A historical map of the world, likely from the 18th or 19th century, showing continents and oceans. The map is aged and has a yellowish-brown tone. The text 'Continental Drift Discussion Questions:' is overlaid on the map in a large, bold, black font. The map shows the Arctic region at the top, with 'ARCTIC ICY OCEAN' written across it. Below that, 'GREENLAND' is visible. The Atlantic Ocean is labeled 'ATLANTIC OCEAN'. The Pacific Ocean is labeled 'PACIFIC OCEAN' in several places. The Indian Ocean is labeled 'INDIAN OCEAN'. The continents are labeled with names like 'EUROPE', 'AFRICA', 'ASIA', 'AMERICA', and 'AUSTRALIA'. The map also shows various seas and bays, such as 'Baffin's Bay', 'Mediterranean Sea', and 'Arabian Sea'.

Continental Drift

Discussion Questions:

- 1) What are 'tectonic plates'?
- 2) What happens at the boundaries between these plates?
- 3) What are fault lines?
- 4) What affect has Continental Drift had on the shape of the earth's surface?

CONTINENTAL DRIFT

Pangaea

300 million years ago



Laurasia and Gondwana

210-180 million years ago



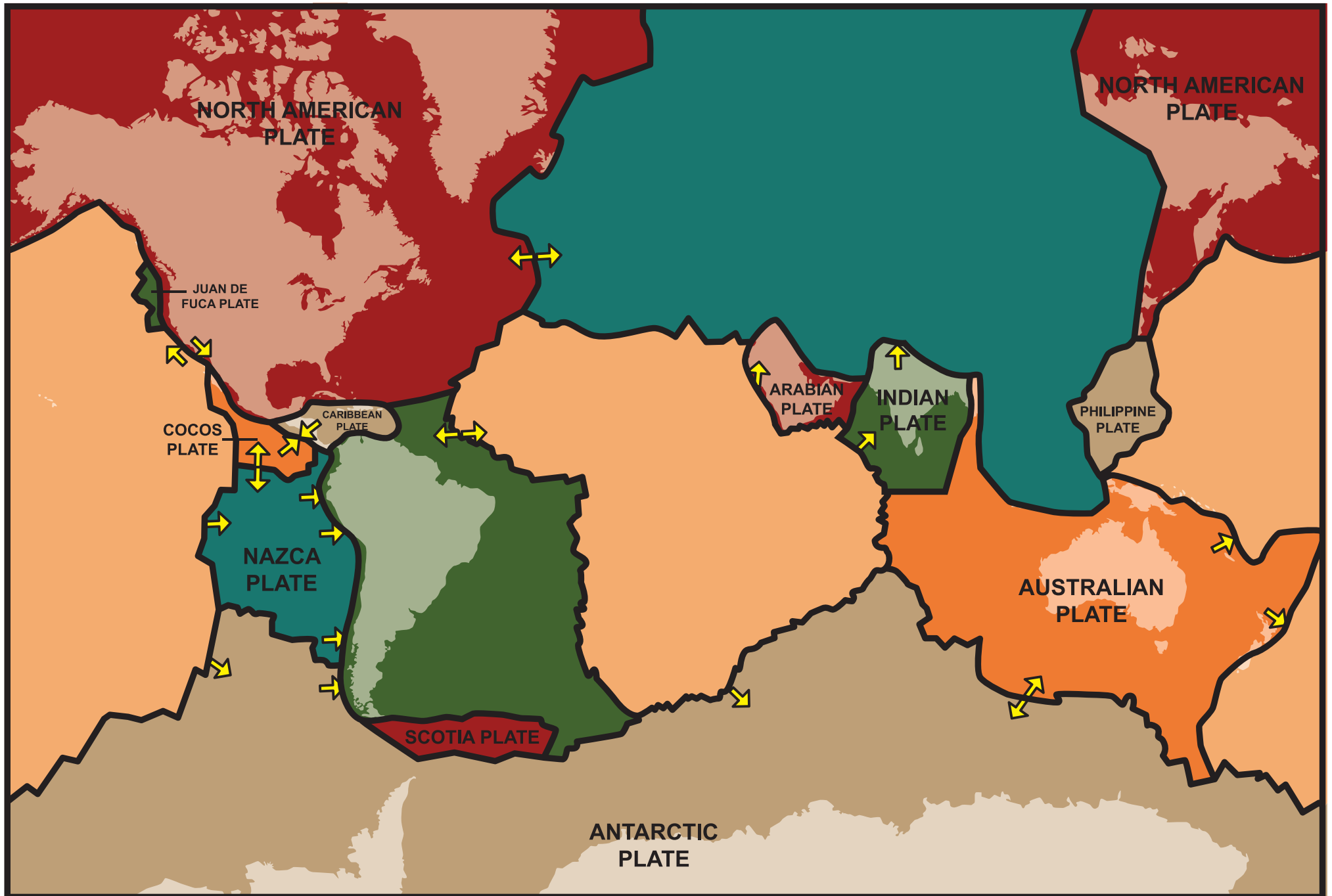
Modern world

current day



Scientists believe that the earth's crust fits together like a big jigsaw around the globe. The pieces of the jigsaw have been slowly moving over time in different directions. In some places the pieces are moving toward each other and in others they are pulling apart. The movement has changed the shape of the world map over millions of years.

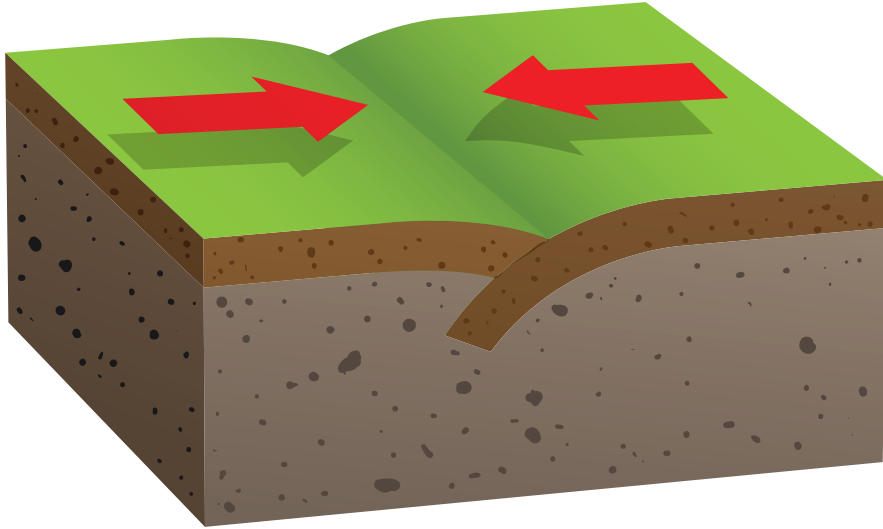
Tectonic Plates



The movement of the plates is indicated by the arrows. Some are moving apart, some are pushing together, some are scraping alongside each other. The boundaries of the plates are called fault lines.

Convergent Plate Boundaries

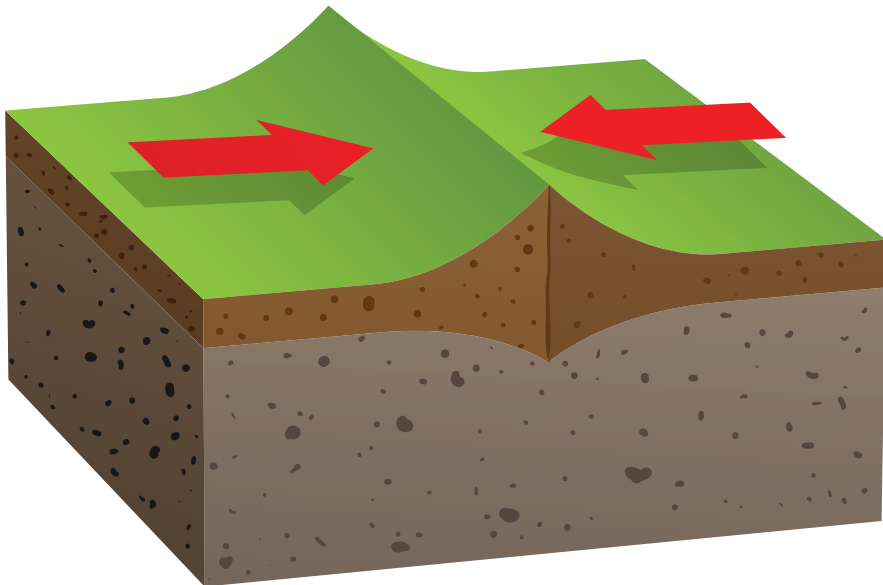
Subduction Zone



When two tectonic plates are moving towards each other, great pressure builds up.

