

What are Natural Hazards?	
Natural hazards are physical events such as earthquakes and volcanoes that have the potential to do damage humans and property. Hazards include tectonic hazards, tropical storms and forest fires.	
What affects hazard risk?	
Population growth Global climate change Deforestation Wealth - LICs are particularly at risk as they do not have the money to protect themselves	

Structure of the Earth	
The earth has 4 layers	
The inner core The outer core The mantle The crust	
The crust is split into major fragments called tectonic plates. There are 2 types: Oceanic (thin and younger but dense) and Continental (old and thicker but less dense)	
These plates move and where they meet you get tectonic activity (volcanoes and earthquakes).	There are 2 theories of why plates move: convection currents and ridge push, slab pull. Plates either move against each other (destructive margin) away from each other (constructive) or next to each other (conservative)

Earthquakes and Volcanoes	
Volcanoes	Earthquakes
<ul style="list-style-type: none"> Constructive margins – Hot magma rises between the plates eg. Iceland. Forms Shield volcanoes Destructive margins – an oceanic plate subducts under a continental plate. Friction causes oceanic plate to melt and pressure forces magma up to form composite volcanoes eg the Pacific Rim 	<ul style="list-style-type: none"> Constructive margins – usually small earthquakes as plates pull apart. Destructive margins – violent earthquakes as pressure builds and is then released Conservative margins – plates slide past each other. They catch and then as pressure builds it is released eg San Andreas fault. .

DESTRUCTIVE PLATE BOUNDARY

Two plates move towards each other. One plate is **subducted** beneath the other.

- As they move past each other, pressure builds up and up and up. This pressure is suddenly released = earthquake.
- As they move past each other friction and pressure cause the surrounding plate to melt = magma. This rises through the crust = volcano.

CONSTRUCTIVE PLATE BOUNDARY

Two plates move away from each other due to convection currents in the mantle.

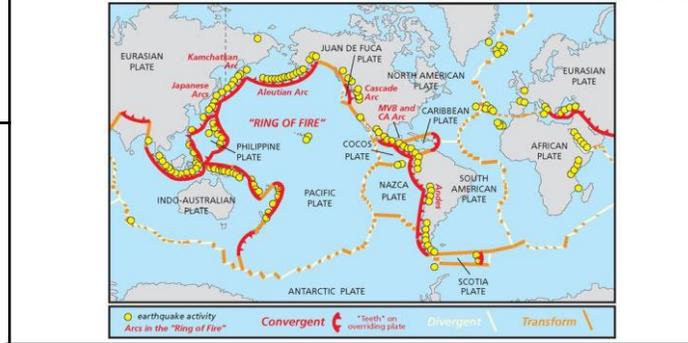
- This leaves a gap. Magma rises to fill this gap = volcanoes. This usually occurs under oceans. The magma creates new land = sea floor spreading
- As a magma rises, small earthquakes occur.

CONSERVATIVE PLATE BOUNDARY

Two plates move past each other, either in the same direction at different speeds or in opposite directions.

- As the two plates slide past each other, pressure builds up and up and up. This is suddenly released = earthquakes

Tectonic Plates	The crust is split into several pieces (like a cracked egg shell). These pieces of rock are called tectonic plates. They float on the mantle.
Oceanic Crust	Crust found under the oceans (thin, young, more dense)
Continental Crust	Crust found under land (thick, old, less dense)
Continental Drift	Theory that said the earth's continents are very slowly moving in different directions.
Subducted	Goes underneath
Magma	Molten(melted) rock
Focus	The point where the pressure is released
Fault line	The line between the two plates



Causes of Earthquakes

Earthquakes are caused when two plates become locked causing friction to build up. From this stress, the pressure will eventually be released, triggering the plates to move into a new position. This movement causes energy in the form of seismic waves, to travel from the focus towards the epicentre. As a result, the crust vibrates triggering an earthquake.

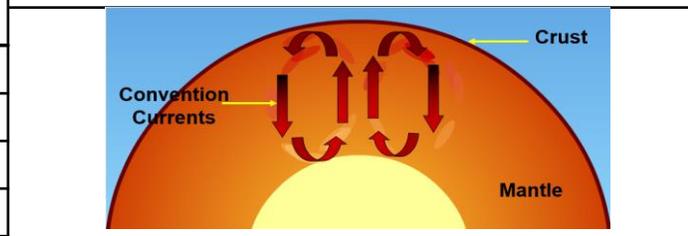
The point directly above the focus, where the seismic waves reach first, is called the **EPICENTRE**.

SEISMIC WAVES (energy waves) travel out from the focus.

The point at which pressure is released is called the **FOCUS**.

CONVECTION CURRENTS

- The mantle is made up of semi molten rock.
- Convection currents are circular currents in the mantle. The magma is heated up, it rises. Then cools as it hits the surface. It moves in a circular motion and drags the tectonic plate along.



