

3-ESS2-1 Earth's Systems

California Science Test—Item Content Specifications

# 3-ESS2-1 Earth's Systems

Students who demonstrate understanding can:

Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.

[Clarification Statement: Examples of data could include average temperature, precipitation, and wind direction.] [*Assessment Boundary: Assessment of graphical displays is limited to pictographs and bar graphs. Assessment does not include climate change.*]

| Science and Engineering Practices | Disciplinary Core Ideas | Crosscutting Concepts |
| --- | --- | --- |
| Analyzing and Interpreting Data  Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.  Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. | ESS2.D: Weather and Climate   1. Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next. | Patterns  Patterns of change can be used to make predictions. |

## Assessment Targets

Assessment targets describe the focal knowledge, skills, and abilities for a given three-dimensional Performance Expectation. Please refer to the Introduction for a complete description of assessment targets.

### Science and Engineering Subpractice(s)

Please refer to appendix A for a complete list of Science and Engineering Practices (SEP) subpractices. Note that the list in this section is not exhaustive.

4.1 Ability to record and organize data

4.2 Ability to analyze data to identify relationships

### Science and Engineering Subpractice Assessment Targets

Please refer to appendix A for a complete list of SEP subpractice assessment targets. Note that the list in this section is not exhaustive.

4.1.1 Ability to record information and represent data in tables and graphical displays

4.1.3 Ability to organize data in a way that facilitates analysis and interpretation

4.2.1 Ability to use empirical data to describe patterns and relationships

4.2.2 Ability to identify patterns (qualitative or quantitative) among variables represented in the data

### Disciplinary Core Idea Assessment Targets

#### ESS2.D.2

* Identify and describe patterns of weather across different seasons in one area
* Identify and describe patterns of weather conditions in a particular season across different areas
* Use patterns of weather conditions over different seasons in a particular area to predict the weather conditions expected during a particular season in that area
* Use patterns of weather conditions over different seasons in different areas to predict the weather conditions expected during a particular season in those areas

### Crosscutting Concept Assessment Target(s)

CCC1 Use patterns of change to make predictions

## Examples of Integration of Assessment Targets and Evidence

Note that the list in this section is not exhaustive.

Task provides information/data on one or more weather conditions in an area over time:

* Records information/data using a method appropriate for communicating observations and ideas (4.1.1, ESS2.D.2, and CCC1)
* Records data using a method that will reveal patterns (4.1.3, ESS2.D.2, and CCC1)
* Presents/organizes the data in a way that reveals patterns and enables predictions (4.1.3, ESS2.D.2, and CCC1)

Task provides information/data comparing one weather condition in different places at the same time of the year:

* Records information/data using a method appropriate for communicating observations and ideas (4.1.1, ESS2.D.2, and CCC1)

Task provides data comparing one feature of weather conditions in different places at the same time of the year:

* Describes patterns in the data (4.2.1, ESS2.D.2, and CCC1)

Task provides data on several weather conditions in different places at the same time of the year:

* Identifies patterns among variables in the data (4.2.2, ESS2.D.2, and CCC1)

Task provides data on several weather conditions in an area over time:

* Identifies patterns in the data and makes a prediction about expected weather conditions in that area (4.2.2, ESS2.D.2, and CCC1)

## Possible Phenomena or Contexts

Note that the list in this section is not exhaustive.

* Temperature or precipitation (types, amount)
* Wind direction and speed
* Sunlight (amount, intensity, latitude)
* Effects of altitude or topography

## Common Misconceptions

Note that the list in this section is not exhaustive.

* Weather events are random and cannot be predicted.
* Weather conditions are the same everywhere at the same time of the year.

## Additional Assessment Boundaries

None listed at this time.

## Additional References

3-ESS2-1 Evidence Statement <https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/3-ESS2-1%20Evidence%20Statements%20June%202015%20asterisks.pdf>

The *2016 Science Framework for California Public Schools Kindergarten through Grade 12*

Appendix 1: Progression of the Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts in Kindergarten through Grade 12 <https://www.cde.ca.gov/ci/sc/cf/documents/scifwappendix1.pdf>

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