

**Science Grade Band 3-5
Standards**

Standard	Standard Description	SEP	CCC	Domain PLD Level 1	Domain PLD Level 2	Domain PLD Level 3	Domain PLD Level 4
3.P2U1.1	Ask questions and investigate the relationship between light, objects, and the human eye.	Q/P; INV	SYS; S/F	recognize the relationship between light, objects, and the human eye	identify the relationship between light, objects, and the human eye	demonstrate how light waves affect vision and objects	predict how light waves will affect vision and objects
3.P2U1.2	Plan and carry out an investigation to explore how sound waves affect objects at varying distances.	INV	SYS; S/F	recognize that sound is caused by vibrations	identify how sound travels	demonstrate how sound waves travel and interact with objects at varying distances	predict how sound waves will travel and interact with objects at varying distances
3.P4U1.3	Develop and use models to describe how light and sound waves transfer energy.	MOD	SYS; S/F	identify that sound and light are forms of energy	recognize that light and sound travel in waves	describe how light and sound waves transfer energy	predict energy transfer in various situations
3.E1U1.4	Construct an explanation describing how the Sun is the primary source of energy impacting Earth systems.	E/S	SYS; S/F	identify that the sun is the primary source of energy for Earth	identify the Earth's systems impacted by energy from the sun	demonstrate how energy from the sun impacts Earth's systems	understand how human processes change how energy from the sun impacts Earth's systems

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3.L1U1.5	Develop and use models to explain that plants and animals (including humans) have internal and external structures that serve various functions that aid in growth, survival, behavior, and reproduction.	MOD	SYS; S/F	identify structures and functions in plants and animals	describe specific structures in plants and animals that serve various functions for survival	demonstrate that plants and animals (including humans) have internal and external structures that serve various functions that aid in growth, survival, behavior, and reproduction	demonstrate that living things have different systems that all work together to perform specific functions
3.L1U1.6	Plan and carry out investigations to demonstrate ways plants and animals react to stimuli.	INV	SYS; S/F	identify stimuli that can affect plants and animals	describe how stimuli can affect plants and animals	demonstrate ways plants and animals react to stimuli	demonstrate how some types of stimuli can result in permanent changes in animals

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3.L2U1.7	Develop and use system models to describe the flow of energy from the Sun to and among living organisms.	MOD	SYS; S/F	recognize that all energy for living organisms comes from the sun	describe how energy from the sun is used by living organisms	demonstrate the flow of energy from the sun to and among living organisms	demonstrate how energy is transferred through ecosystems and recognize that a change on one level will affect other parts of the ecosystem
3.L2U1.8	Construct an argument from evidence that organisms are interdependent.	ARG	SYS; S/F	identify relationships between organisms	describe how organisms are interdependent	using evidence, argue that organisms are interdependent	demonstrate how energy is transferred through ecosystems and recognize that a change on one level will affect other parts of the ecosystem
4.P4U1.1	Develop and use a model to demonstrate how a system transfers energy from one object to another even when the objects are not touching.	MOD	SYS; E/M; S/C	identify situations involving energy transfer	describe energy transfer in various situations including via electric transfer	demonstrate how energy is transferred within a system whether objects are touching or not touching	predict energy transfer in various situations

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4.P4U1.2	Develop and use a model that explains how energy is moved from place to place through electric currents.	MOD	SYS; E/M; S/C	identify that an electric current is an energy transfer	describe energy transfer in various situations including via electric transfer	identify how energy is transferred through different systems using electric current	predict energy transfer in various situations
4.P2U1.3	Develop and use a model to demonstrate magnetic forces.	MOD	SYS; E/M; S/C	identify examples of magnetic force	describe how magnetic forces affect objects	predict how magnetic forces will interact with objects	justify how magnetic forces interact with objects
4.P4U3.4	Engage in argument from evidence on the use and impact of renewable and nonrenewable resources to generate electricity.	ARG	SYS; E/M; S/C	identify renewable and nonrenewable resources used to generate electricity	demonstrate how renewable and nonrenewable resources are used to generate electricity	using evidence, describe and justify the impact of renewable and nonrenewable resources to generate electricity	evaluate the impact of renewable and nonrenewable resources to generate electricity
4.E1U1.5	Use models to explain seismic waves and their effect on the Earth.	MOD	SYS; E/M; S/C	describe seismic waves	recognize how seismic waves move through Earth	demonstrate seismic waves and their effect on Earth	predict the properties or movements of seismic waves

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<u>4.E1U1.6</u>	Plan and carry out an investigation to explore and explain the interactions between Earth's major systems and the impact on Earth's surface materials and processes.	INV	SYS; E/M; S/C	identify Earth's major systems	identify or describe ways that Earth's major systems can affect Earth's surface materials and/or processes	demonstrate the interactions between Earth's major systems and the impact on Earth's surface materials and/or processes	predict how Earth's major systems will impact Earth's surface materials and/or processes
<u>4.E1U1.7</u>	Develop and/or revise a model using various rock types, fossil location, and landforms to show evidence that Earth's surface has changed over time.	MOD	SYS; E/M; S/C	recognize that Earth's surface is constantly changing	describe the geologic processes that change Earth's surface	demonstrate how different geologic processes interact to shape and change Earth's surface	connect geologic processes to explain how Earth's surface has changed over time
<u>4.E1U1.8</u>	Collect, analyze, and interpret data to explain weather and climate patterns.	DATA	SYS; E/M; S/C	differentiate between weather and climate	understand how geographic features affect weather and/or climate	demonstrate weather and/or climate patterns	predict weather and/or climate patterns
<u>4.E1U3.9</u>	Construct and support an evidence-based argument about the availability of water and its impact on life.	E/S; ARG	SYS; E/M; S/C	recognize the importance of water on Earth	identify water sources found on Earth	using evidence, argue the impact of the availability of water on life	make a prediction about future water availability

