Indiana Science

Disciplinary Core Ideas: Grades K, 1, 2

Adopted 2022

Life Science

1. From Molecules to Organisms: Structures and Processes LS.1

LS1-1. 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 and grow. K-2.LS1-1

LS1-2. 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. K-2.LS1-2

LS1-3. 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.LS1-3

LS1-4. Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs. K-2.LS1-4

2. Ecosystems: Interactions, Energy, and Dynamics LS.2

LS2-1. Plants depend on water and light to grow. K-2.LS2-1

LS2-2. Plants depend on animals for pollination or to move their seeds around. K-2.LS2-2

3. Heredity: Inheritance and Variation of Traits LS.3

LS3-1. Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents. K-2.LS3-1

LS3-2. Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. K-2.LS3-2

4. Biological Evolution: Unity and Diversity LS.4

LS4-1. There are many different kinds of living things in any area, and they exist in different places on land and in water. K-2.LS4-1

Earth and Space Science

1. Earth's Place in the Universe ESS.1

ESS1-1. Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. K-2.ESS1-1

ESS1-2. Seasonal patterns of sunrise and sunset can be observed, described, and predicted. K-2.ESS1-2

ESS1-3. Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. K-2.ESS1-3

2. Earth's Systems ESS.2

ESS2-1. Wind and water can change the shape of the land. K-2.ESS2-1

ESS2-2. Maps show where things are located. One can map the shapes and kinds of land and water in any area. K-2.ESS2-2

ESS2-3. Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form. K-2.ESS2-3

ESS2-4. 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-2.ESS2-4

ESS2-5. Plants and animals can change their environment. K-2.ESS2-5

3. Earth and Human Activity ESS.3

ESS3-1. Living things need water, air, and resources from the land, and they live in places that have the things they need. Humans use natural resources for everything they do. K-2.ESS3-1

ESS3-2. Some kinds of severe weather are more likely than others in a given region. Weather scientists forecast severe weather so that the communities can prepare for and respond to these events. K-2.ESS3-2

ESS3-3. 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. K-2.ESS3-3

Physical Science

1. Matter and Its Interactions PS.1

PS1-1. Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature. Matter can be described and classified by its observable properties. K-2.PS1-1

PS1-2. Different properties are suited to different purposes. K-2.PS1-2

PS1-3. A great variety of objects can be built up from a small set of pieces. K-2.PS1-3

PS1-4. Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not. K-2.PS1-4

2. Motion and Stability: Forces and Interactions PS.2

PS2-1. Pushes and pulls can have different strengths and directions. K-2.PS2-1

PS2-2. Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it. K-2.PS2-2

PS2-3. When objects touch or collide, they push on one another and can change motion. K-2.PS2-3

3. Energy PS.3

PS3-1. Sunlight warms Earth's surface. K-2.PS3-1

PS3-2. A bigger push or pull makes things go faster. K-2.PS3-2

4. Waves and Their Applications in Technologies for Information Transfer PS.4

PS4-1. Sound can make matter vibrate, and vibrating matter can make sound. K-2.PS4-1

PS4-2. Objects can be seen only when light is available to illuminate them. Some objects give off their own light. K-2.PS4-2

PS4-3. 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, where the light cannot reach. Mirrors 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.) K-2.PS4-3

PS4-4. People also use a variety of devices to communicate (send and receive information) over long distances. K-2.PS4-4

Engineering, Technology, and the Application of Science

1. Matter and Its Interactions EPS.1

EPS1-1. 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. K-2.EPS1-1

EPS1-2. Asking questions, making observations, and gathering information are helpful in thinking about problems. K-2.EPS1-2

EPS1-3. Before beginning to design a solution, it is important to clearly understand the problem. K-2.EPS1-3

EPS1-4. 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. K-2.EPS1-4

EPS1-5. Because there is always more than one possible solution to a problem, it is useful to compare and test designs. K-2.EPS1-5