

HS-ESS1-1 Earth’s Place in the Universe

California Alternate Assessment for Science—Item Content Specifications

# HS-ESS1-1 Earth’s Place in the Universe

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
| --- | --- | --- |
| Identify components of a model illustrating that the Sun releases light and heat energy that eventually reaches Earth. | 1. Ability to describe components of a model illustrating that the Sun releases light and heat energy, which make life on Earth possible. | Recognize that the Sun is the source of most of the energy on Earth. |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**Develop a model based on evidence to illustrate the life span of the sun and the role of nuclear fusion in the sun’s core to release energy that eventually reaches Earth in the form of radiation.** [Clarification Statement: Emphasis is on the energy transfer mechanisms that allow energy from nuclear fusion in the sun’s core to reach Earth. Examples of evidence for the model include observations of the masses and lifetimes of other stars, as well as the ways that the sun’s radiation varies due to sudden solar flares (space weather), the 11-year sunspot cycle, and non-cyclic variations over centuries.] *[Assessment Boundary*: *Assessment does not include details of the atomic and sub-atomic processes involved with the sun’s nuclear fusion.]*

## Mastery Statements

Students will be able to:

* Recognize that the light seen during the day comes from the Sun
* Recognize that the Sun produces heat that warms Earth
* Identify that plants and animals need the heat and light of the Sun to survive

## Possible Phenomena or Contexts

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

**Possible contexts include the following:**

* Food chains with the Sun as the start of the food chain.
* A model showing the energy transfer between the Sun and Earth
* The Sun releases energy similar to burning wood or natural gas on Earth, but on a more massive scale.

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for HS-ESS1-1

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-hs-ess1-1.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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