

Name \_\_\_\_\_

## Shaping the Earth: How the Rock Cycle Sculpts Our Landscapes

### Open-Ended Response Answer Key

1. The rock cycle is essential in shaping Earth's surface features and landscapes as it continuously transforms rocks from one type to another. For example, igneous rocks create volcanic islands through eruptions, sedimentary rocks form the layers beneath the oceans and capture Earth's history, and metamorphic rocks are exposed in regions like plateaus. This dynamic process gives rise to mountains, canyons, beaches, and caves, sculpting the diverse landscapes we see today.
2. Tectonic plate movements play a crucial role in the formation of mountain ranges. When two tectonic plates collide, immense pressure pushes rocks upward, creating towering mountain ranges. The igneous rock cycle contributes by forming volcanic mountains through eruptions, while metamorphic rocks can be exposed at the surface due to tectonic forces. Together, these processes shape the Earth's majestic peaks.
3. Beaches are primarily formed through the accumulation of ocean sediments along coastlines. Sedimentary rocks play a significant role in this process as they are eroded and transported by rivers and ocean currents. As sediments accumulate, they create sandy beaches. These sediments often originate from the erosion of ancient rocks, showcasing the rock cycle's influence on coastal beauty.
4. Caves are created as a result of the dissolution of limestone, a common sedimentary rock, by acidic water. Over time, this chemical process carves intricate cave systems underground, adorned with formations like stalactites and stalagmites. The rock cycle contributes by providing the limestone rock that undergoes this transformation.

