

## Teacher's Guide Grade 5: Learning From the Past



**TEKS 5.7 Earth and Space:** The student knows Earth's surface is constantly changing and consists of useful resources. The student is expected to:

**D)** identify fossils as evidence of past living organisms and the nature of the environments at the time using models.



**Background Information:** This unit emphasizes that the surface of the Earth is constantly changing. It teaches students how evidence can be collected and used to help identify changes that have occurred over a very long period of time.

Students know that data collected before and after an event occurs, such as photos taken before and after a volcanic eruption occurs, can be used as evidence that a rapid change has taken place on Earth's surface. This unit focuses on how sedimentary rock layers and the fossils they contain can be used as evidence to determine how climates and environments have changed over a very long period of time and to determine some of the organisms that inhabited the environment during that time. It also allows students to model how fossils provide evidence of past living organisms and the environment in which they lived.

In addition, this unit presents some of the evidence used by scientists to support the theory of Continental Drift and Pangaea, such as the shapes of the continents, and the same types of landforms and fossils that are found in the same sedimentary rock layers on different continents. This evidence and the theory of Continental Drift helped scientists develop the current theory of Plate Tectonics that students will learn about in depth later on.



**Prerequisite Knowledge:** Prior to this year, students have learned that the natural world includes earth materials that are continuously recycled. They are able to describe, compare, and sort rocks by shape, size, shape, color and texture and have explored and recorded how soils are formed by the weathering of rock and the decomposition of plant and animal remains. This provides the foundation for students to comprehend how sedimentary rock

is formed and how evidence of organisms that inhabited the environment where the rock was forming was preserved as fossils within rock layers.



**Common Misconceptions:** Students often think of fossils as the body parts of dead animals and plants. Fossils are usually not actual parts of plants and animals, but rather preserved impressions or traces in the rock that provides evidence these organisms once lived. The soft parts of organisms decay over time, but the hard parts of their bodies and their shapes are preserved in the rock as it hardens. Most fossils are found in sedimentary rock.



**Essential Questions:**

1) How are different types of fossils formed?

*Hard body parts of plants and animals, such as seeds, stems, shells, bones, and teeth turn into rock or leave imprints in rock. Softer body parts such as skin, muscles, and leaves decay over time, leaving imprints in hardening sediment. These preserved remains or traces of prehistoric life are called fossils.*

2) How is sedimentary rock formed?

*Sedimentary rock is formed when sediments from weathered and eroded rock and soil are deposited layer upon layer over a long period of time. The sediments are compacted and compressed from the weight and friction of layers being added on top until they become rock. The remains of dead plants and animals that lived in the area are often preserved as fossils in rock layers as they form.*

3) How can sedimentary rocks and the fossils they contain provide evidence of past environments?

*Sedimentary rock forms in layers from sediments of weathered and eroded rock that are deposited over time. The oldest rock layers are usually towards the bottom. This provides an idea when and how the different layers of rock formed. As climates and environments change over time, information such as the amount of sediments, the type of rock from which they formed and the types of organisms that inhabited the environments at that time are preserved in the layers of rock. For example, limestone rock that contains fossils of sea shells indicates that at one time the area was covered by a warm shallow sea.*



**Notes:**