Notes #2: What is Earth Made of & How Does That Change

Do you think that Earth has always looked as it does now? Why or why not?

Answers will vary...

The very top layer of the Earth is called the crust. This layer is covered with the soil and vegetation that you see when you look outside. The landforms that you see have been formed over long periods of time through the processes of weathering and erosion. Weathering is the process that gradually breaks down materials like rock and minerals. Erosion is the movement of rock, minerals, or sediment by wind, water, or ice.

Weathering occurs in several different ways, but scientists consider there to be two main types of weathering; physical and chemical.

Physical, or mechanical weathering, is when rock or mineral is broken down into smaller pieces without a chemical change. With physical weathering, the material stays the same, it is just in smaller pieces. Ice wedging, abrasion, and exfoliation are three types of physical weathering. Chemical weathering occurs when rocks or minerals are broken down when a chemical change causes all or part of the material to change into another substance. One example of this is oxidation, which occurs when elements like iron are exposed to oxygen causing them to rust. This process makes the rock appear red or orange, and weakens it making it more likely to crumble. When carbon dioxide combines with water droplets in the air they form a weak acid that falls to Earth as acid rain and over time can dissolve certain rocks and minerals.

When these smaller pieces of rock or mineral move due to wind, water, or ice, this is called erosion. Surface water, groundwater, waves, and wind are all mechanisms of erosion that carry sediment from one location to another. Combined, the processes of weathering and erosion have been changing the surface features of Earth for millions of years.