Science Grade 6

Assessment Anchors and Eligible Content

Pennsylvania Department of Education

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S.6.A The Nature of Science — Reporting Category

ASSESSMENT ANCHOR
S.6.A.1 Reasoning and Analysis

		ELIGIBLE CONTENT	
S.6.A.1.1	Explain, interpret, and apply scientific, environmental, or technological knowledge presented in a variety of formats (visuals, scenarios, graphs). ***Reference: 3.1.6.A, 3.4.6.C, 3.4.6.D***	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.1.2	Identify and analyze evidence that certain variables may have caused measurable changes in natural or human-made systems. ***Reference: 3.1.6.A***	S.6.A.1.2.1	Use evidence, observations, or explanations to make inferences about changes in systems over time.
		S.6.A.1.2.2	Identify variables that cause changes in natural or human-made systems.

ASSESSMENT ANCHOR
S.6.A.2 Processes, Procedures, and Tools of Scientific Investigations

		ELIGIBLE CONTENT	
S.6.A.2.1	Apply knowledge of scientific investigation or technological design in different contexts to make inferences to solve problems. ***Reference: 3.1.6.A***	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.
S.6.A.2.2	Apply appropriate instruments for specific purposes and describe the information the instruments can provide. ***Reference: 3.1.6.A, 3.4.6.D***	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).

S.6.A The Nature of Science — Reporting Category

ASSESSMENT ANCHOR S.6.A.3 Systems, Models, and Patterns		ELIGIBLE CONTENT	
S.6.A.3.1	Explain the parts of a simple system, their roles, and their relationships to the system as a whole. ***Reference: 3.1.6.A***	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.
		S.6.A.3.1 2	Explain how components of natural and human-made systems play different roles in a working system.
S6.A.3.2	Apply knowledge of models to make predictions, draw inferences, or explain technological concepts. ***Reference: 3.1.6.A, 3.3.6.A, 3.4.6.C***	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).

S.6.B Biological Sciences — Reporting Category

ASSESSMENT ANCHOR			
S.6.B.1	**Structure and Function of Organisms**		
			ELIGIBLE CONTENT
S.6.B.1.1	Explain how the cell is the basic unit of structure and function for all living things. ***Reference: 3.1.6.A***	S.6.B.1.1.1	Describe how cells carry out the many functions needed to sustain life.
		S.6.B.1.1.2	Identify examples of unicellular and multi-cellular organisms (i.e., plants, fungi, bacteria, protists, and animals).
		S.6.B.1.1.3	Explain how many organisms are unicellular and must carry out all life functions in one cell.

ASSESSMENT ANCHOR			
S.6.B.2	**Continuity of Life**		
			ELIGIBLE CONTENT
S.6.B.2.1	Explain how certain inherited traits and/or behaviors allow some organisms to survive and reproduce more successfully than others. ***Reference: 3.1.6.C, 4.5.6.D, 4.4.6.A***	S.6.B.2.1.1	Distinguish between instinctive and learned animal behaviors that relate to survival.
		S.6.B.2.1.2	Recognize that extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival.

ASSESSMENT ANCHOR			
S.6.B.3	**Ecological Behavior and Systems**		
			ELIGIBLE CONTENT
S.6.B.3.1	Identify evidence of change to infer and explain the ways different variables may affect change in natural or human-made systems. ***Reference: 3.1.6.C, 4.4.6.A***	S.6.B.3.1.1	Describe the behavioral and physical responses of organisms to environmental changes and how those responses affect survival.
S.6.B.3.2	Explain how renewable and nonrenewable resources provide for human needs. ***Reference: 4.5.6.A, 4.5.6.D***	S.6.B.3.2.1	Compare the usage of fossil fuels and alternative energy resources (e.g., oil, natural gas, coal, wind, solar, water).

S.6.C Physical Sciences — Reporting Category

ASSESSMENT ANCHOR
S.6.C.1 Structure, Properties, and Interaction of Matter and Energy

		ELIGIBLE CONTENT	
S.6.C.1.1	Explain that matter has observable physical properties. ***Reference: 3.2.6.A***	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).
		S.6.C.1.1.2	Explain that materials are characterized by having a specific amount of mass in each unit of volume (density).
S.6.C.1.2	Describe that matter can undergo chemical and physical changes. ***Reference: 3.2.6.A, 3.3.6.A***	S.6.C.1.2.1	Describe how water changes from one state to another.
		S.6.C.1.2.2	Identify differences between chemical and physical changes of matter.

ASSESSMENT ANCHOR
S.6.C.2 Forms, Sources, Conversion, and Transfer of Energy

		ELIGIBLE CONTENT	
S.6.C.2.1	Explain how energy can be transformed from one form to another and describe the results of the transformation. ***Reference: 3.2.6.B***	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.
		S.6.C.2.1.2	Describe the effect of heat on particle motion during phase changes.
		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.

S.6.C Physical Sciences — Reporting Category

ASSESSMENT ANCHOR S.6.C.3 Principles of Motion and Force		ELIGIBLE CONTENT	
S.6.C.3.1	Explain why an object's motion is the result of all forces acting on it. ***Reference: 3.2.6.B***	S.6.C.3.1.1	Compare speed and velocity.
		S.6.C.3.1.2	Explain why gravitational force depends on how much mass the objects have and the distance between them.
S.6.C.3.2	Describe how magnets and electricity produce related forces. ***Reference: 3.2.6.B***	S.6.C.3.2.1	Describe how moving electric charges produce magnetic forces and moving magnets produce electric forces.
		S.6.C.3.2.2	Describe the relationships between voltage, current, and resistance (Ohm's Law).
		S.6.C.3.2.3	Distinguish between gravity and electromagnetism.

S.6.D Earth and Space Sciences — Reporting Category

ASSESSMENT ANCHOR
S.6.D.1 Earth Features and Processes That Change Earth and Its Resources

		ELIGIBLE CONTENT	
S.6.D.1.1	Describe how constructive and destructive natural processes can influence different biomes. ***Reference: 3.3.6.A, 4.4.6.B***	S.6.D.1.1.1	Describe how soil fertility, composition, resistance to erosion, and texture are affected by many factors.
		S.6.D.1.1.2	Identify the three basic rock types and describe their formation (i.e., igneous [granite, basalt, obsidian, and pumice]; sedimentary [limestone, sandstone, shale, and coal]; and metamorphic [slate, quartzite, marble, and gneiss]).

ASSESSMENT ANCHOR
S.6.D.2 Weather, Climate, and Atmospheric Processes

		ELIGIBLE CONTENT	
S.6.D.2.1	Explain basic elements of weather and climate. ***Reference: 3.2.6.B, 3.3.6.B***	S.6.D.2.1.1	Describe cloud types and measurable factors (i.e., wind direction, temperature, barometric pressure, moisture, and precipitation) that are associated with various weather patterns.
		S.6.D.2.1.2	Interpret weather data to develop a weather forecast.
		S.6.D.2.1.3	Explain how global patterns (jet stream, water currents) influence weather in measurable terms (e.g., wind direction, temperature, barometric pressure, precipitation).

S.6.D Earth and Space Sciences — Reporting Category

ASSESSMENT ANCHOR S.6.D.3 Composition and Structure of the Universe		ELIGIBLE CONTENT	
S.6.D.3.1	Explain the relationships between objects in the universe. ***Reference: 3.3.6.B***	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.
		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.