

Plate Tectonic Movements

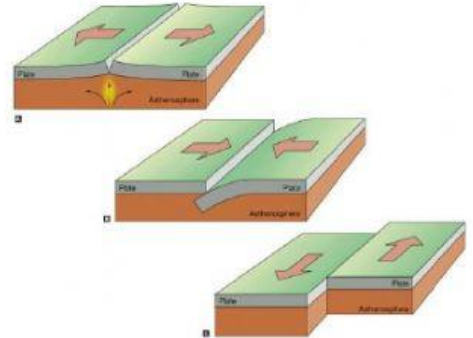
Name: _____ Period: _____ Date: _____

EQ: How is Earth's crust changed by plate movements?

Plate Tectonics: Welcome to the greatest show on Earth. Propelled by intense heat simmering beneath the crust or the mantle, *Earth's surface is dramatically reshaping itself in an endless, slow-motion movement* called plate tectonics. Tectonic plates or huge slabs of solid rocks *separate, collide, and slide past each other* causing earthquakes, feeding volcanic eruptions, and raising mountains. Scientists now have a fairly good understanding of how the plates move and how such movements relate to earthquake activity. Most movement occurs along narrow zones between plates, **plate boundaries**, where the results of plate-tectonic forces are most evident.

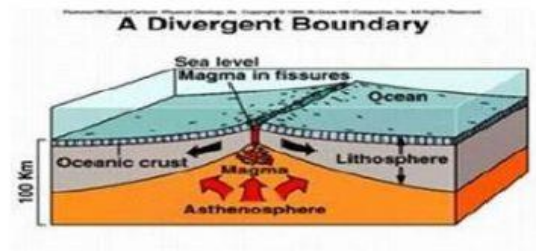
Types of plate boundaries:

1. **Divergent boundaries** -- where new crust is generated as the plates *pull away or separates* from each other.
Examples: mid ocean ridge, rift valleys
2. **Convergent boundaries** -- where crust *come together*. One crust is destroyed as it dives under another, known as subduction.
Examples: subduction, Marianas trench, mountains, volcanoes
3. **Transform boundaries** -- where crust is neither produced nor destroyed as the plates *slide horizontally past each other*. Example: San Andreas fault



Plates Move Apart: Divergent Boundary

Atlantic ocean, along a global system of mountain ridges, Earth's plates are growing and spreading apart. Each year these oceanic spreading ridges erupt more than three times as much molten rock as do all the volcanoes on land. Magma rises from Earth's mantle at spreading ridges and cools on and beneath the ocean floor, adding to the plates on either side. The growing plates inch away from the ridges—widening ocean basins and rafting apart entire continents.

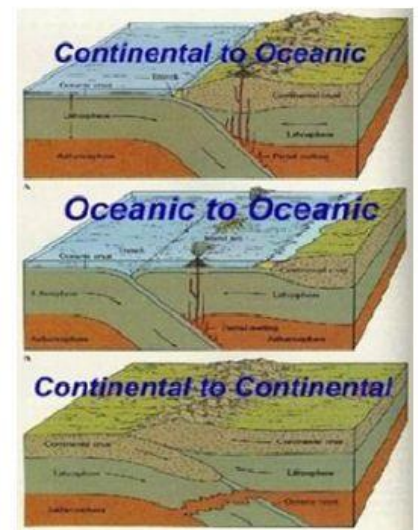


Plates Come Together: Convergent Boundary

Where plates come together, or converge, we see some dramatic manifestations of plate tectonics. At convergent margins, continents grow as plates are consumed.

Three types of Convergent Boundaries

1. Convergent boundary between **continental and oceanic crust** results to subduction, volcanoes, and trenches.
2. Convergent boundary between **two oceanic crust** results to subduction, and the trenches formed are *deeper* like the Marianas Trench, which can sink Mt. Everest.
3. Convergent boundary between **two continental crust** results to building up the rocks forming mountains like the Appalachian and Himalayas mountain ranges.



