

Unit 1 - Processes that Shape the Earth Pacing Guide

*Informational writing standards are now being covered in science. Please use [these resources](#) to address the informational writing standards. These lessons can be incorporated at any point during the unit.

Unit & Lesson #	Focus	Standards Addressed	Day (20-30 minutes)	Overview	Writing	Additional Activities
Earth's Features & Processes Anchor Phenomenon Fossil Finds	Fossils and Constructing Explanations	4-ESS1-1 4-ESS2-1 4-ESS2-2 4-ESS3-2	1	The anchor phenomenon for this unit is the Ashfall Fossil Beds. Students generate observations and questions about the phenomenon and create an initial explanation to explain what killed the prehistoric animals, how their bones ended up underground, and what changes happened to the land that uncovered their fossils.	Ashfall Fossil Beds Evidence Chart Ashfall Fossil Beds Explanation See-Think-Wonder Chart	
Earth's Features & Processes Lesson 1 Could a volcano pop up where you live?	Volcanoes & Patterns of Earth's Features	4-ESS2-2	2	In this session, students explore the past and present pattern of where volcanoes exist on the earth.		
			3	In the hands-on activity, Mapping Volcanoes, students plot volcano locations on a world map and look for patterns. Students		

7	In the hands-on activity, Bubble Trouble, students compare two different types of "lava" -- thin and thick. They use this information to figure out why volcanoes have different shapes and how the type of lava explains why some volcanoes explode. Wrap-up slides & teacher-led discussion.	<u>Lava Experiment</u>			
8	Anchor Connection Students wonder: How do mountains and volcanoes change shape? Students learn: The volcanoes closest to the Ashfall Fossil Beds site erupted thick lava. These eruptions create huge explosions and the ash could have made it all the way to Nebraska	<u>Science Journal</u> entry to answer anchor connection question.			
9	<u>Lesson 2</u> <u>Assessment</u> Extensions include: Readings and				

Earth's Features & Processes Lesson 3	Weathering & Erosion	4-ESS2-1	10	videos. In this session, students will explore how solid rock breaks apart into smaller pieces through a process called weathering (including root-wedging and ice-wedging).		
			11	In the hands-on activity, Sugar Shake, students use sugar cubes as a model for rocks. They perform an experiment with this model to understand the process of weathering and how this process explains why rocks at the tops of mountains are jagged, while those at the bottom are rounded. Teacher-led discussion.		
			12	Anchor Connection Students wonder: How does land build up? Students learn: Pieces of rock fall down nearby mountains and are	Science Journal entry to answer anchor connection question.	

				smoothed as they tumble. Over time these rocks, along with sediments, were carried by a river to the Ashfall Fossil Beds site, piling on top of the rhino fossils.			
			13	<u>Lesson 3</u> <u>Assessment</u> Extensions include: Readings, activities, and videos.			
			14	In this session, students gather evidence to describe how environments on Earth have changed over time. Students explore how the process of sedimentary rock formation preserves a record of those past environments.			
			15	In the hands-on activity, Canyon Explorer, students observe fossils found within a model canyon. The characteristics of those fossils provide evidence to support the explanation that the landscape has changed numerous times.			
			4-ESS1-1				
			Sedimentary Rock & Fossils				
Earth's Features & Processes Lesson 4	What did your town look like 100 million years ago?						

came from?				determine where each rock was found. They will support each of their claims with evidence.		
Unit 1 Benchmark			25	LPS Unit 1 Benchmark (Given via LinkIt!)		