

Grade 6 Spiraled Science						
Content/Topic/Theme	PA Core Eligible Content	Materials	Topics	Strategy/Activity	Formative	Summative Assessment
Structure and Function of Organisms	S6.B.1.1: Explain how the cell is the basic unit of structure and function for all living things					
http://www.indiana.edu/~istdept/R521/student_workbook.pdf	S6.B.1.1.1: Describe how cells carry out the many functions needed to sustain life. Background for grade 6	Martian and the car; Bill Nye Cell Video (45mins.); prepared cells; cells and their organelles, Focus curriculum: Cell Structure and Function & Cells to Systems;	Living and non-living Cell Theory (What is a cell?; Hooke, Leeuwenhoek, Schlieden, Schwann, Virchow; microscopes) Parts of a cell; Organelles of plant and animal cell	Graphic organizer-characteristics of living things; Martian and the car; parts of a microscope; Plant and animal cell diagram, Cells and their organelles	Graphic Organizer; Scientists, Their Discoveries & How they connect with Cell Theory readings and activity	Cell theory nearpod Plant and Animal Cell diagram
	S6.B.1.1.2: Identify examples of unicellular and multicellular organisms (i.e., plants, fungi, bacteria, protista, and animals).	letter e; cork; colored threads, feather, burlap, prepared cells ; onion/cheek cell; flat edge toothpick; microscope, slides, slide covers	Organelles of plant and animal cell Unicellular/Multicellular (prepared slides; tree of life: plants fungi, bacteria, protists, and animals; prokaryote/eukaryote) Onion cell lab	Parts of cell: membrane, nucleus, cytoplasm, ribosomes, vacuole, plant only-cell wall, chloroplast	Onion Cell Lab Cheek Cell Lab	Introduction to Microscopes Lab Prepared Cell Lab
	S6.B.1.1.3: Explain how many organisms are unicellular and must carry out all life functions in one cell.	prepared cells ; mini-microscopes, microviewers; microviewer information card	Organelles of plant and animal cell Unicellular/Multicellular (prepared slides; tree of life: plants fungi, bacteria, protists, and animals; prokaryote/eukaryote)	Lab: microviewer and prepared cells	Vocabulary: Kahoot and memory cards Venn diagram: Characteristics of unicellular/multicellular Lab	Vocabulary assessment
Continuity of Life	S6.B.2.1: Explain how certain inherited traits and/or behaviors allow some organisms to survive and reproduce more successfully than others.					
	S6.B.2.1.1: Distinguish between instinctive and learned animal behaviors that relate to survival.	index cards	ID of ecosystems; behaviors: migration, hibernation, nocturnal Instinctive vs. Learned behaviors in organisms	ID behaviors; categorize instinctive and learned behaviors;	instinctive vs. learned behavior sort	animal adaptation research

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	S6.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.	case study materials; chromebooks; Readworks	adaptations- behavioral - extinction- threatened, endangered; why extinction occurs	animal case study/research; adaptation - learned/instinctive, how it helps to survive in the environment, other organisms interact with in their ecosystem	initial research for animal adaptation project checkpoint; check student information for accuracy (correct adaptation and reasoning); share & review models of proposals with class for hallmarks of good posters	animal adaptation project
Ecological Behavior and Systems	S6.B.3.1: Identify evidence of change to infer and explain the ways different variables may affect change in natural or human-made systems.					
	S6.B.3.1.1: Describe the behavioral and physical responses of organisms to environmental changes and how those responses affect survival. Background in 6th grade	examples of ecological organization	organization of ecosystems; behaviors: migration, hibernation, nocturnal	modeling with visual examples from organisms, population, community, ecosystems	ecological organization drawing with labels (four square drawing)	assess correct organization of ecosystems with a variety of choice

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Structure, Properties, and Interactions of Matter and Energy	S6.C.1.1: Explain that matter has observable physical properties
	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).
	S6.C.1.2: Describe that matter can undergo chemical and physical changes.
	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.

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Forms, Sources, Conversions, and Transfer of Energy	S6.C.2.1: Explain how energy can be transformed from one form to another and describe the results of the transformation.
	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

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Earth Features and Processes That Change Earth and Its Resources	S6.D.1.1: Describe how constructive and destructive natural processes can influence different biomes.
	S6.D.1.1.1: Describe how soil fertility, composition, resistance to erosion, and texture are affected by many factors.
	S6.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]).
Weather, Climate, and Atmospheric Processes	S6.D.2.1: Explain basic elements of weather and climate

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	S6.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.
	S6.D.2.1.2: Interpret weather data to develop a weather forecast.
	S6.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).
Composition and Structure of the Universe	S6.D.3.1: Explain the relationships between objects in the universe.
	S6.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.

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	S6.D.3.1.2: Describe how the size, composition, and surface features of the planets are influenced by their distance from the Sun.

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Principles of motion and force	S6.C.3.1 - Explain why an object's motion is a result of all forces acting on it	
	S.6.C.3.1.1 Compare speed and velocity.	STC forces and motion kit
	S.6.C.3.1.2 Explain why gravitational force depends on how much mass the objects have and the distance between them.	STC forces and motion kit
	S6.C.3.2 - Describe how magnets and electricity produce related forces	
	S.6.C.3.2.1 Describe how moving electric charges produce magnetic forces and moving magnets produce electric forces.	CPO electric circuits
	S.6.C.3.2.2 Describe the relationships between voltage, current, and resistance (Ohm's Law)	CPO electric circuits
	S.6.C.3.2.3 Distinguish between gravity and electromagnetism.	STC forces and motion; need to order electromagnetic kit