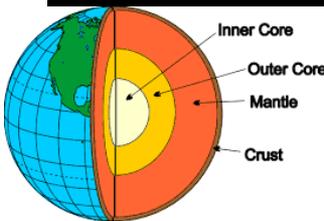


# Plate Tectonics Year 8 Term 2

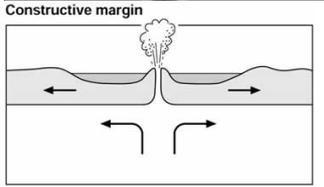


**Structure of the Earth**

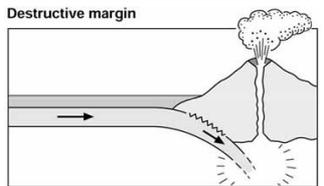
**Crust** : solid rock; 0-60km thick; continental (granite rock) and oceanic (basalt rocks) the crust is divided into plates that move very slowly  
**Mantle** : molten rock; 2900km thick  
**Outer core** : liquid metal; iron and nickel. 4400°C  
**Inner core** : solid metal; iron and nickel; 6100°C



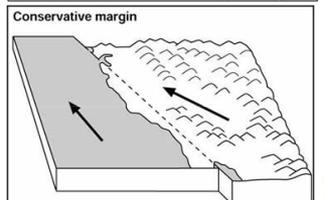
## Plate margins



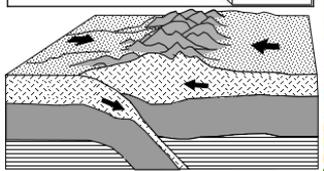
**Constructive** : plates move apart (diverge). Magma rises creating new land.  
 Volcanoes and earthquakes  
 e.g. Iceland



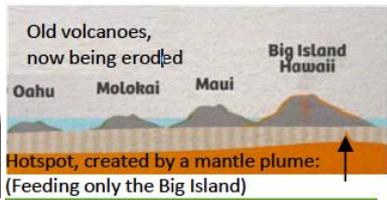
**Destructive** : as the plates converge the oceanic plate subducts under the continental plate.  
 Fold mountains and ocean trenches  
 Volcanoes and earthquakes  
 e.g. Nazca and South American plates



**Conservative** : plates slide alongside each other  
 Earthquakes  
 e.g. San Andreas Fault



**Collision** : continental plates collide into each other as they converge  
 Fold mountains and earthquakes  
 e.g. Himalayas

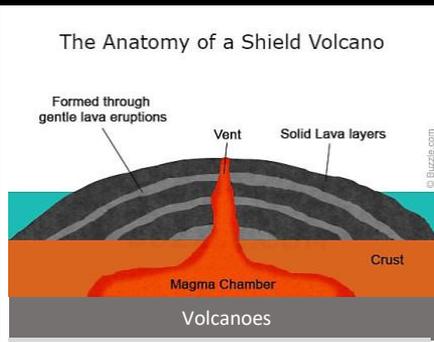


Old volcanoes, now being eroded  
 Oahu Molokai Maui Big Island Hawaii  
**Hotspot, created by a mantle plume:**  
 (Feeding only the Big Island)

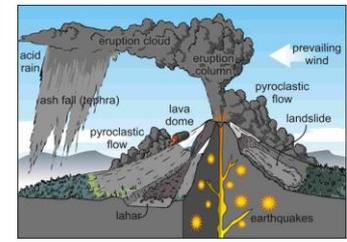
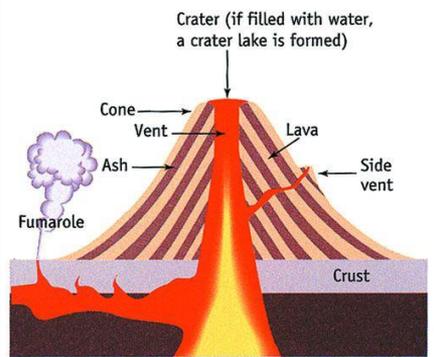
### Anomaly : Hotspot

At a hotspot, a super hot plume of magma rises through the crust, not along a plate margin. As the plate moves, new islands form and the old ones stop growing and start being eroded. Volcanoes form and small earthquakes too due to magma movements. E.g. Hawaii

**Prediction** : monitoring a volcano to try to estimate when an eruption may occur  
**Protection** : changing the design of buildings to decrease the likelihood of damage to life or property  
**Planning** : ensuring everyone knows what to do in a disaster e.g. schools, hospitals, homes, police etc.



**Shield volcano** : largest volcanoes on earth; made of basalt magma; wide base; low height; gentle e.g. Kilauea  
**Composite volcano** : most common; made of viscous magma; made of layers of lava and ash; steep sides; tall



### Why live near a volcano?

+ tourism; precious metals; fertile soil; geothermal energy  
 - Inability to leave (poverty, family, land); belief that disasters are acts of God (fatalism); lack of awareness; disaster not occurred for long time

	Montserrat Volcano	Kobe Earthquake
Location	Montserrat, Caribbean	South East Japan
Causes	North American Plate subducting under Caribbean Plate	Pacific plate subducting under the Eurasian plate
Primary effects	19 died 2/3 island covered in ash 50% population evacuated to north	Over 5000 dead 102,000 buildings destroyed Roads collapsed Liquefaction
Secondary effects	Floods Forest fires due to pyroclastic flows	Roads closed Fires broke out Docks shut 300,000 homeless
Immediate responses	Evacuation Abandonment of capital city British Government gave money for compensation and redevelopment Unemployment rose	People slept in cars / tents 1.2 million relief workers 3 months to get water and gas working Rejected international offers of aid
Long term responses	Exclusion zone set up Volcanic observatory built New roads and new airport set up Services in the north were expanded Increase in tourism Outmigration	Water, gas and electricity working by July 1995 80% of port working a year later 134,000 housing units built New laws on building construction

## Keywords

Magma	Molten (liquid) rock in the mantle
Lava	Magma that has reached the surface
Pressure	Physical force that builds up when plates can't move
Friction	Resistance or difficulty in moving
Fold Mountains	Mountains that formed when tectonic plates collide and cause the plates to wrinkle
Oceanic Trench	A deep valley formed on the ocean floor when one plate subducts beneath another