

HS-ESS1-4 Earth’s Place in the Universe

California Alternate Assessment for Science—Item Content Specifications

# HS-ESS1-4 Earth’s Place in the Universe

| California Science Connector | Focal Knowledge, Skills, and Abilities | Essential Understanding |
| --- | --- | --- |
| Using a model, describe how Earth’s motion causes changes over time (e.g., seasons, ice ages). | 1. Ability to use a model to describe how the Earth’s motion causes changes over time. | Identify orbiting objects in the solar system. |

## **CA NGSS Performance Expectation**

Students who demonstrate understanding can:

**Use mathematical or computational representations to predict the motion of orbiting objects in the solar system.** [Clarification Statement: Emphasis is on Newtonian gravitational laws governing orbital motions, which apply to human-made satellites as well as planets and moons*.*] *[Assessment Boundary: Mathematical representations for the gravitational attraction of bodies and Kepler’s laws of orbital motions should not deal with more than two bodies, nor involve calculus.]*

## Mastery Statements

Students will be able to:

* Identify the Sun in a diagram of the solar system
* Identify the Moon in a diagram of the solar system
* Identify planets in a diagram of the solar system (does not include name of individual planets)
* Identify how the motion of Earth causes day and night
* Identify how the motion and tilt of Earth causes the seasons
* Identify the season in the northern hemisphere based on the location and tilt of Earth relative to the Sun

## Possible Phenomena or Contexts

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

**Possible contexts include the following:**

* Simple models of the Sun-Moon-Earth system
* Models showing the effect of Earth’s rotation on its axis
* Models showing the effect of Earth’s tilt on which part of Earth receives the most direct sunlight
* Models showing the position of Earth relative to the Sun at different times of the year

## Additional Assessment Boundaries

* None listed at this time

## Additional References

California Science Test Item Specification for HS-ESS1-4

<https://www.cde.ca.gov/ta/tg/ca/documents/itemspecs-hs-ess1-4.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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