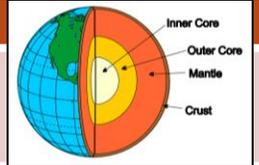


What are Natural Hazards?

Natural hazards are physical events such as earthquakes and volcanoes that have the potential to do damage to humans and property. Tectonic hazards include earthquakes, volcanoes and tsunamis.

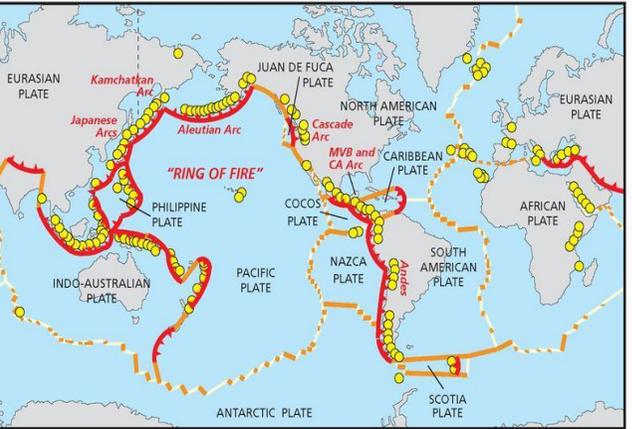
Structure of the Earth

The earth has 4 layers
The core (divided into inner and outer), mantle and crust.

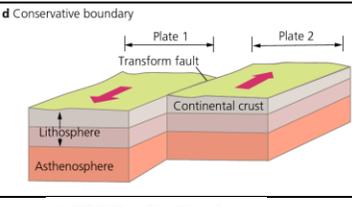
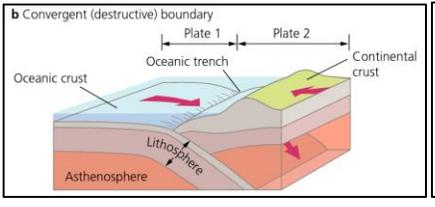
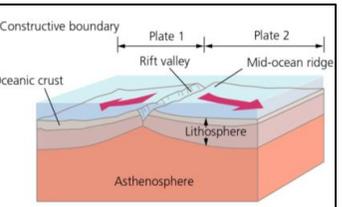


Distribution of tectonic activity

- Along plate boundaries.
- On the edge of continents.
- Around the edge of the Pacific in the Pacific Ring of Fire.



Plates either move towards each other (**destructive margin**) away from each other (**constructive**) or past each other (**conservative**).



Examples

- Constructive – North American and Eurasian plates at the Mid Atlantic Ridge (Iceland)
- Destructive – Nazca and South American plates on the Pacific Ring of Fire
- Conservative – Pacific and North American plates (San Andreas Fault line in California)

Year 9

How do physical processes impact people around the world?

Effects of Tectonic Hazards

Primary effects happen immediately. Secondary effects happen as a result of the primary effects and are therefore often later.

Primary - Earthquakes	Secondary - 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. 	<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.

Primary - Volcanoes	Secondary - 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. 	<ul style="list-style-type: none"> - Economy slows down. Emergency services struggle to arrive. - Possible flooding if ice melts. Tourism can increase as people come to watch. - Ash breaks down leading to fertile farm land.

Comparing the effects



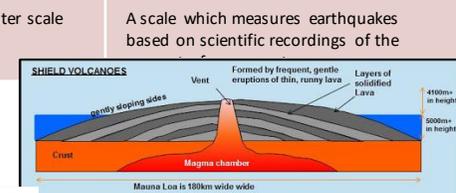
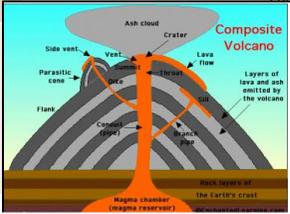
The impacts are of economically worse in the short term in HICs as the cost of damage is often higher.

The social, economic and environmental impacts in the short term are usually much worse in LICs.

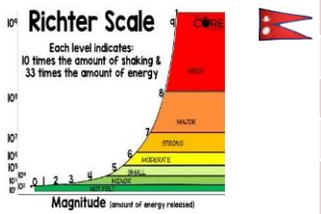


Responses to Tectonic Hazards

Immediate (short term)	Long-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. - Extinguish fires. 	<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.



	HAITI	JAPAN (Sendai)
Tectonic Setting	Conservative margin	Destructive margin
Magnitude	7	9
Life Expectancy	61	82
GDP \$	\$600	\$42,000
Deaths	220,000	18,000
Injuries	300,000	6,000
Buildings destroyed	250,000	118,000



Reducing the impact of tectonic hazards

Monitoring	Prediction
Seismometers measure earth movement. Volcanoes give off gases.	By observing monitoring data, this can allow evacuation before event.
Protection	Planning
Reinforced buildings and making building foundations that absorb movement. Automatic shut offs for gas and electricity.	Avoid building in at risk areas. Training for emergency services and planned evacuation routes and drills.