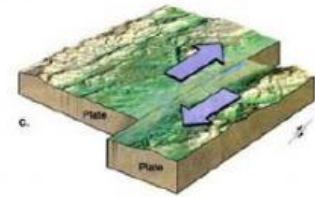
Plates Pass By: Transform Boundary

Why do earthquakes shake California? The state straddles two plates that are moving past each other like trains on opposite tracks. The plate boundary is marked by a zone of active faults—breaks in the rock and ground surface caused by plate movements. The most famous of these is the 1200-km (750-mi) long San Andreas Fault. The San Andreas fault is a transform fault, a kind common on the sea floor but rarely found on land.



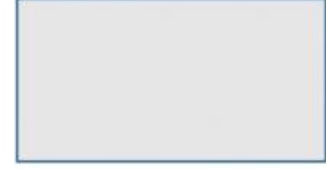
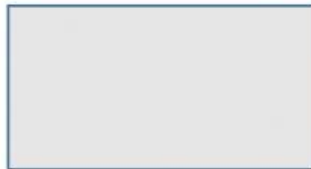
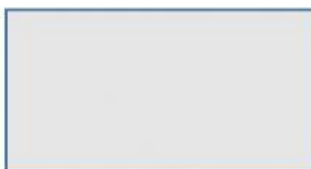
Transform Boundaries

- Place where 2 plates slide past each other



Clarifying Questions:

1. What is plate tectonics? _____
2. How is the earth's surface affected by the movement of the tectonic plates? _____
3. Where do most movements happen in the Earth's crust? _____
4. What are three types of plate boundaries? _____
5. **Matching type:** Plate Boundaries
____ Convergent boundary
____ Divergent boundary
____ Transform boundary
a. Mid-ocean ridges, rift valleys
b. Fault lines
c. Subduction, trench, mountains, volcanoes
6. **Matching type:** Plate Boundaries
____ Convergent boundary
____ Divergent boundary
____ Transform boundary
a. Tectonic plates move apart.
b. Tectonic plates come together.
c. Tectonic plates slide horizontally past each other.
7. **Matching type:** Plate Boundaries
____ Convergent boundary
____ Divergent boundary
____ Transform boundary
a. Himalayas and the Appalachian mountain ranges
b. San Andreas Fault
c. Atlantic mid ocean ridge, African rift valley
8. **Matching type:** Convergent boundaries
____ Continental to oceanic
____ Oceanic to oceanic
____ Continental to continental
a. Subduction, volcanoes, and trenches
b. Subduction, deeper trenches, volcanoes
c. Mountain ranges like the Appalachian and Himalayas
9. Why do earthquakes shake California? _____
10. What is the San Andreas Fault? _____
11. Identify and illustrate the movements of the different types of plate boundaries Use arrows to indicate directions.



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Matching Type Key:

12. **Matching type:** Plate Boundaries

- C Convergent boundary
- A Divergent boundary
- B Transform boundary

- a. mid ocean ridges, rift valleys
- b. fault lines
- c. subduction, trench, mountains, volcanoes

13. **Matching type:** Plate Boundaries

- B Convergent boundary
- A Divergent boundary
- C Transform boundary

- a. tectonic plates move apart
- b. tectonic plates come together
- c. tectonic plates slide horizontally past each other

14. **Matching type:** Plate Boundaries

- A Convergent boundary
- C Divergent boundary
- B Transform boundary

- a. Himalayas and the Appalachian mountain ranges
- b. San Andreas fault
- c. Atlantic mid ocean ridge, African rift valley

15. **Matching type:** Convergent boundaries

- A Continental to oceanic
- B Oceanic to oceanic
- C Continental to continental

- a. subduction, volcanoes, and trenches
- b. subduction, deeper trenches, volcanoes
- c. mountain ranges like the Appalachian and Himalayas

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