Plate Boundaries – Teacher Notes

The theory which describes how large pieces of lithosphere move around the Earth's surface is known as? Plate Tectonic Theory.

The outer layer of the Earth consists of continental crust and oceanic crust.

Contrast the two different types of crust found at the Earth's surface

|	Continental crust	Oceanic crust
Chemistry of rocks	Felsic (silica rich)	Mafic (silica poor)
Density	Less dense	More dense
Thickness	Thicker (35-40km)	Thinner (7-10km)
Typical rocks	Granite & sedimentary rocks	Basalt and gabbro
Age (maximum)	Older (~4.1 billion years)	Younger (~180 million years)
Flexibility of crust	Flexible (able to bend and fold)	Inflexible

The behaviour of moving plates depends on these physical and chemical characteristics.
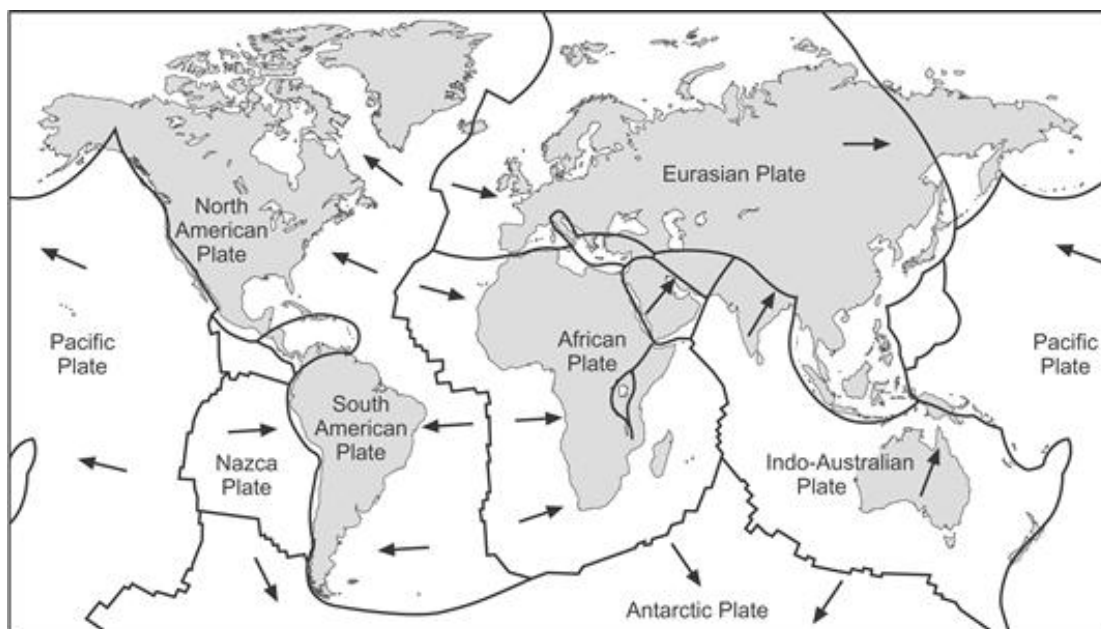
How many major tectonic plates, form our planet's lithosphere. Twelve.

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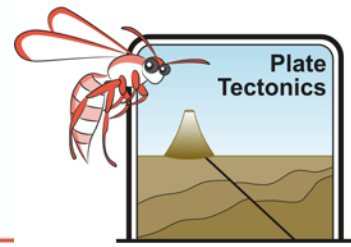
Within which plate is the continent of Australia? The Australian or Indo-Australian Plate

Which other countries share the large plate within which Australia is found? Parts of Indonesia and New Zealand.

What three different types of movement can happen between plates at their boundaries? They can **diverge** (move apart), **converge** (move together) and **transform** (move past each other).

We refer to plate boundaries as **constructive** or **destructive**.

Boundaries at which continental and oceanic crust converge are called destructive boundaries. At these boundaries the denser oceanic crust, and accompanying material, subducts below the lighter continental crust and dewaters. This can cause the continental crust above it to partially melt sending silica rich volcanic material upwards. Earthquakes and volcanoes are common at these boundaries.

Name a plate with which Australia shares a destructive boundary. The Eurasian Plate or Pacific plate.

Give an example of mountains that have been created at this constructive boundary. The Himalayas, and ranges across Indonesia, Papua and New Guinea

At constructive boundaries plates move apart, or diverge, causing the lower crust and upper mantle to melt, forming magmas, which upwell to form mid-oceanic ridges.

Name a plate with which Australia shares a constructive boundary. The Antarctic Plate.

Give an example of ridges of volcanic outpourings that have been created at this type of boundary. South East Indian Ridge, South West Indian Ridge and Broken Ridge. These are large undersea igneous provinces.

Using the map provided on the first page describe the type of boundary (constructive or destructive) that can be found at the meeting of the following plates. Explain your answer.

The Nazca Plate and the South American Plate. This is a destructive boundary as the Nazca plate is pushing itself under the South American Plate causing the Andes Mountains to rise.

The North American Plate and the Eurasian Plate. This is a constructive boundary as the plates are diverging, releasing volcanic materials from the oceanic crust and constructing the Mid-Atlantic Ridge.
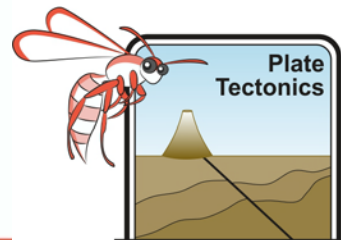
When a dense plate converges with a less dense plate, what happens?
The denser plate is pushed down/subducted below the less dense plate. The subducted plate will lose water and melt the overlying materials to form magma, and potentially volcanoes.

Label the model

It was last session on a hot Friday afternoon and everyone was a bit tired. The weary teacher handed out lots of plasticine and asked students to make a model demonstrating a particular type of plate boundary. She was going to take them home to mark but students hadn't finished in time. She let them take them home then collected them in. When she saw that many of the models were identical she realised that some students had copied other's models. She couldn't mark them because it wouldn't be fair. However she realised that by handing back each student their model without labels and asking them to re-label it, she would find out who should get good marks.

Label the model shown below using the terms provided.