Name _____

The Ever-Changing Dance of Plate Boundaries

Short Answer Key

1. At divergent plate boundaries, two tectonic plates move away from each other. As they separate, magma rises from the mantle, creating new oceanic crust. An example of a divergent boundary is the Mid-Atlantic Ridge, where the Eurasian and North American Plates are moving apart, causing the Atlantic Ocean to widen.
2. Subduction occurs at convergent plate boundaries when one tectonic plate is pushed beneath another. This process results in the consumption of one plate into the mantle, causing a shift in plate positions. Over time, subduction can lead to changes in plate boundaries and the formation of features like deep ocean trenches and volcanic arcs.
3. Geological time scales, which span millions to billions of years, allow us to comprehend the gradual changes in plate boundaries. While these changes may be imperceptible in our lifetimes, they have a profound impact on Earth's history and its surface. It helps us track the movement of continents, the formation of supercontinents, and the evolution of plate boundaries over immense periods.
4. Convergent Plate Boundaries: Examples include mountain ranges (e.g., the Himalayas), deep ocean trenches (e.g., the Mariana Trench), and volcanic arcs (e.g., the Andes Mountains).

   Divergent Plate Boundaries: Features include mid-ocean ridges (e.g., the Mid-Atlantic Ridge), rift valleys (e.g., the East African Rift), and volcanic islands (e.g., Iceland).

5. Plate tectonics is instrumental in the formation and breakup of supercontinents. Over geological time, continents move and converge to form supercontinents, and then they disperse again. For example, Pangaea, a supercontinent, existed around 335 million years ago and eventually broke apart into the continents we see today. Plate movements and interactions are responsible for these processes.