KINDERGARTEN: NEEDS AND SURVIVAL

Standards Bundle
Standards are listed within the bundle. Bundles are created with potential instructional use in mind, based upon potential for related phenomena that can be used throughout a unit.

K-LS1-1 Describe patterns of what plants and animals (including humans) need to survive. (SEP: 4; DCI: LS1.C; CCC: Patterns) [Clarification Statement: Examples of patterns could include that animals need to take in food but plants do not; the different kinds of food needed by different types of animals; the requirement of plants to have light; and, that all living things need water.]

K-ESS3-1 Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live. (SEP: 2; DCI: ESS3.A; CCC: Systems) [Clarification Statement: Examples of relationships could include that deer eat buds and leaves, therefore, they usually live in forested areas; and, grasses need sunlight so they often grow in meadows. Plants, animals, and their surroundings make up a system.]

Content Overview
This section provides a generic overview of the content or disciplinary core ideas as an entry point to the standards.

Living things (plants, animals, and humans) help each other survive. Plants rely on animals and humans to spread seeds so more plants can be produced; animals need plants for nutrients to grow; and all living things need water, air, and sunlight to survive. They get these things from the places they live.

Phenomena
Phenomena can be used at varying levels of instruction. One could be used to anchor an entire unit, while another might be more supplemental for anchoring just a unit. Please remember that phenomena should allow students to engage in the SEP and use the CCC/DCI to understand and explain the phenomenon.

- Some animals live in the ground and some live in trees.
- Plants die if we don't water them.
- How do seeds move from where a plant is located to different spots in the ground?
- The dirt where a plant is looks different than the dirt where a plant isn't located.
- There are holes in the dirt in my backyard and in the dirt of the playground.
- I need to eat food to grow but plants do not eat food and they grow.
- There was a plant growing inbetween the cracks of the sidewalk.

Storyline
This section aims to decode not only the DCI connections, but also the SEP and CCC in a detailed account of how they possibly fit together in a progression for student learning, including both rationale and context for the bundle.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Developing and Using Models ● Use a model to represent relationships in the natural world. **Analyzing and Interpreting Data** ● Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.	**LS1.C: Organization for Matter and Energy Flow in Organisms** ● 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. **ESS3.A: Natural Resources** ● 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.	**Systems and System Models** ● Systems in the natural and designed world have parts that work together. **Patterns** ● Patterns in the natural and human designed world can be observed and used as evidence.

All animals need food in order to live and grow. Plants need water and light to live and grow. Animals (including humans) and plants are everywhere around us. While all plants and all animals share common features, there are also important differences between types of organisms. Different plants require different amounts of water (such as a fern that requires lots of water versus a cactus that requires very little). Different animals prefer different types of foods. Some animals only eat plants while others only eat animals, and others eat both.

Living things need water, air, and resources from the land, and there is a relationship between their needs and where they live. Organisms survive and thrive in places that have the resources they need. Plants grow where they have access to sunlight and water. Animals live where they have access to water and food. 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.

Formative Assessment
Formative assessment is crucial because all learners benefit from timely and focused feedback from others. It promotes self-reflection, self-explanation, and social learning. It can also make learning more relevant. Each of the questions below might be used throughout the formative assessment process. Specific prompts may focus on individual practices, core ideas, or crosscutting concepts, but, together, the components need to support inferences about students' three-dimensional science learning as described in a given bundle, standard or lesson-level performance expectation.

SEP Developing and Using Models
- Draw an animal living in a place with all of its needs and label the parts of this system.

SEP Analyzing and Interpreting Data
- What will happen if a deer that eats only grass tries to live in a desert where cacti are the main plants?

CCC Systems and System Models
- Use a model to represent relationships between the needs of different plants and the places they live in the natural world. (Plants, animals, and their surroundings make up a system.)

CCC Patterns
- What patterns do you notice about what animals need to survive compared to what plants need to survive.
- What patterns do you notice about where animals live?
- What patterns do you notice about where plants grow?

Performance Outcomes

These are statements of how students use knowledge and are similar to the standards in how they blend DCI, SEP, and CCC, but at a smaller grain-size. These are potential outcomes for instruction as it plays out in lessons and activities in the classroom. It is important to also think of these as smaller outcomes that build toward the larger goal of mastering the standards.

- **Develop a model** that shows the parts of the *system* of organisms living close to the things they need.
- **Analyze and interpret** *patterns* of plant growth in different areas of a school yard.
- **Develop a model** of a *system* showing plants and animals in their environments.
- **Develop a model** to show that living things need water, air, and things from the land; and they live where these items they need are.
- **Develop a model** of a *system* that shows animals eat plants, other animals, or both plants and animals.