Evidence from Rocks PowerPoint Notes

Evidence from rocks allows us to understand the evolution of life on Earth. The rock cycle includes the formation of new sediment and rocks; and rocks are often found in layers, with the oldest generally on the bottom.

Geology

Earth’s environment has been changing slowly since it was formed _______________ years ago. These changes are the driving force behind evolution. _______________ is the study of Earth’s formation and structure. Geologists (geo- from Greek ge which means “earth”; -ology means “study of”) study _______________ to find clues to Earth’s formation. Evidence from rocks and fossils allows us to understand the _______________ of life on Earth.

Tonguestones and Shark’s Teeth

In 1666, Nicholas _______________, a Danish anatomist, studied a shark’s head and noticed that the shark’s teeth resembled mysterious stones called “____________________” that were found inside of local rocks. At this time, people believed that tonguestones had either fallen from the moon, or that they _______________ inside the rocks. Steno theorized that tonguestones looked like shark’s teeth because they actually were __________ _________ that had been buried and became fossils. Steno concluded that when a shark dies, _______________ are deposited over its body. After a short time, the shark’s soft parts decay, but the teeth do not. Over many years, layers of sediment cover the teeth. Over many more years, the layers of sediment are pressed together and become sedimentary _______________. The shark’s _______________ become part of the rock.

The Rock Cycle

The rock cycle is the process of rock _______________ and recycling. Sedimentary rock formation is part of the rock cycle. (The other two types of rocks are igneous and metamorphic.) When rocks are unearthed and exposed to Earth’s atmosphere, they are subject to _______________ and erosion breaking up rocks into sediments.
Sedimentary rock layers form horizontally. Sediments are washed from the land and transported into bodies of water. They settle to the bottom because of gravity. Any change in the composition of material being deposited shows up as a distinct layer. Over time, those layers of sediment become layers of rock. Parts of organisms that do not decompose may become fossils within the layers.

Rock layers form from the bottom up. The relative age of each layer of sedimentary rock can be determined by applying an idea called superposition. Superposition states that the oldest layer of sedimentary rock is below the layer on top because the bottom layer formed before the layer on top. Stacking old newspapers in the order in which you received them illustrates superposition. The oldest newspaper will be on the bottom, and the newest on top.

Rock layers are bent or shifted by forces. Rock layers may bend or shift. Sometimes rock layers are found standing vertically, or tilted, or rolled into curves. Movements of Earth’s crust create very powerful forces. Those forces can move and twist horizontal rock layers into different positions.

Layers of rock are continuous. Horizontal layers of rock are continuous. When layers of sediment form, they extend in all directions. By comparing rock layers in the Grand Canyon, geologists have found that the layers on one side of the canyon more or less line up with the layers on the other side. A flowing river can interrupt layers or an earthquake can offset them. The Colorado River formed the gap that is now the Grand Canyon.