2-LS2-1 Ecosystems: Interactions, Energy, and Dynamics

Students who demonstrate understanding can:

2-LS2-1. **Plan and conduct an investigation to determine if plants need sunlight and water to grow.** [*Assessment Boundary: Assessment is limited to testing one variable at a time.*]

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	Disciplinary Core Ideas	Crosscutting Concepts
Planning and Carrying Out Investigations Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions. • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question.	**LS2.A: Interdependent Relationships in Ecosystems** • Plants depend on water and light to grow.	**Cause and Effect** • Events have causes that generate observable patterns.

Observable features of the student performance by the end of the grade:		
1	Identifying the phenomenon under investigation	
	a	Students identify and describe the phenomenon and purpose of the investigation, which include answering a question about whether plants need sunlight and water to grow.
2	Identifying the evidence to address the purpose of the investigation	
	a	Students describe the evidence to be collected, including:
		i. Plant growth with both light and water.
		ii. Plant growth without light but with water.
		iii. Plant growth without water but with light.
		iv. Plant growth without water and without light.
	b	Students describe how the evidence will allow them to determine whether plants need light and water to grow.
3	Planning the investigation	
	a	Students collaboratively develop an investigation plan. In the investigation plan, students describe the features to be part of the investigation, including:
		i. The plants to be used.
		ii. The source of light.
		iii. How plants will be kept with/without light in both the light/dark test and the water/no water test.
		iv. The amount of water plants will be given in both the light/dark test and the water/no water test.
		v. How plant growth will be determined (e.g., observations of plant height, number and size of leaves, thickness of the stem, number of branches).
	b	Students individually describe how this plan allows them to answer the question.
4	Collecting the data	
	a	According to the investigation plan developed, students collaboratively collect and record data on the effects on plant growth by:
		i. Providing both light and water,
		ii. Withholding light but providing water,
		iii. Withholding water but providing light, or
		iv. Withholding both water and light.