

## 4-LS1-1 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

- 4-LS1-1. Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.** [Clarification Statement: Examples of structures could include thorns, stems, roots, colored petals, heart, stomach, lung, brain, and skin.] [Assessment Boundary: Assessment is limited to macroscopic structures within plant and animal systems.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

### Science and Engineering Practices

#### Engaging in Argument from Evidence

Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).

- Construct an argument with evidence, data, and/or a model.

### Disciplinary Core Ideas

#### LS1.A: Structure and Function

- Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction.

### Crosscutting Concepts

#### Systems and System Models

- A system can be described in terms of its components and their interactions.

### Observable features of the student performance by the end of the grade:

1	Supported claims
a	Students make a claim to be supported about a phenomenon. In the claim, students include the idea that plants and animals have internal and external structures that function together as part of a system to support survival, growth, behavior, and reproduction.
2	Identifying scientific evidence
a	Students describe* the given evidence, including: <ol style="list-style-type: none"> <li>The internal and external structures of selected plants and animals.</li> <li>The primary functions of those structures</li> </ol>
3	Evaluating and critiquing evidence
a	Students determine the strengths and weaknesses of the evidence, including whether the evidence is relevant and sufficient to support a claim about the role of internal and external structures of plants and animals in supporting survival, growth, behavior, and/or reproduction.
4	Reasoning and synthesis
a	Students use reasoning to connect the relevant and appropriate evidence and construct an argument that includes the idea that plants and animals have structures that, together, support survival, growth, behavior, and/or reproduction. Students describe* a chain of reasoning that includes: <ol style="list-style-type: none"> <li>Internal and external structures serve specific functions within plants and animals (e.g., the heart pumps blood to the body, thorns discourage predators).</li> <li>The functions of internal and external structures can support survival, growth, behavior, and/or reproduction in plants and animals (e.g., the heart pumps blood throughout the body, which allows the entire body access to oxygen and nutrients; thorns prevent predation, which allows the plant to grow and reproduce).</li> <li>Different structures work together as part of a system to support survival, growth, behavior, and/or reproduction (e.g., the heart works with the lungs to carry oxygenated blood throughout the system; thorns protect the plant, allowing reproduction via stamens and pollen to occur).</li> </ol>