

YEAR 9 GEOGRAPHY - TECTONICS

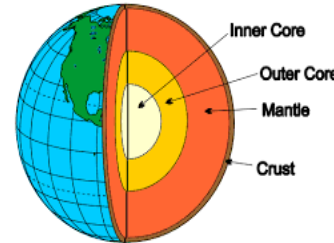
1. KEY VOCABULARY

Destructive plate margin	Tectonic plate margin where two plates are converging and oceanic plate is subducted – there could be violent earthquakes and explosive volcanoes
Conservative plate margin	Two plates sliding alongside each other, in the same or different directions
Constructive (transform) plate margin	Tectonic plate margin where rising magma adds new material to plates that are diverging or moving apart
Continental crust	The low density, thick outer layer of Earth which forms our continents
Oceanic crust	The dense, thin outer layer of Earth that lies underneath the ocean
Plate margin	The border between two tectonic plates
Tectonic plate	Section of the Earth's crust about 100km thick
Composite volcanoes	Steep-sided volcanoes found at constructive plate margins
Shield volcano	broad, flat volcano with non-violent eruptions formed at constructive margins and at 'hot spots'

2. STRUCTURE OF THE EARTH

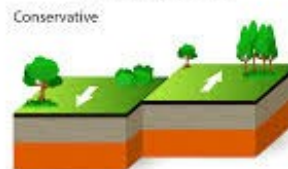
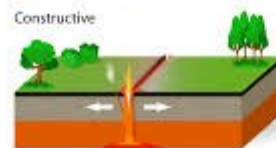
1. Outer core – made of liquid nickel and iron
2. Inner core – solid centre of the earth that reach 6000°C
3. Mantle – contains magma that moves in currents
4. Crust – think layer of solid rock

Magma is molten rock which is called Lava once it has reached the surface of land.



3. PLATE TECTONICS

- Convergent plate boundary – where two plates collide, and fold mountains are formed
- Constructive plate boundary – when two plates separate, and volcanic islands are formed. An example is the Hawaiian islands.
- Conservative plate boundary – where two plates slip past each other and earthquakes occur. An example is San Andreas fault line.
- Destructive – Where an oceanic and continental crust collide and form a subduction zone leading to volcanoes being formed.

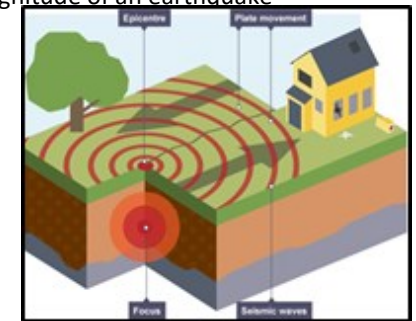


4. IMPACTS OF PLATE TECTONICS

Volcanic Eruptions— These can be created when plates collide and separate

- Lava comes up the vent and out of the crater
- A shield volcano is much flatter and less explosive whereas shield volcanoes have much steeper sides and thicker (more viscous) lava.

Earthquakes— Occurs when two plates slip past each other. Tremors radiate from the point of impact. The strength of them are measured using the **Richter scale**— a scientific scale from 1-10 used to measure the magnitude of an earthquake



Tsunamis— A tsunami is caused by an underwater earthquake. •The focus is underwater and causes huge waves to come ashore. Waves can travel at up to 500 miles per hour. •Tsunami can be predicted when the sea retracts (pulls back)

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5. KEY VOCABULARY

Prediction	Using historical evidence and monitoring, scientists can make predictions about when and where a hazard may happen
Monitoring	Recording physical changes, i.e. detecting heat and shape changes of volcanoes using remote sensing, to help forecast when and where a natural hazard might strike
Protection	Actions taken before a hazard strikes to reduce its impact, such as educating people or improving building design
Primary effects	Initial impact of a natural event on people and property, caused directly by it, i.e. the buildings collapsing following an earthquake
Secondary effects	After-effects that occur as indirect impacts of a natural event, sometimes on a longer timescale, i.e. fires due to ruptured gas mains, resulting from the ground shaking
Management strategies	Techniques of controlling, responding to, or dealing with an event

6. GLOBAL DISTRIBUTION OF TECTONIC ACTIVITY

Most tectonic activity is along plate margins and on the edge of continents. Some volcanoes form over hot spots in the mantle eg. Hawaii.



7. MANAGEMENT OF TECTONIC HAZARDS

- Scientist can monitor tectonic activity, e.g seismometers can monitor Earth's movements and equipment can measure escaping gas.
- Volcanic activity can be predicted and people can evacuate. Predicting volcanoes is less precise as they measure things such as **ground deformation** (changes in the shape of volcanoes which is closely monitored to predict eruptions).
- Buildings and infrastructure (transport links, connectivity links, buildings) can be designed and reinforced by using things such as strengthened concrete and foundations. Gas and electricity supplies can have automatic shut-offs to prevent fires and explosions.
- Areas at risk can plan and educate people to reduce the risk of tectonic hazards.

8. PRIMARY AND SECONDARY EFFECTS OF VOLCANIC ACTIVITY

Primary Effects (Immediate Impacts)		Secondary Effects (Happen Afterwards)	
Primary Effects of Volcanoes	Primary Effects of Earthquakes	Secondary Effects of Volcanoes	Secondary Effects of Earthquakes
<ul style="list-style-type: none"> • People and animals injured/killed • Buildings and farm land destroyed • Water supplies contaminated • Volcanic ash prevents air travel 	<ul style="list-style-type: none"> • Buildings collapse. • Roads, railways, bridges etc destroyed • Water/gas pipes and electricity cables are damaged • People are injured/killed 	<ul style="list-style-type: none"> • People are left homeless • Damaged transport routes prevent aid reaching the area • Melting ice can cause flooding • The negative effects to businesses can cause unemployment/poverty • Volcanic ash creates fertile farm land • Tourism can increase • Crops can be damaged • Ash contaminates water supplies 	<ul style="list-style-type: none"> • People are left homeless • Damaged transport routes prevent aid reaching the area. • Tsunamis and landslides (lahars) can be triggered • Broken gas pipes cause fire • The negative effects to businesses can cause unemployment/poverty • Lack of clean water/medical care can cause disease and death



9. WHY DO PEOPLE LIVE NEAR TECTONIC HAZARDS?

- Minerals in volcanic ash produce fertile soil. Crops will grow well.
- Jobs, e.g. Los Angeles is in an area at risk of earthquakes.
- People are confident that the government will help.
- Families have always lived in the area.
- Volcanoes attract tourists. There will be lots of jobs in the tourism industry.
- Some volcanoes can lay dormant for thousands of years so people may think an eruption is unlikely so take the risk of living in a hazardous activity.