



UNIT 2

STRUCTURE, FUNCTION, AND INFORMATION PROCESSING — ANIMALS AND PLANTS



Unit 2: Structure, Function, & Information Processing – Animals and Plants

12 weeks

In this unit, students develop understanding of how animals and plants have external parts that help them survive, grow, and meet their needs. They will understand how 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. They will also understand that plants, too, have different parts (roots, stems, leaves, flowers, and fruit) that help them survive, grow, and produce more plants.

They will recognize that animals have body parts that capture and convey different kinds of information needed for growth and survival (ex: eyes for light, ears for sounds, and skin for temperature or touch). Animals will respond to these external inputs with behaviors that help them survive (ex: find food, run from a predator). In a similar fashion, plants also respond to some external input (ex: turn leaves toward the sun).

Students will understand that adult animals and plants can have offspring (younger animals and plants) and most young animals and plants are very much, but not exactly, like their parents. Students should understand how many animal parents engage in behaviors that help the offspring to survive (feeding, communicating, protecting from danger). Students should also understand that individuals of the same kind of plant or animal are recognizable as similar, but can vary in many ways.

Students will use a variety of text and media sources to determine patterns in behavior of parents and offspring that help them survive. They will make observations and use understandings to construct evidence-based explanations about how young animals and plants are alike, but not exactly like their parents. Students will also understand that some human problems can be solved by mimicking how plants and animals use their external parts, and will use a variety of materials to design a solution to some of these problems.

Unit 2 Performance Expectations

- ❖ **1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.***
Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and detecting intruders by mimicking eyes or ears.
- ❖ **1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.**
Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) or the responses of the parents (such as feeding, comforting, and protecting the offspring).
- ❖ **1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.**
Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.
Assessment Boundary: Assessment does not include inheritance, animals that undergo metamorphosis or hybrids.



In Unit 2, students will understand...

- ❖ All organisms have external parts that help them survive.
- ❖ Different animals use their body parts in different ways.
- ❖ Plants have different parts that help them survive, grow, and produce more plants.
- ❖ Adult plants and animals can have young.
- ❖ Animal parents and their offspring exhibit behaviors that help them survive.
- ❖ Animals have body parts that capture and convey different kinds of information needed for growth and survival.
- ❖ Animals and plants respond to external inputs with behaviors that help them survive.
- ❖ Young animals and plants are very much, but not exactly, like their parents.
- ❖ Individuals of the same kind of plant or animal are recognizable as similar, but can vary in many ways.
- ❖ Human problems can be solved by mimicking animals and plants external parts to meet their needs.

Unit 2 Essential Questions:

- ❖ What are ways plants and animals meet their needs so that they can survive and grow?
- ❖ How are parents and their offspring similar and different?

Additional Content Connections:

*These connections provide opportunities to score to other content standards with focused instruction.

ELA:

- ❖ Speaking and Listening
 - SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups
 - SL.1.2 Ask and answer questions about key details in a text read aloud or information presented orally or through other media.

Math:

- ❖ Measurement and Data (*ongoing observations of patterns of sun, moon, stars, daylight*)
 - 1.MD.C.6 (formerly 1.MD.C.4) Organize, represent, and interpret data with up to three categories, using tally tables, picture graphs, and bar graphs. Ask and answer questions about the total number represented, how many in each category, and how many more or less are in one category than in another.

Unit Vocabulary:

organism	basic need	trait
plant	survive	characteristic
animal	protect	adaptation
offspring/young/baby	external	mimick
parent/adult	behavior	predator/prey
similar/similarities	features	response

*Students should engage with these terms throughout this unit and within other units in 1st grade.



Structure, Function, and Information Processing

Students who demonstrate understanding can:

1-LS1-1 Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.*

[Clarification Statement: Examples of human problems that can be solved by mimicking plant or animal solutions could include designing clothing or equipment to protect bicyclists by mimicking turtle shells, acorn shells, and animal scales; stabilizing structures by mimicking animal tails and roots on plants; keeping out intruders by mimicking thorns on branches and animal quills; and detecting intruders by mimicking eyes or ears.]

1-LS1-2 Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.

[Clarification Statement: Examples of patterns of behaviors could include the signals that offspring make (such as crying, cheeping, and other vocalizations) or the responses of the parents (such as feeding, comforting, and protecting the offspring).]

1-LS3-1 Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.

[Clarification Statement: Examples of patterns could include features plants or animals share. Examples of observations could include leaves from the same kind of plant are the same shape but can differ in size; and, a particular breed of dog looks like its parents but is not exactly the same.] [Assessment Boundary: Assessment does not include inheritance, animals that undergo metamorphosis or hybrids.]

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*.

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
Constructing Explanations and Designing Solutions Constructing explanations and designing solutions in K–2 builds on prior experiences and progresses to the use of evidence and ideas in constructing evidence-based accounts of natural phenomena and designing solutions. - Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. (1-LS3-1) - Use materials to design a device that solves a specific problem or a solution to a specific problem. (1-LS1-1) Obtaining, Evaluating, and Communicating Information Obtaining, evaluating, and communicating information in K–2 builds on prior experiences and uses observations and texts to communicate new information. - Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. (1-LS1-2) ----- Connections to Nature of Science Scientific Knowledge is Based on Empirical Evidence Scientists look for patterns and order when making observations about the world. (1-LS1-2)	LS1.A: Structure and Function - 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. (1-LS1-1) LS1.B: Growth and Development of Organisms - 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-LS1-2) LS1.D: Information Processing - 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. (1-LS1-1) LS3.A: Inheritance of Traits - Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents. (1-LS3-1) LS3.B: Variation of Traits Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. (1-LS3-1)	Patterns - Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-LS1-2, 1-LS3-1) Structure and Function - The shape and stability of structures of natural and designed objects are related to their function(s). (1-LS1-1) ----- Connections to Engineering, Technology, and Applications of Science Influence of Engineering, Technology, and Science on Society and the Natural World - Every human-made product is designed by applying some knowledge of the natural world and is built by built using materials derived from the natural world. (1-LS1-1)

