

Name _____

Fiery Giants: Volcanic Eruptions and Tectonic Plate Boundaries

Open-Ended Response Answer Key

1. Divergent plate boundaries, such as mid-ocean ridges, create volcanic eruptions through the upwelling of magma, forming new oceanic crust. Convergent plate boundaries, like subduction zones, result in explosive volcanic eruptions due to the melting of subducting plates. Transform plate boundaries can have volcanic activity along fault lines, forming volcanic islands like those in the Caribbean.
2. Volcanic islands often have unique ecosystems with species adapted to their volcanic environment. Challenges include volcanic hazards, but benefits include fertile soils and opportunities for tourism.
3. Volcanic eruptions can impact climate by releasing ash and gases into the atmosphere. Major eruptions, like Mount Pinatubo, can cool the Earth temporarily. Over time, volcanic activity contributes to the carbon cycle and affects weather patterns.
4. Volcanic eruptions can lead to the formation of valuable resources. Minerals are often found in volcanic deposits, geothermal energy harnesses heat from volcanic activity, and volcanic soils are highly fertile, supporting agriculture. These resources benefit economies and societies.

