

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

California Alternate Assessment for Science—Item Content Specifications

# HS-LS2-2 Ecosystems: Interactions, Energy, and Dynamics

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
| --- | --- | --- |
| Use mathematical representations (e.g., trends, averages, graphs) to identify dependencies of an animal population on other organisms for food and their environment for shelter. | 1. Ability to use mathematical representations to identify dependencies of an animal population on other organisms for food and their environment for shelter. | Identify factors (e.g., competition) that affect the numbers of organisms in an ecosystem. |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.** [Clarification Statement: Examples of mathematical representations include finding the average, determining trends, and using graphical comparisons of multiple sets of data.] *[Assessment Boundary: Assessment is limited to provided data.]*

## Mastery Statements

Students will be able to:

* Recognize the effect on a population of organisms when there is a significant increase or decrease in the availability of food or shelter
* Use data from a graph or data table to identify the effect on a population of organisms of an increase or decrease in food or shelter resources
* Use data from a graph or data table to identify the cause of a change in the size of a population of organisms

## Environmental Principles and Concepts

Principle 1—The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.

Principle 2—The exchange of matter between natural systems and human societies affects the long-term functioning of both.

## Possible Phenomena or Contexts

*Note that the list in this section is not exhaustive or prescriptive.*

**Possible contexts include the following:**

* Resource availability—an increase or decrease in the availability of food, water, and shelter
* Competition, including an increase or decrease in the number of the same kind of organism that uses a resource or the introduction of new organisms that would use a resource
* Drought or extreme weather conditions
* Significant change to an ecosystem, including the complete eradication of a forest or body of water, or the elimination of an animal population
* Tables or graphs that present changes over time in the numbers and types of organisms in a given ecosystem

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for HS-LS2-2

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-hs-ls2-2.docx>

Environmental Principles and Concepts <http://californiaeei.org/abouteei/epc/>

The *2016 Science Framework for California Public Schools Kindergarten through Grade Twelve* <https://www.cde.ca.gov/ci/sc/cf/cascienceframework2016.asp>

Appendix 1: Progression of the Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts in Kindergarten through Grade Twelve

<https://www.cde.ca.gov/ci/sc/cf/documents/scifwappendix1.pdf>

Appendix 2: Connections to Environmental Principles and Concepts

<https://www.cde.ca.gov/ci/sc/cf/documents/scifwappendix2.pdf>

*Posted by the California Department of Education, August 2020*