Earthquakes occur when this pressure is suddenly released.

Collision Zone



One plate may slide under another in a subduction zone. Deep trenches under the sea form in this way, carrying old rocks and earth down into the molten magma below.

Mountains may be forced upward along the collision zone between the two tectonic plates.



The Himalayan Mountains, between India and China

The highest mountains above sea level the world are found in the Himalayas. These mountains formed in a collision zone between the Indian Plate and the Eurasian Plate. The highest mountain in the Himalayan Mountain Range is Mt Everest, which is 8 848 metres tall (29 030 feet).



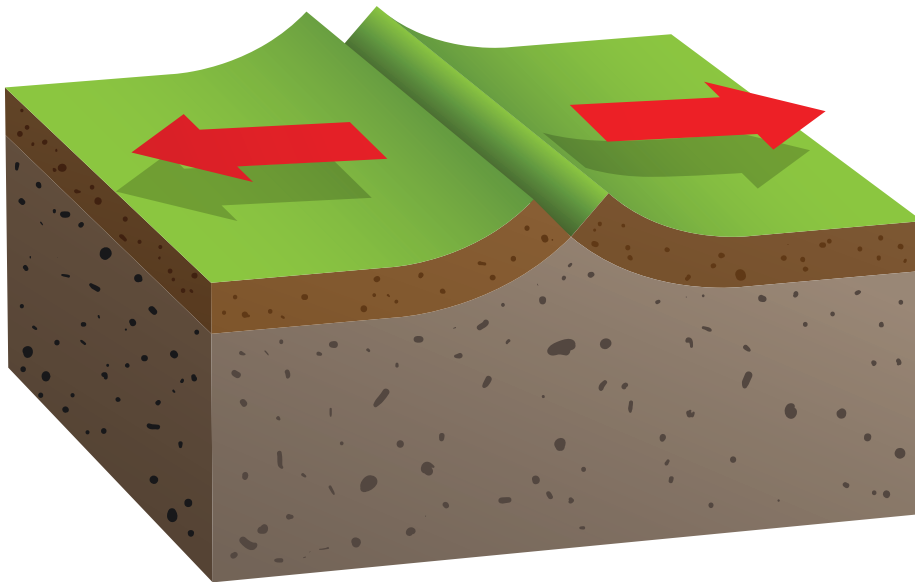
Folded Rock Formation- Cape Melissa, Crete, Greece

This rock formation, near Agios Pavlos on the island of Crete in Greece, is the result of one convergent plate pushing into a more stable plate boundary. The converging layers of rock were lifted and folded over time, creating this amazing zigzag effect.

Divergent Plate Boundaries

When two tectonic plates are moving away from each other, a crack can appear between the two plates.

Oceanic Spreading Ridges



Most divergent plate boundaries are underwater. The northern edge of the Atlantic Rift, however, emerges above sea level on Iceland. Volcanic activity is common along the boundary between divergent plates. This activity creates ridges of new land as magma rises to the surface.

