| **Earth Systems (ESS1)** | | |
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| **1.ESS.1.1 Use observations of the sun, moon, and stars to describe patterns that can be predicted.** | | |
| **Clarification Statement:** Examples of patterns could include that the sun and moon appear to rise in one part of the sky, move across the sky, and set; and stars other than our sun are visible at night but not during the day. | | |
| **Assessment Boundary:** Assessment of star patterns is limited to stars being seen at night and not during the day. | | |
| **Science and Engineering Practice** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.  Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. | Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted | Patterns in the natural world can be observed, used to describe phenomena, and used as evidence.   Science assumes natural events happen today as they happened in the past |
| **1.ESS.1.2 Make observations at different times of year to relate the amount of daylight to the time of year** | | |
| **Clarification Statement:** Emphasis is on relative comparisons of the amount of daylight in the winter to the amount in the spring or fall. | | |
| **Assessment Boundary:** Assessment is limited to relative amounts of daylight, not quantifying the hours or time of daylight | | |
| **Science and Engineering Practice** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| Make observations (firsthand or from media) to collect data that can be used to make comparisons. | Seasonal patterns of sunrise and sunset can be observed, described, and predicted | Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. |
| **2.ESS.1.1 Use information from several sources to provide evidence that Earth events can occur quickly or slowly** | | |
| **Clarification Statement:** from several sources to provide evidence that Earth events can occur quickly or slowly. [Clarification Statement: Examples of events and timescales could include volcanic explosions and earthquakes, which happen quickly and erosion of rocks, which occurs slowly | | |
| **Assessment Boundary:** Assessment does not include quantitative measurements of timescales | | |
| **Science and Engineering Practice** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| Make observations from several sources to construct an evidence-based account for natural phenomena | Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe | Things may change slowly or rapidly |
| **4.ESS.1.1 Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time** | | |
| **Clarification Statement:** Examples of evidence from patterns could include rock layers with marine shell fossils above rock layers with plant fossils and no shells, indicating a change from land to water over time; and, a canyon with different rock layers in the walls and a river in the bottom, indicating that over time a river cut through the rock. | | |
| **Assessment Boundary:** Assessment does not include specific knowledge of the mechanism of rock formation or memorization of specific rock formations and layers. Assessment is limited to relative time | | |
| **Science and Engineering Practice** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| Identify the evidence that supports particular points in an explanation. | Local, regional, and global patterns of rock formations reveal changes over time due to earth forces, such as earthquakes. The presence and location of certain fossil types indicate the order in which rock layers were formed | Patterns can be used as evidence to support an explanation. |
| **5.ESS.1.1 Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth** | | |
| **Clarification Statement:** | | |
| **Assessment Boundary:** Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage) | | |
| **Science and Engineering Practice** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| Support an argument with evidence, data, or a model. | The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth | The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. |
| **5.ESS.1.2 Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky** | | |
| **Clarification Statement:** Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months. | | |
| **Assessment Boundary:** Assessment does not include causes of seasons | | |
| **Science and Engineering Practice** | **Disciplinary Core Ideas** | **Crosscutting Concepts** |
| Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships | The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year. | Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena |