

4-ESS1 Earth's Place in the Universe

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Students who demonstrate understanding can:

- 4-ESS1-1. 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.]

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

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Constructing Explanations and Designing Solutions</p> <p>Constructing explanations and designing solutions in 3–5 builds on K–2 experiences and progresses to the use of evidence in constructing explanations that specify variables that describe and predict phenomena and in designing multiple solutions to design problems.</p> <ul style="list-style-type: none"> Identify the evidence that supports particular points in an explanation. (4-ESS1-1) 	<p>ESS1.C: The History of Planet Earth</p> <ul style="list-style-type: none"> 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. (4-ESS1-1) 	<p>Patterns</p> <ul style="list-style-type: none"> Patterns can be used as evidence to support an explanation. (4-ESS1-1) <p style="text-align: center;">-----</p> <p style="text-align: center;">Connections to Nature of Science</p> <p>Scientific Knowledge Assumes an Order and Consistency in Natural Systems</p> <ul style="list-style-type: none"> Science assumes consistent patterns in natural systems. (4-ESS1-1)
<p><i>Connections to other DCIs in fourth grade:</i> N/A</p>		
<p><i>Articulation of DCIs across grade-levels:</i> 2.ESS1.C (4-ESS1-1); 3.LS4.A (4-ESS1-1); MS.LS4.A (4-ESS1-1); MS.ESS1.C (4-ESS1-1) MS.ESS2.A (4-ESS1-1); MS.ESS2.B (4-ESS1-1)</p>		
<p><i>Common Core State Standards Connections:</i></p> <p><i>ELA/Literacy –</i></p> <p>W.4.7 Conduct short research projects that build knowledge through investigation of different aspects of a topic. (4-ESS1-1)</p> <p>W.4.8 Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information, and provide a list of sources. (4-ESS1-1)</p> <p>W.4.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (4-ESS1-1)</p> <p><i>Mathematics –</i></p> <p>MP.2 Reason abstractly and quantitatively. (4-ESS1-1)</p> <p>MP.4 Model with mathematics. (4-ESS1-1)</p> <p>4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. (4-ESS1-1)</p>		

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea.

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