

MS-LS2-4 Ecosystems: Interactions, Energy, and Dynamics

California Alternate Assessment for Science—Item Content Specifications

# MS-LS2-4 Ecosystems: Interactions, Energy, and Dynamics

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
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| Identify the outcome using evidence of changes in physical or biological components of an ecosystem to populations of organisms in that ecosystem. | 1. Ability to identify the outcome of changes in physical or biological components of an ecosystem to populations of organisms in that ecosystem. (e.g., some organisms survive and reproduce, some move to new locations, some move into the transformed environment, some die).
 | Recognize effects of changes in an ecosystem on an organism  |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.** [Clarification Statement: Emphasis is on recognizing patterns in data and making warranted inferences about changes in populations, and on evaluating empirical evidence supporting arguments about changes to ecosystems.]

## Mastery Statements

Students will be able to:

* Identify whether a change in an ecosystem helps an individual organism survive or makes it more difficult for the organism to survive
* Identify a specific effect of a physical or biological change in an ecosystem on a population of organisms
* Use information presented in a graph or data table to identify changes in physical or biological conditions and identify the effect on a population of organism
* Use information presented in a graph or data table to identify changes in physical or biological conditions and identify the effect on a population of organism and why the effect occurred

## Environmental Principles and Concepts

Principle 1—The continuation and health of individual human lives and of human communities and societies depend on the health of the natural systems that provide essential goods and ecosystem services.

Principle 2—The long-term functioning and health of terrestrial, freshwater, coastal, and marine ecosystems are influenced by their relationships with human societies.

Principle 3—Natural systems proceed through cycles that humans depend upon, benefit from, and can alter.

Principle 4—The exchange of matter between natural systems and human societies affects the long-term functioning of both.

Principle 5—Decisions affecting resources and natural systems are based on a wide range of considerations and decision-making processes.

## Possible Phenomena or Contexts

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

**Possible contexts include the following:**

* Effect on plants if there is less sunlight
* Effect on plants or animals if there is a long-term change in the temperature
* Effect on plants or animals if there is a significant change in the amount of annual rainfall
* Effect on plants or animals if water becomes polluted
* Effect on plants or animals from human-caused changes to the landscape (dams, homes, farming, etc.)
* Effects on animals if the food or water they need becomes unavailable
* Effects on plants or animals if a competitor is introduced or increases in number

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for MS-LS2-4

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-ms-ls2-4.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>

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