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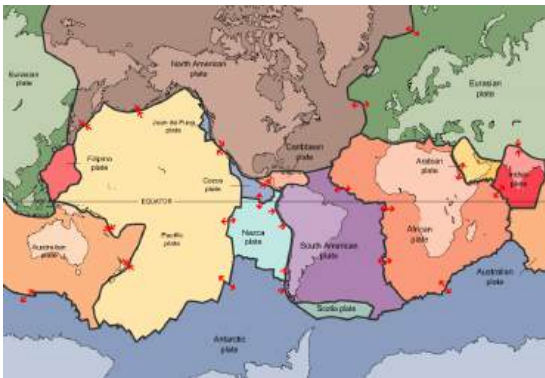
Plate Tectonics

What are plate tectonics?

Plate tectonics¹ is the theory that Earth's surface is broken up into many surfaces called tectonic plates. These plates move and interact with each other kind of like a bunch of puzzle pieces. But sometimes they don't fit together quite as well as puzzle pieces.

Did You Know?

The tectonic plates are constantly moving. The North American and Eurasian plates are moving away from each other about one inch every year.



What are tectonic plates?

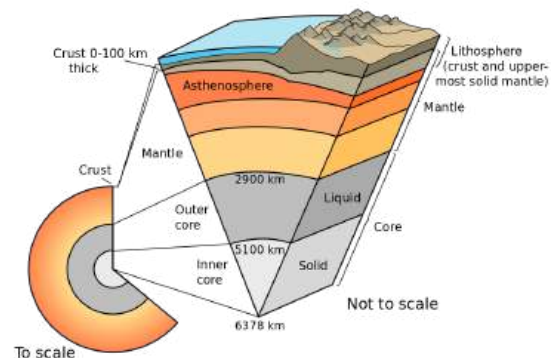
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What are the different types of plates?

There are two types of plates: **oceanic**² and **continental**³. Oceanic plates are the plates beneath Earth's oceans. They have a top layer, or crust, called "sima", which is made of silicon and magnesium. Continental plates are the plates with landmasses on them. They also have a crust, called "sial", which is made of silicon and aluminum.



Oceanic and continental plates are part of Earth's crust and move along on top of the mantle.

¹ **Plate tectonics:** the theory that Earth's surface is broken up into many surfaces called tectonic plates.

² **Oceanic plates:** plates under the ocean.

³ **Continental plates:** landmass plates.

Why do plates move?

Plates move because of **convection currents**⁴ in the mantle (that molten rock layer mentioned above). The mantle is constantly moving as hot mantle near the core rises and the cooler, upper mantle sinks. Plates move together, slide past each other, and spread apart as they float on the moving mantle.

What are the different types of tectonic boundaries?

Ecobottle Sample



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At convergent boundaries on land, the crust crumples together, creating mountains.

The continental plate is pushed up, which also creates mountainous terrain. When two oceanic plates converge, one plate usually slides beneath the other, creating a deep trench on the ocean floor. Alternatively, oceanic plate convergence can form underwater volcanoes that can build up to the surface, becoming islands. When plates slide past each other, it's called

a **transform boundary**⁵. While such boundaries don't create any geologic features, they can cause earthquakes. When plates

move away from each other, it's called a **divergent boundary**⁶. In the ocean, magma bubbles up from the mantle and fills in the gap, pushing the plates away from each other. This rising magma creates mountains and volcanoes and makes ocean basins larger.

On land, divergent boundaries create giant valleys.

Examples of tectonic boundaries

The Himalaya Mountain Range in Asia was formed at a convergent boundary on land, while the Mariana Trench in the



Plates sliding past one another at transform boundaries can cause earthquakes.

⁴ **Convection currents:** currents in the magma of the mantle that move the plates around.

⁵ **Transform boundary:** where two plates slide past one another.

⁶ **Divergent boundary:** where two plates move away from one another.

North Pacific Ocean is an example of an oceanic convergent boundary. The San Andreas Fault in California, USA, is a transform boundary. Finally, the Great Rift Valley in Africa was formed due to plate divergence.

Reading Comprehension Questions:

1. What
2. What are plate tectonics?
3. What
4. Why
5. What are the different types of tectonic boundaries?

Extension Questions:

6. What plate
7. The North American and Eurasian plates are moving towards one another. When they eventually meet, which sides (east or west) of each will meet? How do you know?

For the following question, go to -

<http://d3tt741pwxqwm0.cloudfront.net/WGBH/conv16/conv16-int-tectonic/index.html> or

use the following QR code:



8. Click on the
9. How can the movement

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TWFSAM

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