Knowledge organiser: Y9—How does the structure of the earth create hazards?

KEY VOCABULARY	
Tectonic plate—A large irregular piece of the earth's lithosphere that makes up the earth's crust.	Earthquake— a sudden violent shaking of the ground that occurs as a result of movements within the earth's crust or volcanic action.
Plate boundary—the point where two tectonic plates meet.	Seismic wave—a sudden wave of energy transferred through the earth as a result of plate movement.
Convection currents—a current in the mantle that moves magma between the earth's core and lithosphere.	Response—action taken by humans following a hazard.
Primary hazard— things that cause disruption and danger to human life that are caused directly by a tectonic event. For ex-	Volcano— a mountain or hill, with a crater or vent through which lava, rock fragments, hot vapour, and gas are or have been erupted from the
Secondary hazard— dangerous things caused by the primary hazards. For example fire, disease, breathing difficulties.	Impact—The effect that hazards have on the physical and human environment . They can be short term or long term.

The structure of the earth

The earth is made of different layers.

The crust and upper part of the mantle are called the lithosphere.

The crust is the layer we live on. It is broken into pieces of oceanic and continental crust called plates.

The plates move around due to convection currents in lower part of the mantle. This causes the continents to move.

Slab pull and ridge push also cause the plates to move.

Slab pull—the weight of a rock subducting can pull the plate behind it.

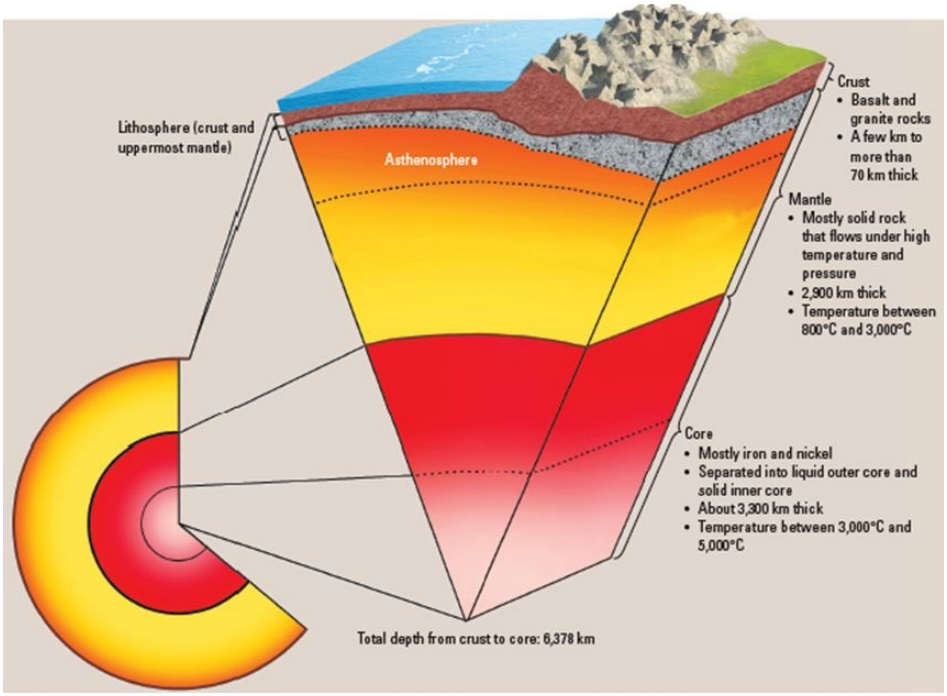
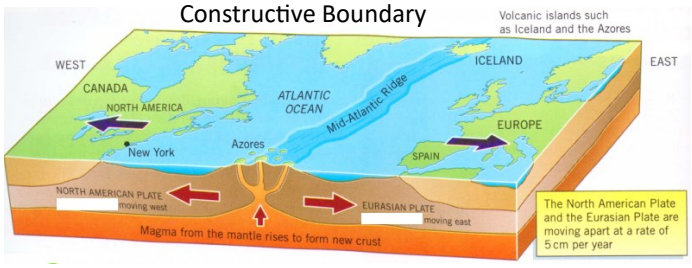
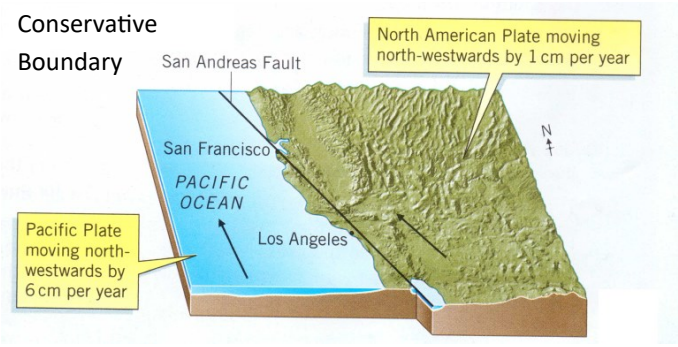


Plate boundaries— There are 4 major types of plate boundary.