Montserrat eruption <p>Montserrat is a small island in the Caribbean, which is located next to a destructive plate margin. The denser North American plate is being subducted beneath the less dense Caribbean plate. As the North American plate is forced into the mantle, it melts creating new magma. This magma then rises through the Caribbean plate to form a volcano on Montserrat.</p> <p>As the volcano was on a destructive plate margin, its eruption was destructive with lots of pyroclastic flows. Pyroclastic flows are caused when very hot gases and ash (800°C) collapse rush down the slope of volcanoes at speeds of 500mph, destroying everything in its path.</p> <p>Montserrat's volcano was found in the south of the country. So the government split the country into 3 zones to ensure fewer people were affected</p> 		Iceland eruption <p>Iceland is part of Europe and is situated in the North Atlantic Ocean. It is on a constructive plate boundary where the North American plate and Eurasian Plate are moving apart and the lava flows out as a volcano.</p> <p>As this volcano is on a constructive plate boundary it is a gentle volcano with. However the volcano did have massive ash clouds which caused many problems with air travel and meant many airplanes were grounded</p> 		Effects of Tectonic Hazards <p>Primary effects happen immediately. Secondary effects happen as a result of the primary effects and are therefore often slightly later.</p> <table border="1"> <tr> <td> Primary - Earthquakes <ul style="list-style-type: none"> Property and buildings destroyed People injured or killed Ports, roads, railways damaged Pipes (water and gas) and electricity cables broken </td> <td> Secondary - Earthquakes <ul style="list-style-type: none"> Business reduced as money spent repairing property Blocked transport hinders emergency services Broken gas pipes cause fire Broken water pipes lead to a lack of fresh water </td> </tr> <tr> <td> Primary - Volcanoes <ul style="list-style-type: none"> Property and farm land destroyed People and animals killed or injured Air travel halted due to volcanic ash Water supplies contaminated </td> <td> Secondary - Volcanoes <ul style="list-style-type: none"> Economy slows down. 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Effects <ul style="list-style-type: none"> 2/3rds of Montserrat was covered in ash farmland. Tourism was suspended due to ash fall, devastated towns and cities, and destroyed airports and ports. 7000 people were displaced. Local and international flights were cancelled. Many industries were destroyed resulting in a rise in unemployment. The unemployment rate reached 50%. Respiratory problems were caused due to ash and gases in the atmosphere. 19 people were killed. The capital, Plymouth, was covered in 12m of mud. Homes, hospitals and schools were destroyed by the pyroclastic flow. 		Effects <ul style="list-style-type: none"> Ash fell into the North Atlantic, triggering a plankton bloom Airlines lost a combined £130 million per day The grounding of flights stopped 2.8 million tonnes of carbon dioxide being released Other modes of transport made lots of money The people living near the volcano had to wear goggles and facemasks as the ash was so thick. Many of the roads were shut. Kenya's economy lost £2.8 billion because of flights to Europe being cancelled as flowers and food they produce could not be sent to the buyers by air 500 local farmers evacuated from the area The eruption set off a major flood in Iceland The ash contaminated local water supplies. businesses worldwide lost money. 		Responses to Tectonic Hazards <table border="1"> <tr> <td> Immediate (short term) <ul style="list-style-type: none"> Issue warnings if possible Rescue teams search for survivors Treat injured Provide food and shelter, food and drink Recover bodies </td> <td> Long-term <ul style="list-style-type: none"> Repair and re-build properties and infrastructure Improve building regulations Restore utilities Resettle locals elsewhere Develop opportunities for recovery of economy </td> </tr> </table>		Immediate (short term) <ul style="list-style-type: none"> Issue warnings if possible Rescue teams search for survivors Treat injured Provide food and shelter, food and drink Recover bodies 	Long-term <ul style="list-style-type: none"> Repair and re-build properties and infrastructure Improve building regulations Restore utilities Resettle locals elsewhere Develop opportunities for recovery of economy 																		
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	HIC	LIC
Quality of infrastructure	The buildings, roads and bridges in HICs are much stronger. They also have earthquake proof buildings that do not fall down.	The buildings are built out of poor quality materials = fall down during earthquake.
Use of monitoring and predicting equipment	HICs use equipment to monitor the ground to predict when the earthquake will occur. They also have plans to help them prepare for when the earthquake occurs	Not all LICs can afford monitoring equipment to predict when the earthquake will occur or have sufficient plans to help them prepare for when it does.
Communication systems	HICs have good communication systems to help communicate with the population what to do following the earthquake.	LICs do not have good communication systems to communicate with the population what to do following the earthquake = do not know what to do.
GDP: wealth of country	Countries have more money to spend planning, predicting and protecting themselves from the earthquake, they can also rebuild the country quicker.	LICs, do not have the money to rebuild after a natural disaster. They also can't spend as much money on search and rescue or clean up operations.