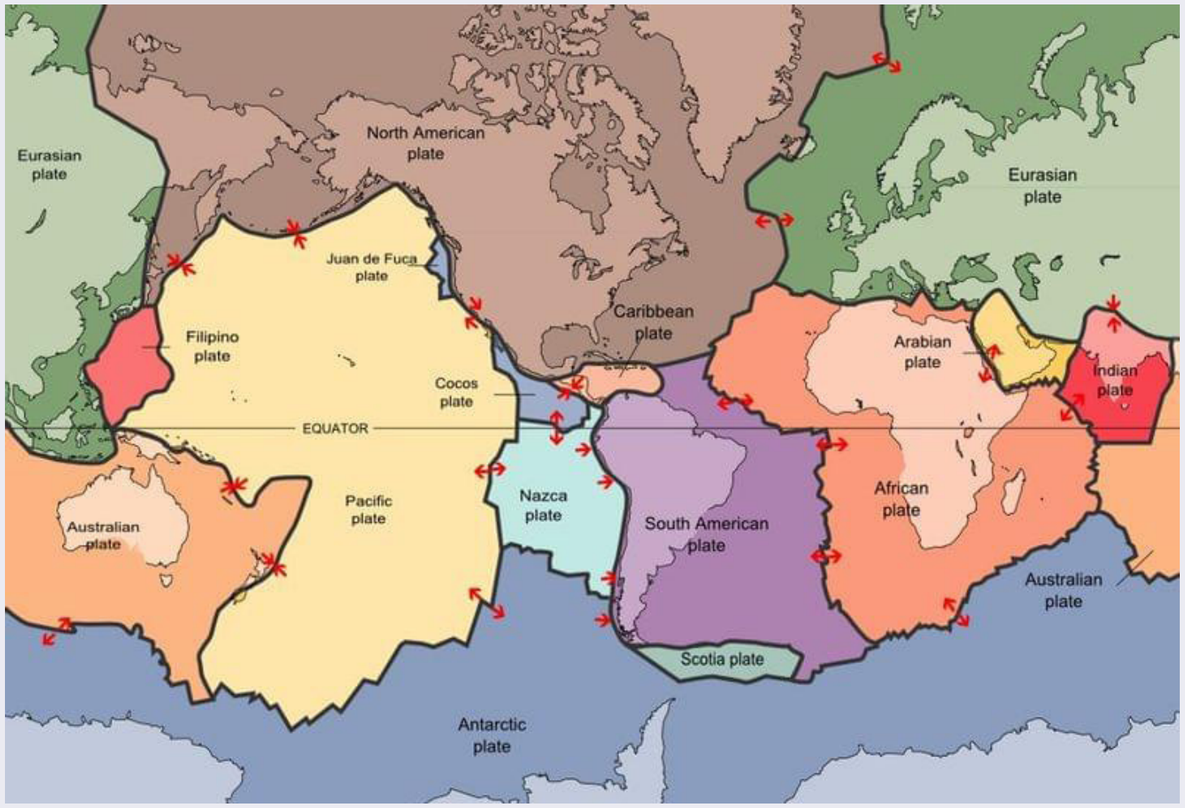
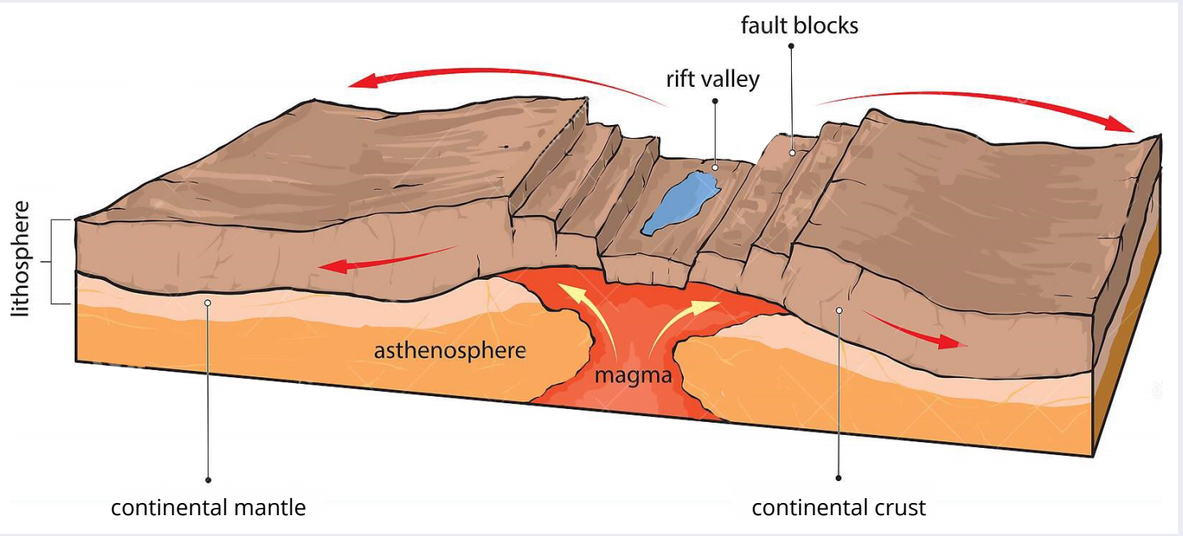
GCSE Geography Knowledge Organiser – 3.1.1a Tectonic theory and processes

