

# 6 3 crustal boundaries earth science

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### 6 Types of Crustal Boundaries in Earth Science

#### What are crustal boundaries?

Crustal boundaries are the interfaces between different tectonic plates, which are large sections of the Earth's crust that move independently. These boundaries are where geological processes occur, such as earthquakes, volcanoes, and mountain formation. There are six main types of crustal boundaries:

#### 1. Divergent Boundaries

- **Question:** What happens at divergent boundaries?
- **Answer:** Divergent boundaries are where tectonic plates move apart. New oceanic crust is formed as magma rises from the mantle and fills the gap between the separating plates. The Mid-Atlantic Ridge is an example of a divergent boundary.

#### 2. Convergent Boundaries

- **Question:** What happens at convergent boundaries?
- **Answer:** Convergent boundaries are where tectonic plates collide. There are three main types of convergent boundaries:
  - **Oceanic-Continental Convergence:** An oceanic plate collides with a continental plate, forming a mountain range.
  - **Oceanic-Oceanic Convergence:** Two oceanic plates collide, forming an island arc or a trench.

- **Continental-Continental Convergence:** Two continental plates collide, forming a mountain range.

### 3. Transform Boundaries

- **Question:** What happens at transform boundaries?
- **Answer:** Transform boundaries are where tectonic plates slide past each other horizontally. Earthquakes are common along transform boundaries due to the built-up strain from the plates moving against each other. The San Andreas Fault is an example of a transform boundary.

### 4. Subduction Zones

- **Question:** What happens at subduction zones?
- **Answer:** Subduction zones are a type of convergent boundary where one plate dives beneath another. The descending plate melts and releases water, which can cause volcanoes and earthquakes. The Mariana Trench is an example of a subduction zone.

### 5. Back-Arc Basins

- **Question:** What happens at back-arc basins?
- **Answer:** Back-arc basins are formed by the extension of the crust behind a subduction zone. Magma rises from the mantle and fills the basin, creating new oceanic crust.

### 6. Hotspots

- **Question:** What happens at hotspots?
- **Answer:** Hotspots are areas where magma rises from deep within the mantle, forming volcanoes and islands. Hotspots are not associated with plate boundaries and can occur anywhere on the planet. The Hawaiian Islands are an example of a hotspot.

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