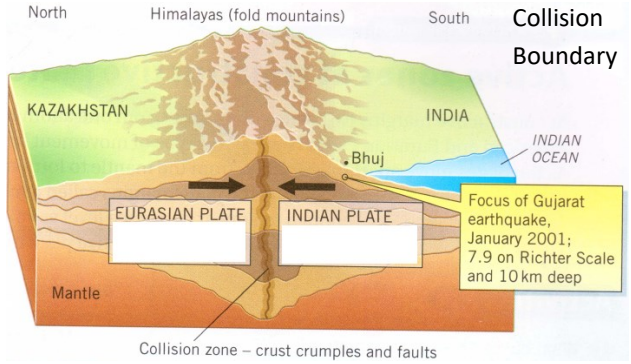
Constructive Boundary



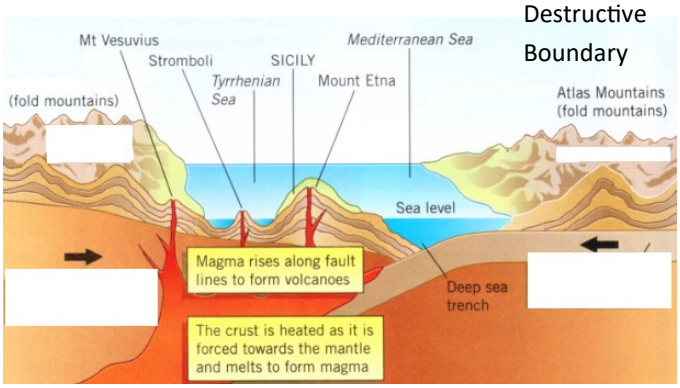
Conservative Boundary



Collision Boundary



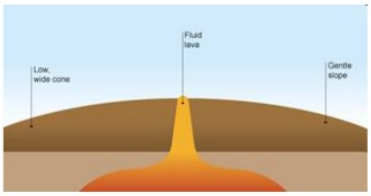
Destructive Boundary



Volcanoes

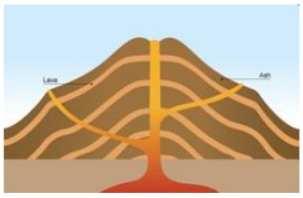
Types

Active,
Dormant,
Extinct
Shield,
Composite cone



Shield Volcano

At **constructive** margins. **Basic lava** (low silicon content). Pours out easy. Low violence, but regular. E.g. Mauno Lao in Hawaii.

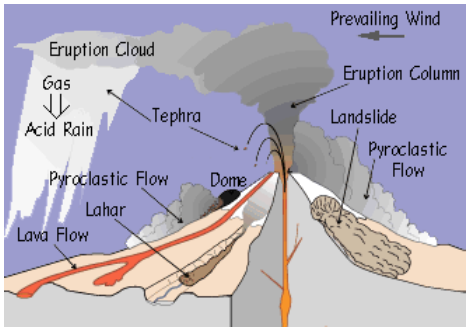


Composite Volcano

At **destructive** margins. **Acid Lava** .Greater heat and pressure. Layers of lava and ash. Irregular eruptions. Violent. E.g. Mount Etna in Italy

Location

Volcanoes occur in lines or belts along plate boundaries.
Shield volcanoes occur along constructive boundaries and composite cone along destructive boundaries.



The impacts of volcanic eruptions vary depending on:

- The type of volcano
- Development level
- Preparation
- Population density
- Accessibility

- **Why live near volcanoes?**
- volcanic rock and ash provide **fertile land**
- **tourists** are attracted to the volcano
- geothermal energy can be harnessed
- minerals are contained in lava.
- Lack of fear due to new technology

Earthquakes

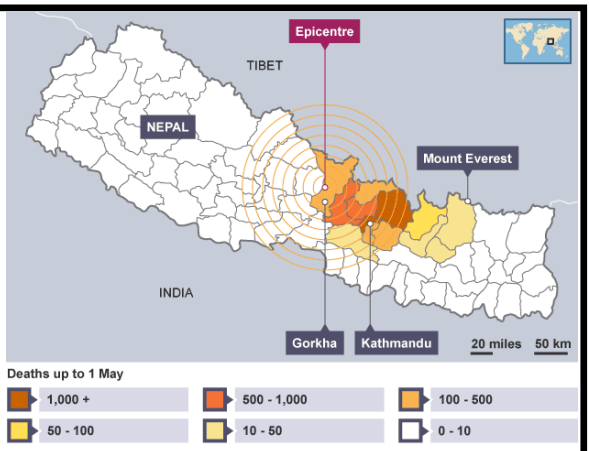
An earthquake is a sudden shockwave caused by rocks getting stuck and being under stress from the movements of plates at plate boundaries. Eventually the stress in the rock builds up enough to deform and reach breaking point. At that point, the stored up energy is released in the form of shockwaves which we feel as an earthquake.

Earthquakes are measured using the **Moment Magnitude Scale**. This measures the size of the **seismic waves** during the earthquake. Each step in the scale is ten times greater than the previous number. This is a **logarithmic** scale.

The Nepalese Earthquake 2015

The earthquake occurred on a collision plate boundary between the Indian and Eurasian plates.

Focus was 8 kms deep. The epicentre was 60 kilometres NE from the capital Kathmandu.



Impacts

- UNESCO World Heritage sites in the Kathmandu Valley destroyed.
- 600000 houses were destroyed across many districts of the country.
- Approx 9000 dead and 22000 injured.
- Hundreds of thousands of people were made homeless.
- Harvests were reduced or lost that season.
- Short term loss of tourist revenue, a major industry in Nepal.
- The earthquake triggered an avalanche on Mount Everest, killing approximately 20 people.
- The steep valleys of the area suffered many landslides, wiping out whole villages such as Langtang.

Short term responses	Long term responses
People dug through the rubble for survivors	Rebuilding of houses and services
Red cross sent aid workers to provide support.	New task force set up to prevent future disasters
$3m dollars given to pay for emergency relief from Asian development bank.	
Emergency shelters set up for the homeless.	

Want to know more, check your learning or take your learning further? Check out these website below!

Bitesize plate tectonics

https://www.bbc.co.uk/bitesize/topics/zn476sg

Internet Geography—Nepal Earthquake

https://www.internetgeography.net/topics/nepal-earthquake-2015/

Time for geography—videos on plate tectonics

https://timeforgeography.co.uk/videos_list/plate-tectonics/