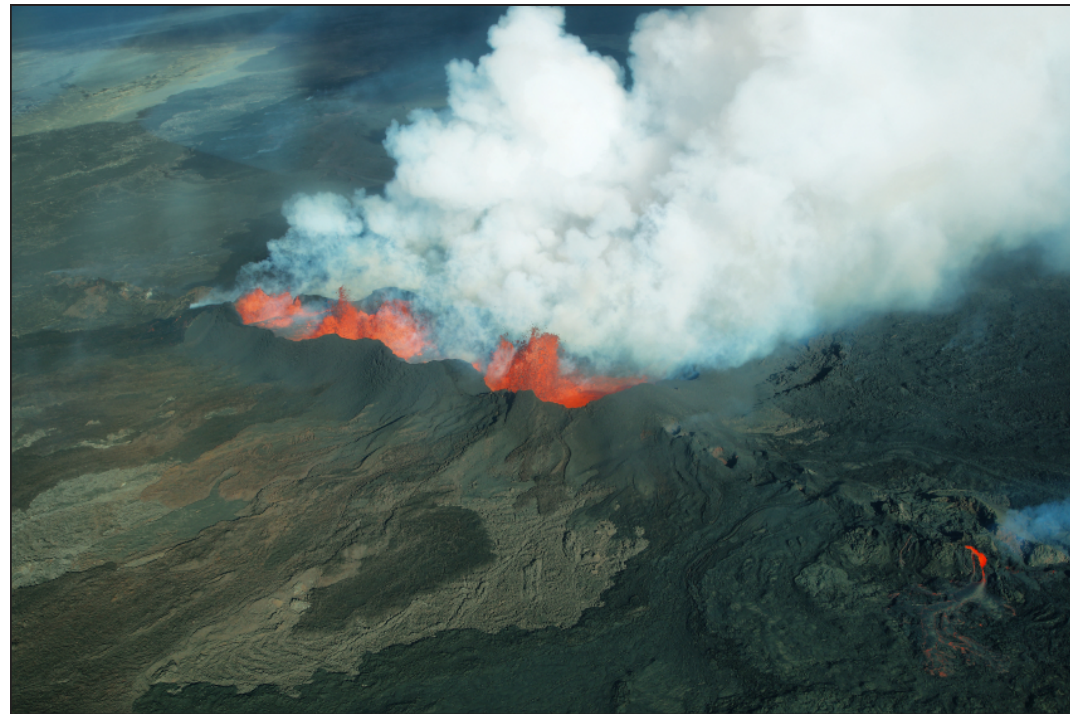
Earthquakes can happen in these areas but are not as violent as those that occur along convergent plate boundaries.



Fault line cracks scar the landscape at Grottagja Fault



Hot springs in underground caves beneath Grottagja Fault



Iceland

Iceland is at the northern end of the undersea Atlantic Rift. The Divergent plates surface here and volcanic activity is abundant on the island.

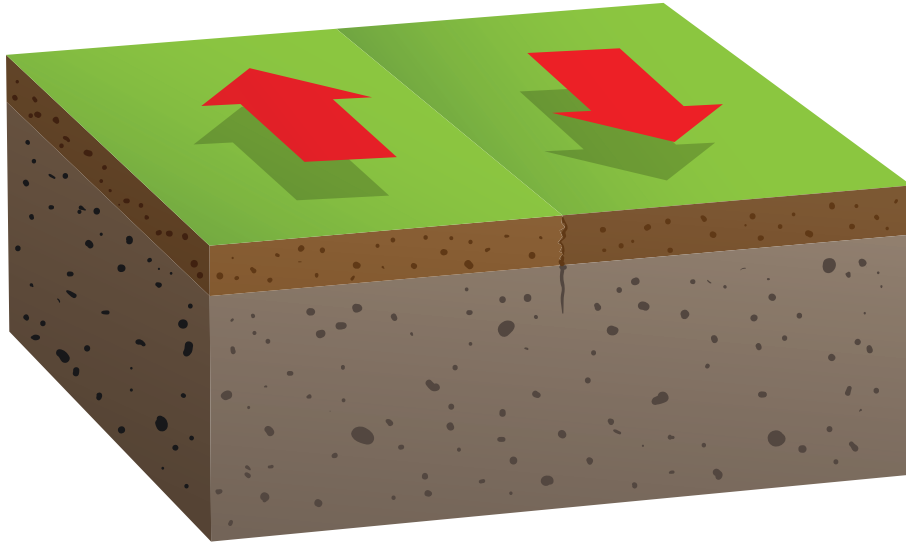
Picture above: Bardabunga Volcano erupting in 2014. Ash clouds from another volcano, Eyjafjallajökull, stopped thousands of flights in 2010.

Picture right: Strokker Geyser also regularly erupts sending a column of water high into the air.



Transform Plate Boundaries

Fault Lines



When two tectonic plates are moving side by side, a long row of debris marks the fault line. (This may look like a long row of hills.)

The two plates do not slide along at a constant speed. They may not move at all for a while then slip suddenly during an earthquake.

An example of this type of faultline is the San Andreas Fault in California, USA.



San Andreas Fault in California, USA.

The San Andreas Fault lies on the west coast of the USA. The major cities of Los Angeles and San Francisco are located very close to the fault line. These cities experience many earthquakes as a result of sudden slipping of land as the North American and Pacific Plates slide past each other.