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<u>4.E1U2.10</u>	Define problem(s) and design solution(s) to minimize the effects of natural hazards.	Q/P; E/S	SYS; E/M; S/C	identify natural hazards	identify ways humans can reduce the impact of natural hazards	design a solution to minimize the impact of natural hazards	make a prediction about future natural hazards
<u>4.L4U1.11</u>	Analyze and interpret environmental data to demonstrate that species either adapt and survive or go extinct over time.	DATA	SYS; E/M; S/C	identify that species can adapt and survive or go extinct	give examples of species that have adapted and/or gone extinct	demonstrate how species either adapt and survive or go extinct over time	use qualitative or quantitative data to describe how species either adapt and survive or go extinct over time

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5.P1U1.1	Analyze and interpret data to explain that matter of any type can be subdivided into particles too small to see and, in a closed system, if properties change or chemical reactions occur, the amount of matter stays the same.	DATA	PAT; SPQ	recognize that the amount of matter undergoing change remains stable	demonstrate that the amount of matter undergoing change remains stable	use quantitative data to support the claim that the amount of matter undergoing change remains stable demonstrate that all matter is made up of particles too small to be seen	use quantitative data to defend the claim that the amount of matter undergoing change remains stable demonstrate that all matter is made up of particles too small to be seen
5.P1U1.2	Plan and carry out investigations to demonstrate that some substances combine to form new substances with different properties and others can be mixed without taking on new properties.	INV	PAT; SPQ	identify physical and chemical properties	differentiate between physical and chemical properties identify when chemical/physical properties change	differentiate between physical changes and chemical reactions identify evidence of physical changes and chemical reactions	demonstrate how evidence supports that either a physical change or chemical reaction has occurred

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<u>5.P2U1.3</u>	Construct an explanation using evidence to demonstrate that objects can affect other objects even when they are not touching.	E/S	PAT; SPQ	identify types of noncontact forces	identify examples of forces that act at a distance	demonstrate, using evidence, how forces interact with objects at a distance	predict how forces will interact with objects at a distance
<u>5.P3U1.4</u>	Obtain, analyze, and communicate evidence of the effects that balanced and unbalanced forces have on the motion of objects.	INFO	PAT; SPQ	distinguish between balanced and unbalanced forces	identify effects of balanced and unbalanced forces on motion	demonstrate how balanced and unbalanced forces affect motion	evaluate a solution to control motion
<u>5.P3U2.5</u>	Define problems and design solutions pertaining to force and motion.	Q/P; E/S	PAT; SPQ	identify motion related to existing forces	recognize that an object's motion is affected by its mass	predict motion based on an object's mass and the applied force	revise or propose a solution to a problem based on known forces and desired motion
<u>5.P4U1.6</u>	Analyze and interpret data to determine how and where energy is transferred when objects move.	DATA	PAT; SPQ	identify situations involving energy transfer	describe energy transfer in various situations including via electric transfer	demonstrate how energy is transferred within a system whether objects are moving or not moving	predict energy transfer in various situations

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5.E2U1.7	Develop, revise, and use models based on evidence to construct explanations about the movement of the Earth and Moon within our solar system.	MOD; E/S	PAT; SPQ	identify that Earth and moon move within the solar system	describe how long it takes for the moon and Earth to complete their orbits	demonstrate the movement (rotation and revolution) of Earth and the moon within our solar system	demonstrate how the movement of Earth and the moon impact each other
5.E2U1.8	Obtain, analyze, and communicate evidence to support an explanation that the gravitational force of Earth on objects is directed toward the planet's center.	INFO	PAT; SPQ	recognize that gravity pulls objects toward the center of Earth	identify that gravitational force is acting on everything on Earth	using evidence, demonstrate the role of gravitational force on objects on Earth	demonstrate how gravity affects the movement and location of Earth and the moon
5.L3U1.9	Obtain, evaluate, and communicate information about patterns between the offspring of plants, and the offspring of animals (including humans); construct an explanation of how genetic information is passed from one generation to the next.	INFO; E/S	PAT; SPQ	identify patterns of similar traits within a species	describe patterns among the offspring of plants and animals (including humans)	evaluate patterns among the offspring of plants and animals (including humans) construct an explanation of how genetic information is passed from one generation to the next	predict changes in an environment that could affect the development of the traits in a population of organisms

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5.L3U1.10	Construct an explanation based on evidence that the changes in an environment can affect the development of the traits in a population of organisms.	E/S	PAT; SPQ	identify differences in traits among species that live in different habitats or environments	demonstrate the differences in traits among species that live in different habitats or environments	demonstrate how changes in an environment can affect the development of the traits in a population of organisms	predict changes in an environment that can affect the development of the traits in a population of organisms
5.L4U3.11	Obtain, evaluate, and communicate evidence about how natural and human-caused changes to habitats or climate can impact populations.	INFO	PAT; SPQ	identify beneficial and/or harmful changes to an organism's habitat	describe natural and human-caused changes to habitats or climate	demonstrate how natural or human-caused changes to habitats or climate can impact populations	demonstrate how natural selection affects organisms demonstrate factors that can impact natural selection
5.L4U3.12	Construct an argument based on evidence that inherited characteristics can be affected by behavior and/or environmental conditions.	ARG; INFO	SPQ	understand that inherited characteristics can be affected by behavior and/or environmental conditions	distinguish the difference between inherited characteristics that are affected by behavior or environmental conditions	using evidence, argue how inherited characteristics can be affected by behavior and/or environmental conditions	demonstrate how natural selection affects organisms demonstrate factors that can impact natural selection