Name: Science

8th - NTI Day 7

Lesson 36

Rock Cycle, Erosion, and Deposition

Rocks, fascinating as they are, have a story of their own. This story spins in a ceaseless loop known as the **rock cycle**, demonstrating how a rock can metamorphose from one type to another.

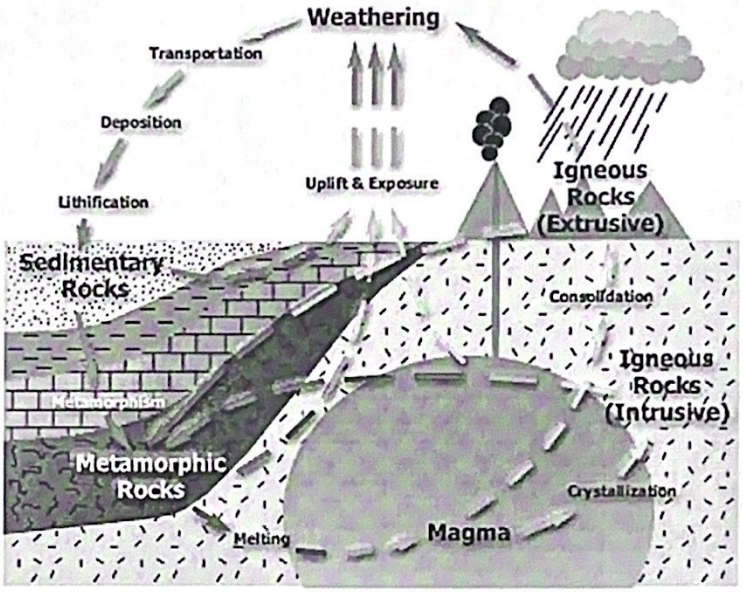
Important steps in this grand dance of transformation are weathering, erosion, and deposition. **Weathering** involves the breaking down of rocks into components like soil, sand, and other sediment types through the action of wind, rain, snow, sleet, or hail. Once the rock is broken down into sediment, processes of erosion or deposition may kick in. **Erosion** is when the Earth's surface is gradually worn away by elements like wind and water. **Deposition**, on the other hand, refers to the process where sediment is relocated and settled in a new place. We classify rocks primarily into three categories: igneous, sedimentary, and metamorphic. Each rock type has a unique formation process that takes a span of millions of years.

Let's talk about **igneous rocks** first. These form when rock minerals melt, cool, and then solidify again. There's a vast variety of igneous rocks, and their differences are based on where they were formed. Intrusive rocks originate beneath the Earth's surface when the molten rock, or magma, cools and hardens. Over time, these rocks are revealed as the layers above them erode due to weathering or erosion. In contrast, **extrusive rocks** form when lava on the Earth's surface cools and hardens. Some examples of igneous rocks include granite, basalt, obsidian, and pumice.

Next, we have **sedimentary rocks**. These are created from layers of eroded sediment material, such as remains of plants and animals and rock fragments, which settle in layers, compact, and harden over time. Interestingly, fossils are often found embedded in these layers of sedimentary rocks. Some sedimentary rock examples include rock salt, halite, limestone, sandstone, and shale. A special kind called **conglomerates** is made of pebbles, boulders, or shells that have hardened together.

Lastly, **metamorphic rocks** begin their journey as another type of rock—igneous, sedimentary, or even another metamorphic rock— and *transform* over time. This transformation is driven by extreme heat and pressure and usually takes place deep beneath the Earth's surface. Unlike other rocks, a metamorphic rock doesn't melt but instead undergoes changes in its structure and texture. Examples of metamorphic rocks are gneiss, quartzite, slate, and marble. In the grand scheme of the rock cycle, every rock has its part to play, and each transformation adds another chapter to its fascinating story.

Rock Cycle Diagram



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1. What is the process of breaking down rocks into components like soil and sand called?
   - **A.** Deposition
   - **B.** Erosion
   - **C.** Weathering
   - **D.** Metamorphosis

2. What happens during the process of erosion?
   - **A.** The Earth's surface is gradually built up.
   - **B.** The Earth's surface is gradually worn away.
   - **C.** Rocks are transformed into another type.
   - **D.** Sediment is relocated and settled in a new place.

3. Which of the following is **not** a type of rock?
   - **A.** Igneous
   - **B.** Sedimentary
   - **C.** Metamorphic
   - **D.** Intrinsic

4. What is the difference between intrusive and extrusive rocks?
   - **A.** Intrusive rocks form on the Earth's surface while extrusive rocks form beneath it.
   - **B.** Intrusive rocks form beneath the Earth's surface while extrusive rocks form on it.
   - **C.** Intrusive rocks are made of pebbles and shells while extrusive rocks are not.
   - **D.** Intrusive rocks contain fossils while extrusive rocks do not.

5. What are sedimentary rocks formed from?
   - **A.** Molten lava
   - **B.** Eroded sediment materials
   - **C.** Melted, cooled and solidified rock minerals
   - **D.** Extreme heat and pressure

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6. Where are fossils most often found?
   - A. In layers of igneous rock
   - B. In layers of sedimentary rock
   - C. In layers of metamorphic rock
   - D. In layers of extrusive rock

7. What are conglomerates?
   - A. Metamorphic rocks
   - B. Sedimentary rocks made up of pebbles, boulders, or shells
   - C. Igneous rocks
   - D. Types of minerals

8. What process causes the formation of metamorphic rocks?
   - A. Deposition
   - B. Erosion
   - C. Cooling and hardening of lava
   - D. Extreme heat and pressure

9. What happens to the structure and texture of metamorphic rocks over time?
   - A. They undergo changes
   - B. They melt
   - C. They break down into sediment
   - D. They form layers

10. Which of the following is an example of a metamorphic rock?
   - A. Granite
   - B. Halite
   - C. Quartzite
   - D. Pumice