What are tectonic plates?

Our planet's crust is made up of a number of huge pieces called **plates**. These plates are either **continental plates** (land plates that are less dense and very old) or **oceanic plates** (underwater plates that are more dense and younger as they are constantly created and destroyed). These plates move around, bump together and grind past or move apart from each other at **plate margins**, which is where tectonic activity is at its strongest.



Constructive plate margins occur when two plates are **diverging**. Under the oceans, this creates a ridge system of long underwater mountain ranges where the plates are pushed upwards. On land, large fissures are created as the land is torn in two. As they widen, the land in the middle sinks, creating a flat-floored valley with steep sides called a **rift valley**.



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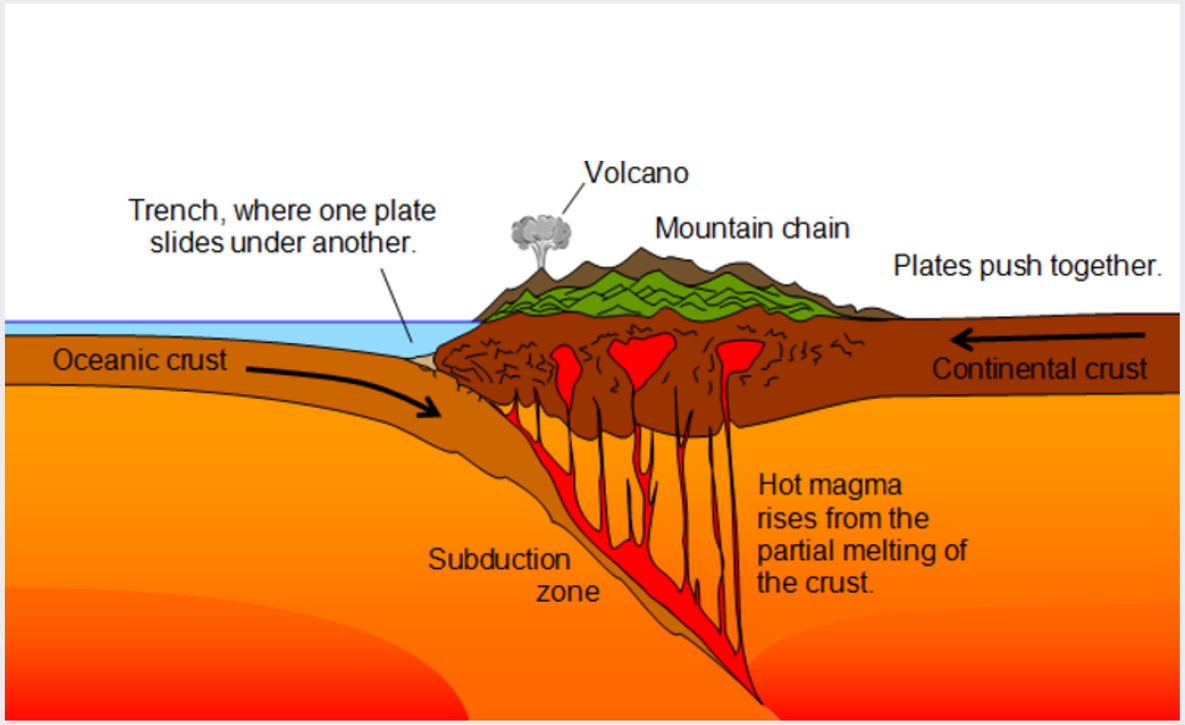
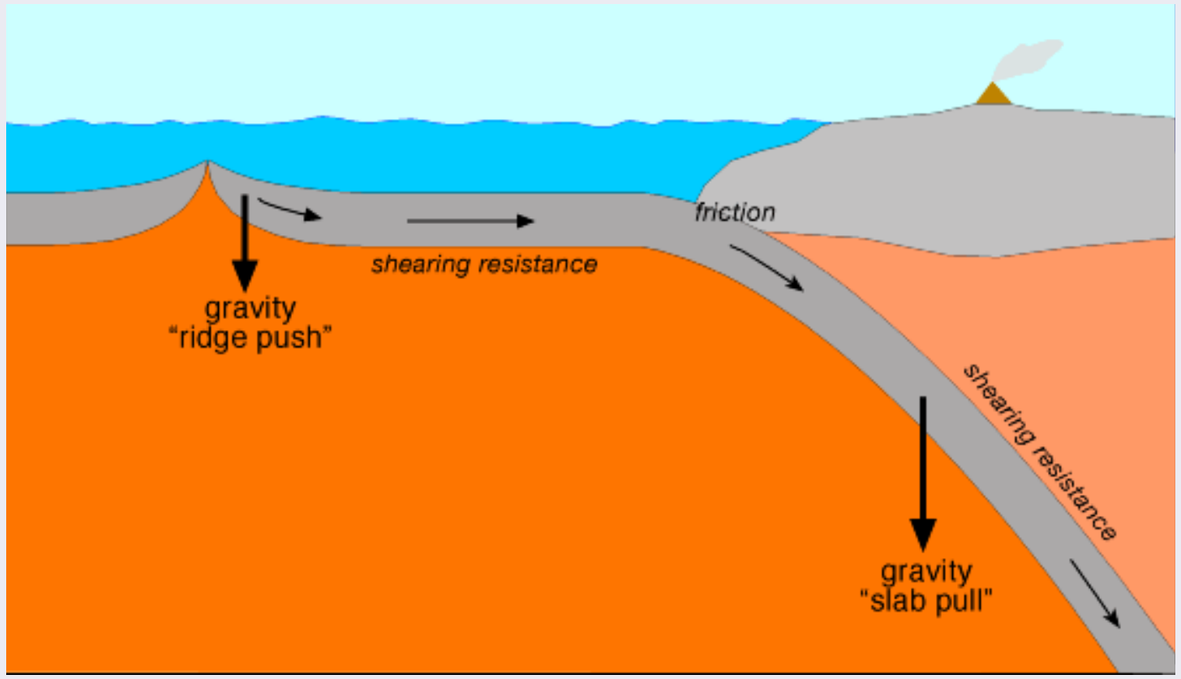
Destructive plate margins occur when a **denser** oceanic plate **subducts** under another **less-dense** plate. The oceanic plate is melted in the mantle and the resulting magma rises up to form **volcanoes**. As the oceanic plate subducts, it pulls the other plate down with it, creating an **oceanic trench**. Subduction is not a smooth slide. **Friction** causes the plates to lock together then **violently jolt** past each other when friction is overcome. We feel this as an **earthquake**.



The hot magma plume pushes the oceanic plate up into a **ridge** where two oceanic plates are **diverging**. As the oceanic plate is on an angle, the plate slides down the ridge **(ridge push)**, whilst at the other end, gravity pulls it under the continental crust **(slab pull)** where it is **subducted** and destroyed.



The hot magma plume is **less dense** than the magma around it so it **rises**. As it rises, it cools, becomes **denser** and then **sinks** back down. Deep in the mantle, it heats again, and the process repeats itself. This creates a circular current called a **convection current** which causes the plates on top to move.