



# Grade 4 Science - Unit 3 - Plants & Animals-Structure, Function & Information Processing

## Unit Focus

In this engaging life science unit, Grade 4 students explore the fascinating ways plants and animals have developed special structures that help them survive in their environments. The journey begins with an anchor phenomenon that challenges the idea of “survival of the fittest”: how can slow-moving animals like the sloth and the horseshoe crab survive in the wild? Students kick off the unit by observing sloths and making initial claims about their survival strategies, which they revisit and revise as they uncover more evidence. Through hands-on experiments, interactive Mystery Science videos, and purposeful readings, students investigate both the internal and external structures of a variety of animals and plants. They examine how body parts work together as systems to support survival, growth, behavior, and reproduction—whether it's the claws of a tiger, the roots of a tree, or the sensitive hearing of an owl.

As the unit progresses, students learn how animals use senses, memories, and instincts to gather and respond to information from their environments. From camouflaged frogfish to highly sensory raccoons, students discover that organisms don’t just survive—they adapt in incredible ways. They also learn that plants, like animals, have structures and responses that support their survival, such as growing toward sunlight or transporting water through internal tubes. The unit culminates in a transfer task centered on the horseshoe crab, a living fossil that has endured for over 445 million years. By the end of the unit, students will be able to explain how structures and behaviors—some surprising, some familiar—have enabled plants and animals to thrive across time and ecosystems.

## Stage 1: Desired Results - Key Understandings

Standard(s)	Transfer	
<p><b>Next Generation Science Standards</b> Cross Cutting Concepts: 4</p> <ul style="list-style-type: none"> <li>A system can be described in terms of its components and their interactions. (4- LS1-1), (LS1-2) (4.SFIP.CC.2.1)</li> </ul> <p>Disciplinary Core Ideas: 4</p> <ul style="list-style-type: none"> <li>Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1) (4.LS1.A.1)</li> <li>Different sense receptors are specialized for particular kinds of information, which may be then processed by the animal’s brain. Animals are able to use their perceptions and memories to guide their actions. (4-LS1-2) (4.LS1.D.1)</li> </ul> <p>Performance Expectations: 4</p> <ul style="list-style-type: none"> <li>Construct an argument that function that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. (4- LS1-1)</li> </ul>	<p><i>Students will be able to independently use their learning to...</i></p> <p><b>T1</b> Create models to explore complex systems, show mastery of key science concepts, and/or develop solutions through creation of a product open to testing and redesign.</p>	
	Meaning	
	Understanding(s)	Essential Question(s)
<p><i>Students will understand that...</i></p> <p><b>U1</b> Plants and animals have internal and external structures that help them survive, grow, and reproduce.</p> <p><b>U2</b> Each structure in an organism serves a function that supports its life and interactions with the environment.</p> <p><b>U3</b> Animals gather information about their surroundings through their senses, and their brains process this information to help them respond in appropriate ways.</p> <p><b>U4</b> The ability to sense and respond to stimuli is important for survival in different environments.</p>	<p><i>Students will keep considering...</i></p> <p><b>Q1</b> How do the internal and external structures of plants and animals help them survive, grow, and reproduce?</p> <p><b>Q2</b> Why do animals need their senses to survive?</p> <p><b>Q3</b> How do animals process and respond to the information they receive from their environment?</p> <p><b>Q4</b> What would happen if a plant or animal didn’t have a specific structure or sense?</p>	

## Stage 1: Desired Results - Key Understandings

<ul style="list-style-type: none"> <li>Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways. (4-LS1-2)</li> </ul> <p>Science and Engineering Practices: 4</p> <ul style="list-style-type: none"> <li>Use a model to test interactions concerning the functioning of a natural system. (4-LS1-2) (4.SFIP.SEP.1.2)</li> <li>Construct an argument with evidence, data, and/or a model. (4-LS1-1) (4.SFIP.SEP.2.1)</li> </ul> <p><b>Madison Public Schools Profile of a Graduate</b></p> <ul style="list-style-type: none"> <li>Design: Engaging in a process to refine a product for an intended audience and purpose. (POG.2.2)</li> </ul>	Acquisition of Knowledge and Skill	
	Knowledge	Skill(s)
	<p><i>Students will know...</i></p> <p><b>K1</b> Different structures in plants (e.g., roots, stems, leaves, flowers) and animals (e.g., lungs, heart, stomach, brain, skin) serve specific functions for survival.</p> <p><b>K2</b> How sensory organs (eyes, ears, nose, skin, tongue) receive information.</p> <p><b>K3</b> The brain processes sensory information and helps animals respond to their environment.</p> <p><b>K4</b> Organisms rely on their structures and senses to find food, avoid danger, and reproduce.</p> <p><b>K5</b> Vocabulary: Internal Structures, External Structures, Function, Survival, Growth, Behavior, Reproduction, Information, Information Transfer, Sense Receptors, Brain, Processing, Response.</p>	<p><i>Students will be skilled at...</i></p> <p><b>S1</b> Identify and describe the function of different plant and animal structures.</p> <p><b>S2</b> Construct an argument explaining how specific structures support an organism's survival.</p> <p><b>S3</b> Use a model to explain how animals sense, process, and respond to information.</p> <p><b>S4</b> Analyze how an animal's response to stimuli helps it adapt and survive in its environment.</p>