

HS-ESS2-5 Earth’s Systems

California Alternate Assessment for Science—Item Content Specifications

# HS-ESS2-5 Earth’s Systems

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
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| Observe and identify the effect of water on the Earth’s materials and surface processes (e.g., stream transportation and deposition, erosion, frost wedging). | 1. Identify the effects of water on the Earth's materials and surface processes. | Recognize that water can erode rocks and soil. |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**Plan and conduct an investigation of the properties of water and its effects on Earth materials and surface processes.** [Clarification Statement: Emphasis is on mechanical and chemical investigations with water and a variety of solid materials to provide the evidence for connections between the hydrologic cycle and system interactions commonly known as the rock cycle. Examples of mechanical investigations include stream transportation and deposition using a stream table, erosion using variations in soil moisture content, or frost wedging by the expansion of water as it freezes. Examples of chemical investigations include chemical weathering and recrystallization (by testing the solubility of different materials) or melt generation (by examining how water lowers the melting temperature of most solids).]

## Mastery Statements

Students will be able to:

* Identify that water can move rocks and soil
* Identify the effects of fast-moving water on hillsides
* Identify that when fast-moving water slows, it drops rocks and soil on the bottom of the waterway
* Identify that when water repeatedly freezes in cracks, it can eventually cause the cracks to become bigger
* Identify that layers of soil and rock can build up where fast-moving water slows and drops rock and soil

## California Environmental Principles and Concepts

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.

## Possible Phenomena or Contexts

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

**Possible contexts include the following:**

* Erosion of hillsides after heavy storms moves materials downhill
* Frost wedging causes large rocks to break into smaller pieces
* Creation of layers formed when rocks and soil are deposited by water
* Movement of rocks and soil down streams

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for HS-ESS2-5

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-hs-ess2-5.docx>

California 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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