Indiana Science/Computer Science Content Connectors

Grade 4

Energy	**1** Use evidence to construct an explanation that faster objects have more energy than slower objects. (E) 4-PS3-1A
	2 Make observations to provide evidence that energy can move from place to place (e.g., through moving objects, through electric currents). 4-PS3-2A
	3 Make observations to provide evidence that energy is present in the form of motion, sound, light, or heat. 4-PS3-2B
	4 Ask questions and use observations to predict the change in energy from one object to another when objects collide. 4-PS3-3A
	5 Design and test a device that uses an electric current to move energy from place to place. (E) 4-PS3-4A
	6 Use evidence to identify that stored energy can be turned into usable energy. (E) 4-PS3-4B
Waves and Their Applications in Technologies for Information Transfer	**1** Use evidence from a model to describe simple movement patterns of waves. 4-PS4-1A
	2 Use a model of a wave (e.g., diagrams, drawings) to identify amplitude (height of the wave) and wavelength (spacing between wave peaks). [Clarification Statement: Examples of models could include diagrams, analogies, and physical models using wire to illustrate wavelength and amplitude of waves.] 4-PS4-1B
	3 Use a model to describe that light can be seen when light reflected from its surface enters the eyes. 4-PS4-2A
	4 Compare solutions that use patterns to transfer information. [Clarification Statement: Examples of solutions could include drums sending coded information through sound waves, using a grid of 1's and 0's representing black and white to send information about a picture, and using Morse code to send text.] 4-PS4-3A
From Molecules to Organisms: Structures and Processes	**1** Use evidence to explain how internal and external structures support the growth, survival, behavior, and reproduction of plants and animals. (E) 4-LS1-1A
	2 Use a model to demonstrate how animals use their sense receptors to respond to their environment. 4-LS1-2A

Earth's Place in the Universe	1	**Use evidence from patterns of rock formations caused by Earth's forces (e.g., wind, water, volcanoes, earthquakes) to identify that the Earth's landscape has changed over time.** 4-ESS1-1A
	2	**Use fossil evidence to identify the order in which rock layers were formed.** 4-ESS1-1B
Earth's Systems	1	**Make observations and/or measurements to identify a cause-and-effect relationship between weathering or erosion and Earth's surface. [Clarification Statement: Examples could include angle of slope in downhill movement of water, speed of wind, relative rate of deposition, cycles of freezing and thawing of water, cycles of heating and cooling, volume of water flow.] (E)** 4-ESS2-1A
	2	**Use data from observations and/or measurements to identify that living things can affect the physical characteristics of their surroundings (e.g. amount of vegetation and rate of erosion). (E)** 4-ESS2-1B
	3	**Use data from maps to describe patterns of Earth's features (e.g., location of mountain ranges, ocean trenches, earthquakes, volcanoes).** 4-ESS2-2A
Earth and Human Activity	1	**Use information to match an energy or fuel humans use to its natural source and identify examples that illustrate how human use of energy resources can affect the environment. (E)** 4-ESS3-1A
	2	**Identify a solution to lessen the impact of hazards caused by natural events (e.g., earthquakes, tsunamis, hurricanes) on humans. (E)** 4-ESS3-2A
Engineering Design	1	**Identify a solution to a problem based on a specific set of desired features (criteria) and available materials and resources (constraints).** 3-5-ETS1-1A
	2	**Compare multiple solutions to a problem by investigating how well each solution works under certain conditions.** 3-5-ETS1-2A
	3	**Identify a design improvement to a problem by sharing ideas with peers.** 3-5-ETS1-2B
	4	**Test design solutions to identify aspects of the design that can be modified or improved based on specific limitations.** 3-5-ETS1-3A