

**First Grade Space Systems: Patterns and Cycles**  
(approximately 6 weeks)

**Big Ideas:**

- **Observe, describe, and predict some patterns of movement of objects in the sky.**

**Essential Questions:**

- What objects are in the sky and how do they seem to move?
- What are the patterns of sunrise and sunset over the course of a year?

**Vocabulary:** cycle, space, patterns, sun, moon, stars

Students who demonstrate understanding can:

- 1-ESS1- 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.]
- 1.**
- 1-ESS1- Make observation 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.]
- 2.**

The performance expectations above were developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

<b>Science and Engineering Practices</b>	<b>Disciplinary Core Ideas</b>	<b>Crosscutting Concepts</b>
<p><b>Planning and Carrying Out Investigations</b> Planning and carrying out investigations to answer questions or test solutions to problems in K–2 builds on prior experiences and progresses to simple investigations, based on fair tests, which provide data to support explanations or design solutions.</p> <ul style="list-style-type: none"> <li>• Make observations (firsthand or from media) to collect data that can be used to make comparisons. (1-ESS1-2)</li> </ul> <p><b>Analyzing and Interpreting Data</b> Analyzing data in K–2 builds on prior experiences and progresses to collecting, recording, and sharing observations.</p> <ul style="list-style-type: none"> <li>• Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. (1-ESS1-1)</li> </ul>	<p><b>ESS1.A: The Universe and its Stars</b></p> <ul style="list-style-type: none"> <li>• Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted. (1-ESS1-1)</li> </ul> <p><b>ESS1.B: Earth and the Solar System</b></p> <ul style="list-style-type: none"> <li>• Seasonal patterns of sunrise and sunset can be observed, described, and predicted. (1-ESS1-2)</li> </ul>	<p><b>Patterns</b></p> <ul style="list-style-type: none"> <li>• Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. (1-ESS1-1),(1-ESS1-2)</li> </ul> <p>-----</p> <p><b>Connections to Nature of Science</b> <b>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</b></p> <ul style="list-style-type: none"> <li>• Science assumes natural events happen today as they happened in the past. (1-ESS1-1)</li> <li>• Many events are repeated. (1-ESS1-1)</li> </ul>

*Connections to other DCIs in first grade: N/A*

*Articulation of DCIs across grade-levels:*

**3.PS2.A** (1-ESS1-1); **5.PS2.B** (1-ESS1-1),(1-ESS1-2); **5.ESS1.B** (1-ESS1-1),(1-ESS1-2)

*Common Core State Standards Connections:*

*ELA /Literacy -*

**W.1.7** Participate in shared research and writing projects (e.g., explore a number of “how-to” books on a given topic and use them to write a sequence of instructions). (1-ESS1-1),(1-ESS1-2)

**W.1.8** With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-ESS1-1),(1-ESS1-2)

*Mathematics —*

**MP.2** Reason abstractly and quantitatively. (1-ESS1-2)

**MP.4** Model with mathematics. (1-ESS1-2)

**MP.5** Use appropriate tools strategically. (1-ESS1-2)

**1.OA.A.1** Use addition and subtraction within 20 to solve word problems involving situations of adding to, taking from, putting together, taking apart, and comparing, with unknowns in all positions, e.g., by using objects, drawings, and equations to represent the problem. (1-ESS1-2)

**1.MD.C.4** Organize, represent, and interpret data with up to three categories; ask and answer questions about the total number of data points, how many in each category, and how many more or less are in one category than in another. (1-ESS1-2)