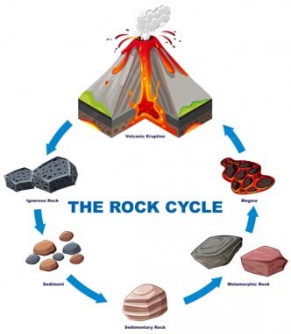
Name _____

The Rock Cycle: A Journey Through Earth's Rock Transformations



The Earth's surface is constantly changing, and one of the fascinating processes that contribute to this change is the rock cycle. Imagine rocks as travelers on an incredible journey, transforming from one type to another over millions of years.

The rock cycle is a natural process that describes how rocks on Earth can change from one type to another over time. These changes occur due to various forces, including heat, pressure, weathering, and erosion. The rock cycle has three main types of rocks at its heart: igneous, sedimentary, and metamorphic.

1. Igneous Rocks

Igneous rocks are like the Earth's fiery history. They form when molten rock, called magma or lava, cools and solidifies. Magma comes from deep within the Earth, and when it erupts onto the surface as lava, it cools rapidly, forming volcanic igneous rocks like basalt. When magma cools slowly beneath the Earth's surface, it creates intrusive igneous rocks like granite. These rocks are the starting point of the rock cycle.

2. Sedimentary Rocks

Imagine sedimentary rocks as storytellers of Earth's past. They form from the accumulation and compression of tiny particles like sand, silt, and clay, along with organic matter and minerals. Over time, these sediments build up and solidify, creating layers of sedimentary rocks. Examples of sedimentary rocks include limestone, sandstone, and shale. Fossils often hide within these rocks, preserving clues about ancient life forms.

3. Metamorphic Rocks

Metamorphic rocks are like shape-shifters in the rock cycle. They start as either igneous or sedimentary rocks but undergo a transformation due to heat and pressure deep within the Earth. This process changes their mineral composition and structure, resulting in rocks like marble from limestone or schist from shale. Metamorphic rocks can sometimes display beautiful patterns and colors.

The Rock Cycle in Action

- **Formation of Sediments:** Weathering and erosion break down rocks into tiny pieces, creating sediments. These sediments can be carried by wind, water, or ice and deposited in new locations.
- **Sedimentary Rock Formation:** Over time, layers of sediment accumulate and compact, forming sedimentary rocks. This process can take thousands or even millions of years.
- **Heat and Pressure:** If these sedimentary rocks are buried deep within the Earth's crust, they may experience heat and pressure. This leads to the formation of metamorphic rocks.
- **Magma and Lava:** Sometimes, magma rises from the Earth's mantle and cools to form igneous rocks. It can also erupt as lava, creating volcanic igneous rocks.
- **Weathering and Erosion Again:** Weathering and erosion can break down rocks of any type, turning them into sediments once more, restarting the cycle.