

Disciplinary Core Ideas:

Kindergarten

K.1.1 (ESS2.D) **By the end of grade 2.** Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time. People measure these conditions to describe and record the weather and to notice patterns over time

K.1.2 (ESS3.B) **By the end of grade 2.** Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that communities can prepare for and respond to these events.

K.1.3 (PS3.B) **By the end of grade 2.** Sunlight warms Earth's surface.

K.1.4 (PS3.B) **By the end of grade 2.** Sunlight warms Earth's surface.

(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.

K.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.

K.2.2 (LS2.B) **By the end of grade 2.** Organisms obtain the materials they need to grow and survive from the environment. Many of these materials come from organisms and are used again by other organisms.

(ESS3.A) **By the end of grade 2.** Living things need water, air, and resources from the land, and they try to live in places that have the things they need. Humans use natural resources for everything they do: for example, they use soil and water to grow food, wood to burn to

provide heat or to build shelters, and materials such as iron or copper extracted from Earth to make cooking pans.

K.2.3 (ESS2.E) **By the end of grade 2.** Plants and animals (including humans) depend on the land, water, and air to live and grow. They in turn can change their environment (e.g., the shape of land, the flow of water).

K.2.4 (ESS3.C) **By the end of grade 2.** Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things—for example, by reducing trash through reuse and recycling.

(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.

K.3.1 (PS2.A) **By the end of grade 2.** Objects pull or push each other when they collide or are connected. Pushes and pulls can have different strengths and directions. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. An object sliding on a surface or sitting on a slope experiences a pull due to friction on the object due to the surface that opposes the object's motion.

(PS2.B) **By the end of grade 2.** When objects touch or collide, they push on one another and can change motion or shape.

(PS2.C) **By the end of grade 2.** Whether an object stays still or moves often depends on the effects of multiple pushes and pulls on it (e.g., multiple players trying to pull an object in different directions). It is useful to investigate what pushes and pulls keep something in place (e.g., a ball on a slope, a ladder leaning on a wall) as well as what makes something change or move.

(PS3.C) **By the end of grade 2.** A bigger push or pull makes things go faster. Faster speeds during a collision can cause a bigger change in shape of the colliding objects.

K.3.2 (PS2.A) **By the end of grade 2.** Objects pull or push each other when they collide or are connected. Pushes and pulls can have different strengths and directions. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. An object sliding on a surface or sitting on a slope experiences a pull due to friction on the object due to the surface that opposes the object's motion.

(PS2.B) **By the end of grade 2.** When objects touch or collide, they push on one another and can change motion or shape.

(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.