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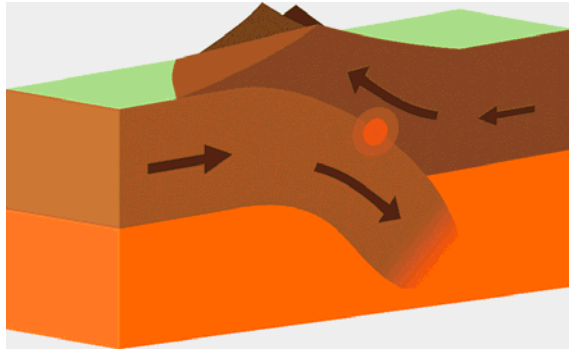


Plate Tectonic Boundaries: Where Earth's Puzzle Pieces Meet

Have you ever wondered how tectonic plates, Earth's giant jigsaw pieces, interact with each other? These plates have specific boundaries where their edges meet, and these boundaries can create spectacular geological events.

Divergent Boundaries

Imagine two tectonic plates pulling away from each other. That's a divergent boundary! At these boundaries, new crust is formed as magma rises from the Earth's mantle, creating underwater mountain ranges called mid-ocean ridges. The Mid-Atlantic Ridge, running through the Atlantic Ocean, is a famous example. Divergent boundaries also result in earthquakes and volcanic activity.

Convergent Boundaries

Convergent boundaries are where tectonic plates move towards each other. When two plates collide, one may be forced beneath the other in a process called subduction. This collision often leads to the formation of towering mountain ranges, like the Himalayas, and deep ocean trenches, such as the Mariana Trench. Subduction zones can also trigger powerful earthquakes and volcanic eruptions.

Transform Boundaries

At transform boundaries, tectonic plates slide past each other horizontally. Picture yourself standing on one side of a road while a friend stands on the other side. As you both walk in opposite directions, you create a boundary where you interact. Similarly, transform boundaries are like the seams in a giant cosmic zipper. The movement along these boundaries can cause earthquakes as the plates grind against each other. The San Andreas Fault in California is a well-known transform boundary.

Plate Interiors: Continental and Oceanic

Apart from the boundaries, it's essential to understand that Earth's crust is divided into two major types: continental and oceanic. Continental crust forms the landmasses, while oceanic crust lies beneath the ocean floor. These different types of crust behave differently at plate boundaries. For example, when an oceanic plate collides with a continental plate, the denser oceanic plate often sinks beneath the continental plate, creating a subduction zone.

Plate Boundaries in Action

The movement and interactions at plate boundaries are dynamic and ever-changing. While it may take millions of years for significant geological features to form, the processes are constantly at work. Earthquakes, volcanic eruptions, the creation of mountain ranges, and the widening of oceans are all outcomes of plate tectonic boundaries in action.