

Plate Tectonics | Sample Answer

Constructive Plate Boundaries (2016 Q3C)

A plate boundary is where plates meet as the earth's crust is broken into plates. Different plate boundaries occur as plates move by convection currents. Land is created at constructive plate boundaries as 2 plates are travelling in opposite directions.

When 2 oceanic plates are pulling apart, sea floor spreading occurs. New crust is created in the middle and the ocean grows wider. Harry Hess compiled the theory for sea floor spreading in the 1960's . The theory shows that from a volcanic eruption on the sea floor a mountain ridge and a new ridge is formed. Proof for his theory is seen when the youngest sea floor is at the mid-ocean ridges, and older sea floor is farther away. Sea floor spreading is evident in Iceland. Iceland formed where the mid-ocean ridge is above sea level and it widened by sea floor spreading. Iceland has over 200 active and dormant volcanoes. One side of the island is on the Eurasian plate, and one side is on the North American plate. These plates are moving apart at a rate of 2.5cm annually. Earthquakes are common on the island. In Iceland, magma erupts through the cracks in split crusts. This causes volcanoes for example Eyjafjallajokull in 2010 which caused worldwide flight disruption due to the ash clouds it caused.

Mid-ocean ridges occur when plates are pulled apart by convection currents. As the crust splits, magma rises and fills the gap, resulting in new crust formation. Magma solidifies resulting in plates being forced apart more so more magma rises, eventually forming the ocean floor by sea floor spreading. The crack where plates separate is marked by a line of volcanic mountains called a mid-ocean ridge e.g. the mid-atlantic ridge which is 40,000km long and stretches from the North to the South pole. From the sea floor spreading theory, young volcanic islands form near the ridge, and older ones further away.

When 2 continental plates are pulling apart, the plates are often weakened from previous collisions. If the plates are weak, magma can attack the weak spots which can cause the continent to split, resulting in rifting. Rifting is when seas are opened in the middle of continents and they are widening all the time e.g. The East-African Rift Valley is when the Somalian and Nubian plates are pulling away from the Arabian plate.