

MS-LS2-3 Ecosystems: Interactions, Energy, and Dynamics

California Alternate Assessment for Science—Item Content Specifications

# MS-LS2-3 Ecosystems: Interactions, Energy, and Dynamics

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
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| Using a model, identify energy transfer between producers, consumers, and decomposers in an ecosystem. | 1. Ability to identify energy transfer between producers, consumers and decomposers in an ecosystem by using a model (e.g., producers get energy from sunlight, producers provide energy for consumers and decomposers recycle nutrients and matter in the ecosystem).
 | Recognize that when people or animals eat plants they are taking energy into their bodies. |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.** [Clarification Statement: Emphasis is on describing the conservation of matter and flow of energy into and out of various ecosystems, and on defining the boundaries of the system.] *[Assessment Boundary*: *Assessment does not include the use of chemical reactions to describe the processes.]*

## Mastery Statements

Students will be able to:

* Use food chain models to identify the transfer of energy from the Sun to producers to consumers
* Use an energy pyramid model to identify the transfer of energy from producers to consumers
* Use a model to identify the transfer of energy between living and nonliving parts of the ecosystem, including primary and secondary consumers

## 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:**

* Food chains
* Food webs
* Pyramid of energy

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for MS-LS2-3

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-ms-ls2-3.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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