Name: _____ Date: _____

Weathering, Erosion, and Deposition

Science Literacy Article

The geological processes of weathering, erosion, and deposition help to break down, move, and drop rock and sediments in new locations.

1. **Weathering** is the geologic process of breaking down rock on Earth's surface. During weathering, rocks are broken down into *smaller and smaller pieces* and eventually help to create soil. There are two main types of weathering:
   a) During **mechanical weathering**, rock is physically broken down into smaller pieces but the chemical composition of the minerals within the rock does not change. For example, water is able to seep into the tiny cracks of many rocks. When the temperature drops, this water freezes and expands which then breaks the rocks apart. This type of mechanical weathering is known as *frost wedging*. There are many other types of mechanical weathering.
   b) During **chemical weathering**, rock is broken down through chemical changes which alter the chemical composition of at least some of the minerals within the rock. For example, when water and carbon dioxide mix, carbonic acid is formed which can react with the minerals in rocks such as limestone. This process is known as *carbonation*. There are many other types of chemical weathering.

2. **Erosion** is the geologic process by which water, wind, ice, and/or gravity move pieces of rock or soil. These small, solid pieces of material are known as **sediments**. The *force of moving water* is the main cause of erosion on Earth and can occur as rainfall, rivers, ocean waves, and even floods. *Wind* is also a major cause of erosion because it can pick up and carry loose sediments, especially in dry areas. *Ice* in the form of glaciers can slowly move away sediments as the glaciers move across landmasses. Even *gravity* can cause erosion by pulling sediments down the slopes of hills and mountains. This movement of large masses of rock, soil, and/or mud is known as **mass movement**. There are four main types of mass movement which are known as *landslides* (rock and soil quickly slide down a slope), *mudflow* (a mixture of water, rock, and soil rapidly flow downhill), *slump* (rock and soil suddenly slip down a slope in one huge mass), and *creep* (rock and soil slowly move downhill over time).

3. **Deposition** is the geologic process by which eroded sediments settle and are deposited or dropped in a new location. Deposition helps to build up new land on the Earth's surface. Some common landforms that are created through the process of deposition are *deltas* (sediments deposited by a river flowing into an ocean), *alluvial fans* (sediments deposited by a stream leaving a mountain range), *beaches* (sediments deposited by ocean waves), *sand dunes* (sediments deposited by wind), and *moraines* (sediments deposited by glaciers).

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