

Plate Boundaries

You will need:

Paper
Play Dough
2 brown pieces of cardboard
1 blue piece of cardboard

In this project the cardboard is the earth's crust, each piece a different tectonic plate, and the play dough is the mantle.

Conservative Plate Boundaries

STEP ONE Knead your play dough until it is warm then place it on the paper on the table in a flat shape about 2cm thick.

STEP TWO Place your two brown card pieces on top of the play dough so there is no gap between them.

STEP THREE Place some pressure on top of the cards with your hands, push your tectonic plates past each other side by side.

Constructive Plate Boundaries

Result - This sort of action very rarely causes earthquakes but when they do they are **HUGE** and very severe. The San Andreas Fault, North America is a perfect example of this plate boundary.

Using the two brown pieces of cardboard repeat **STEP ONE** and **TWO** from before.

STEP THREE Place some pressure on top of the cards with your hands, pushing the tectonic plates slightly apart.

Result - You can see the play dough in between the crack we have made. When this happens to the tectonic plates the magma from the mantle is exposed and, depending on where it is and how hot and how much gas is built up under the surface, a **volcano may form**.

Underground volcanoes are **created** at these boundaries but are rarely fierce due to the pressure from the ocean.

The reason why this is called a constructive plate boundary is because this type of plate boundary splits and allows magma to fill the gap to **make** new ground.

Destructive plate boundaries
Oceanic to Continental: Subduction

Using a blue and brown piece of cardboard repeat **STEP ONE** and **TWO** from before.
STEP 3 Place some pressure on top of the cards with your hands, this time push the cardboard **towards** each other with the blue piece of card going under the other.

Continental to Continental: Collision

Result - At these boundaries the plates move towards each other. This example shows when an oceanic plate moves towards a continental plate, because the oceanic plate is denser it slides underneath.

This sort of movement causes **earthquakes or volcanoes** and is known as a **subduction zone!** It can also cause **tsunamis**.

The reason why this is called destructive is because, in as short a time as possible, the sea floor is eaten up, the sea water and sea life that is taken down with it go down to the mantle and turned into hydrogen, nitrogen and molten rock (magma). These gases mix with the hot pressurised magma in the mantle and **lead to very large explosive eruptions!**

Using the two brown piece of cardboard repeat **STEP ONE** and **TWO** from before.

STEP 3 Place some pressure on top of the cards with your hands, this time push the cardboard **towards** each other really hard.

Result - the two tectonic plates have the same density and thickness and when they collide they push up to make mountains! These create lots of earthquakes but no volcanos as there is no subduction.