

Disciplinary Core Ideas:

1st-Grade

1.1.1 (ESS1.A) By the end of grade 2. Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. At night one can see the light coming from many stars with the naked eye, but telescopes make it possible to see many more and to observe them and the moon and planets in greater detail.

1.1.2 (ESS1.B) By the end of grade 2. Seasonal patterns of sunrise and sunset can be observed, described, and predicted.

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(ETS1.A) By the end of grade 2. A situation that people want to change or create can be approached as a problem to be solved through engineering. Such problems may have many acceptable solutions. Asking questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem.

(ETS1.B) By the end of grade 2. Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. To design something complicated, one may need to break the problem into parts and attend to each part separately but must then bring the parts together to test the overall plan.

(ETS1.C) By the end of grade 2. Because there is always more than one possible solution to a problem, it is useful to compare designs, test them, and discuss their strengths and weaknesses..

1.2.1 (LS1.C) By the end of grade 2. All animals need food in order to live and grow. They obtain their food from plants or from other animals. Plants need water and light to live and grow.

1.2.2 (LS1.A) By the end of grade 2. All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive, grow, and produce more plants.

(LS1.D) By the end of grade 2. Animals have body parts that capture and convey different kinds of information needed for growth and survival—for example, eyes for light, ears for

sounds, and skin for temperature or touch. Animals respond to these inputs with behaviors that help them survive (e.g., find food, run from a predator). Plants also respond to some external inputs (e.g., turn leaves toward the sun).

1.2.3 (LS3.A) By the end of grade 2. Organisms have characteristics that can be similar or different. Young animals are very much, but not exactly, like their parents and also resemble other animals of the same kind. Plants also are very much, but not exactly, like their parents and resemble other plants of the same kind.

(LS3.B) **By the end of grade 2.** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.

1.2.4 (LS1.B) By the end of grade 2. Plants and animals have predictable characteristics at different stages of development. Plants and animals grow and change. Adult plants and animals can have young. In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.

1.3.1 (PS4.A) By the end of grade 2. Waves, which are regular patterns of motion, can be made in water by disturbing the surface. When waves move across the surface of deep water, the water goes up and down in place; it does not move in the direction of the wave—observe, for example, a bobbing cork or seabird—except when the water meets the beach. Sound can make matter vibrate, and vibrating matter can make sound.

1.3.2 (PS4.B) By the end of grade 2. Objects can be seen only when light is available to illuminate them. Very hot objects give off light (e.g., a fire, the sun). Some materials allow light to pass through them, others allow only some light through, and others block all the light and create a dark shadow on any surface beyond them (i.e., on the other side from the light source), where the light cannot reach. Mirrors and prisms can be used to redirect a light beam. (Boundary: The idea that light travels from place to place is developed through experiences with light sources, mirrors, and shadows, but no attempt is made to discuss the speed of light.)

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1.3.4 (PS4.C) By the end of grade 2. People use their senses to learn about the world around them. Their eyes detect light, their ears detect sound, and they can feel vibrations by touch.

People also use a variety of devices to communicate (send and receive information) over long distances.

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