

# PLATE TECTONICS

Name

**EARTH'S STRUCTURE** The earth consists of a thin, solid C (between 30-70 km thick) below which is semi-molten M. At the centre is molten and solid C. The crust consists of P which are continually moving at rates of a few  p.a. as a result of convection Cu in the semi-molten mantle. Crust is broken into several large Se called P which Fl like rafts on the mantle. Plates are of two types of crust, either:-

- \* C, which are older, Li, does not S and is permanent or
- \* O which are Y, heavier, can sink and is constantly being Des and replaced.

**PLATE BOUNDARIES** are where P meet. They form long linear belts where plates are

- \* moving To each other (**Convergent**) \* moving Ap (**Divergent**) or
- \* moving past each other (Cons). Because of these movements at Plate Boundaries, tectonic activity such as V and E occur almost entirely in these zones, as do all high M ranges. Such belts include the P rim (the 'ring of fire'), the centre of the A ocean, across southern Eu and Asia and in the centre of the P ocean at Hawaii. Little activity takes place in the C of plates.

Type of Plate Boundary	Crust types	Processes (what is happening)	Earthquake & Volcanic activity	Examples
<b>Constructive</b>			Volcanic activity	
			Earthquake activity	
<b>Desctructive (1)</b>			Volcanic activity	
			Earthquake activity	
<b>Destructive (2)</b>			Volcanic activity	
			Earthquake activity	
<b>Collision</b>			Volcanic activity	
			Earthquake activity	
<b>Conservative</b>			Volcanic activity	
			Earthquake activity	

## CONSTRUCTIVE MARGINS

are where new crust is being **F** (constructed) found along mid-oceanic **R**, where two plates are forced **A** by rising molten rock or **M** from the mantle. The Atlantic ocean is widening at the rate of  cm p.a. At the ridge are found rift **V** (evidence that the plates are **Dive**), smaller **E** and larger volcanoes, of which the larger form **Is** (such as **Ic** and the **Az** in the Atlantic). The most recent volcanic eruption produced the island of **S**, off Iceland in **19\_\_**.

## DESTRUCTIVE MARGINS

are where dense oceanic crust is being **D** by being forced beneath another plate. This process is called **Subd**. As the oceanic plate is forced down, a deep sea **Tr** is formed, the plate **M** and the pressure triggers severe **E**. Some of the melting magma rises to the surface forming **V** and **F** mountains (eg: the **A** in South America where the **N** plate is being subducted beneath the South **A** plate) on the continental margin.

If the surface crust is oceanic then this rising magma creates a volcanic **I** arc (eg the West **I** islands where the Atlantic plate is being **Sub** beneath the **C** plate, at **Jap** and off the coast of **Al**). Such volcanoes usually have **V** eruptions, such as on the Island of **Mont** in the Caribbean.

## COLLISION MARGINS

occur where two plates of **C** crust are converging. Since **C** crust cannot sink (as it is **L** than other crust) or be destroyed the crust at the margin buckles and forms **F** mountains (eg: the **H** where the **In** plate moves into the Eurasian plate at the rate of  cm p.a.) This causes major **E**, and a great deal of folding due to the crustal **Pr**. Much of the material forming the fold mountains originated as **Sed** on the floor of ocean between the two continental plates (in this case, the **T** sea). Evidence suggests that the Himalayas are still **R**. No **V** are found here, but major **E** may occur (eg:- the major earthquake in central **I** in **19\_\_** which killed  people)

## CONSERVATIVE MARGINS

Are found where two plates move **P** one another. Since no new crust is being formed, the margin is not **C** and since no crust is being destroyed, the margin is not **D**. There is no **V** activity although major **E** often occur. These may occur when the movement is **Un**, and instead of sliding **Sm** past each other, friction causes them to **St**. When sufficient **Pr** builds up, the movement then takes place suddenly and jerkily, setting off strong **Vib** (the earthquake). This happens at the San **A** in California where the **P** plate is moving past the **A** plate at  cm p.a.. Enormous damage has been caused in San **Fr** in **19\_\_** (when  died and  houses were destroyed) and more recently in **19\_\_**. Further **Ea** could happen at any time, and in the long term Los **A** could end up further **N** than San Francisco.