**Composition, Properties, and Changes of the Earth**

**Learning Targets**

**Compare and contrast the formation of rock types – igneous, metamorphic, and sedimentary – and demonstrate the similarities and differences using the rock cycle.**

* All rocks are similar because they are composed of minerals.
* There are three different types of rocks – igneous, metamorphic, and sedimentary.
* The three rock types are different in the way in which they are formed.
* Igneous rocks are formed from melted minerals that have cooled and hardened.
* Metamorphic rocks are formed by intense heat, pressure, and chemical reactions.
* Sedimentary rocks are formed from rocks and soil that have been pressed together and cemented together.
* The rock cycle is a process of natural changes that cause one type of rock to become another type of rock.

**Explain how physical and chemical weathering lead to erosion and the formation of soils and sediments.**

* Weathering breaks down rock.
* Abrasion, freeze-thaw, thermal expansion/contraction, pressure unloading, and plants and organisms cause physical weathering.
* Chemical processes cause chemical weathering.
* As soon as a rock particle is loosened by weathering and moves it is called erosion.
* Eroded rock is one of the main components of soil.

**Explain how waves, wind, water, and glacial movement shape and reshape the land surface of the Earth by eroding rock in some areas and depositing sediments in other areas.**

* Rock can be eroded by wind, water (including waves), and glacial movement.
* Processes of erosion in part determine the shapes of landforms.
* Fragments of rock that are produced by erosion and transported are called sediment.
* Sediment that is transported by the energy of wind or water is deposited when the energy level decreases.

**Describe how soil is a mixture, made up of weather-eroded rock and decomposed organic material, water, and air.**

* One of the components in soil is mineral, which is made from many tiny pieces of eroded rock.
* Another component in the soil is the organic material that comes from decaying plants and animals.
* Minerals and organic material make up approximately half of soil.