.1 Structure, Properties, and Interaction of Matter and Energy</p>	<p>S.6.C.1.1 Explain that matter has observable physical properties.</p>	<p>S.5.C.1.1.1 Identify characteristic properties of matter that are independent of mass and volume.</p>

		<p>S.5.C.1.1.2 Differentiate between volume and mass.</p> <p>S.6.C.1.1.1 Describe how characteristic physical properties of matter can be used to distinguish one substance from another (e.g., boiling point, freezing/melting points).</p> <p>S.6.C.1.1.2 Explain that materials are characterized by having a specific amount of mass in each unit of volume (density).</p>
	<p>S.6.C.1.2 Describe that matter can undergo chemical and physical changes.</p>	<p>S.6.C.1.2.1 Describe how water changes from one state to another.</p> <p>S.6.C.1.2.2 Identify differences between chemical and physical changes of matter.</p>
<p>S.6.C.2 Forms, Sources, Conversion, and Transfer of Energy</p>	<p>S.6.C.2.1 Explain how energy can be transformed from one form to another and describe the results of the transformation.</p>	<p>S.5.C.2.1.1 Describe how energy exists in many forms (e.g., electrical, mechanical, chemical, heat, light, sound) and can be transformed within a system.</p>

		<p>S.5.C.2.1.2 Describe how heat energy is usually a byproduct of an energy transformation.</p> <p>S.5.C.2.1.3 Distinguish between kinetic and potential energy.</p> <p>S.6.C.2.1.1 Describe how heat moves in predictable ways from warmer objects to cooler ones until they reach the same temperature.</p> <p>S.6.C.2.1.2 Describe the effect of heat on particle motion during phase changes.</p> <p>S.6.C.2.1.3 Compare various energy sources (i.e., oil, coal, natural gas, solar, wind, and moving water) and describe how these energy sources are transformed into useful forms of energy.</p>
<p>S.6.C.3 Principles of Motion and Force</p>	<p>S.6.C.3.1 Explain why an object's motion is the result of all forces acting on it.</p>	<p>S.5.C.3.1.1 Differentiate between the mass and weight of an object.</p> <p>S.5.C.3.1.2 Explain how the mass of an object</p>

		<p>resists change to motion (inertia).</p> <p>S.6.C.3.1.1 Compare speed and velocity.</p> <p>S.6.C.3.1.2 Explain why gravitational force depends on how much mass the objects have and the distance between them.</p>
	<p>S.6.C.3.2 Describe how magnets and electricity produce related forces.</p>	<p>S.5.C.3.2.1 Recognize that moving electric charges produce magnetic forces and moving magnets produce electric forces (electromagnetism).</p> <p>S.5.C.3.2.2 Identify the variables within an electric current (i.e., voltage, current, and resistance).</p> <p>S.6.C.3.2.1 Describe how moving electric charges produce magnetic forces and moving magnets produce electric forces.</p> <p>S.6.C.3.2.2 Describe the relationships between voltage, current, and resistance (Ohm's Law).</p>

		<p>S.6.C.3.2.3 Distinguish between gravity and electromagnetism.</p>
<p>S.6.D.3 Composition and Structure of the Universe</p>	<p>S.6.D.3.1 Explain the relationships between objects in the universe.</p>	<p>S.5.D.3.1.1 Describe the patterns of Earth's rotation and revolution in relation to the Sun and Moon (i.e., solar eclipse, phases of the Moon, and time).</p> <p>S.5.D.3.1.2 Compare the general characteristics of the inner planets of our solar system (i.e., size, orbital path, surface characteristics, and moons).</p> <p>S.6.D.3.1.1 Compare the size and surface features of the planets that comprise the solar system as well as the objects orbiting them.</p> <p>S.6.D.3.1.2 Describe how the size, composition, and surface features of the planets are influenced by their distance from the Sun.</p>

Science Grade 6 Pacing Guide

Course: Science 6th Grade

Course Unit (Topic Periods)	Length of Instruction (Class)
Nature of Science: -Scientific Method -Engineering Design Process	10 Days (continued all year)
Physical Science: -Structure, Properties, Interaction of Matter and Energy -Forms, Sources, Conversion, Transfer of Energy -Principles of Motion and Force	58 Days
Earth and Space Sciences: -Composition and Structure of the Universe	22 Days
TOTAL DAYS	90 Days