Home learning activities

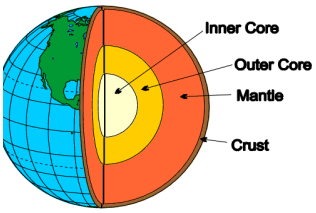
Subject
Geography
Year Group
9
Unit of work / Knowledge organiser
This work will most likely be new work to almost all of you. It is based on the Tectonic Hazard work and goes alongside the GCSEpods that you have been set over the last 3-4 weeks. The knowledge organiser is below so do not worry if you haven't learnt this topic. Everything you need is here.
Activities
Task 1: Complete ALL GCSEpods: You will should be getting at least 3 a week **Task 2:** Use the diagram of the Earth's structure to **describe** the four layers of the Earth. This may include the depth of each layer, temperature and / or the metals in each layer. (3 marks) **Task 3: Explain** how convection currents causes plates to move. (3 marks) **Task 4:** 'Conservative margins are the most dangerous of all the plate margins' **To what extent** do you agree with this statement? (9 marks) **Task 5: Evaluate** why people are still living in hazardous zones such as Tokyo, Japan and California. (6 marks) **Task 6:** Using the Nepal facts below to enhance your answer, **discuss** whether primary or secondary effects cause the greatest damage. (9 marks) **Task 7**: Using the Chile facts below to enhance your answer, **evaluate** whether the immediate or long-term responses are more effective in your opinion. (9 marks) **Task 8: Describe** the location of Chile and Nepal. (2 marks) **Task 9:** Using both the Nepal and Chile earthquakes, **compare** whether the damage (either physically, socially, emotionally or economically) is worse in an LIC or HIC. (6 marks) **Task 10:** Using your knowledge gained from the GCSEpods**, how** can scientists begin to predict and monitor seismic activity? (4 marks)
Where do you complete the work?
Complete the work on paper or on the computer
What to do if you finish the work? (Extension activity)
Research the Tokyo 1923 Earthquake. Begin to understand why it is so difficult to predict earthquakes. This earthquake was predicted before it actually happened but they couldn't predict the when and so it was a waiting game. Discuss how scientists could potentially make predictions of earthquakes and indeed volcanic eruptions more accurate.
These websites might help:
GCSEpod BBC Bitesize Encounter EDU – lots of live lessons on here for you to use
If you are struggling with your work or if you have finished..
Please email Miss Beaumont for help and support. Beaumont.S@smiths-wood.com **I would love to see the work you have been doing so please do send your answers to me!**

SMITH'S WOOD ACADEMY

Keywords.

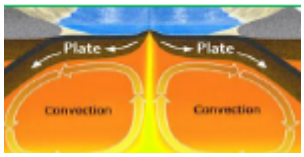
- **Hazard risk** - The probability or chance that a natural hazard may take place.
- **Natural hazard** - A natural event (for example an earthquake, volcanic eruption, tropical storm, flood) that threatens people or has the potential to cause damage, destruction and death.
- **Earthquake** - A sudden or violent movement within the Earth's crust followed by a series of shocks.
- **Immediate responses** - The reaction of people as the disaster happens and in the immediate aftermath.
- **Long-term responses** - Later reactions that occur in the weeks, months and years after the event.
- **Monitoring** - Recording physical changes, such as earthquake tremors around a volcano, to help forecast when and where a natural hazard might strike.
- **Plate margin** - The margin or boundary between two tectonic plates.
- **Planning** - Actions taken to enable communities to respond to, and recover from, natural disasters, through measures such as emergency evacuation plans, information management, communications and warning systems.
- **Prediction** - Attempts to forecast when and where a natural hazard will strike, based on current knowledge. This can be done to some extent for volcanic eruptions (and tropical storms), but less reliably for earthquakes.
- **Primary effects** - The initial impact of a natural event on people and property, caused directly by it, for instance the ground buildings collapsing following an earthquake.
- **Protection** - Actions taken before a hazard strikes to reduce its impact, such as educating people or improving building design.
- **Secondary effects** - The after-effects that occur as indirect impacts of a natural event, sometimes on a longer timescale, for instance fires due to ruptured gas mains resulting from the ground shaking.
- **Tectonic hazard** - A natural hazard caused by movement of tectonic plates (including volcanoes and earthquakes).
- **Tectonic plate** - A rigid segment of the Earth's crust which can 'float' across the heavier, semi- molten rock below. Continental plates are less dense, but thicker than oceanic plates.
- **Volcano** - An opening in the Earth's crust from which lava, ash and gases erupt.

. Earths structure.



Convection Currents.

Heat from the core causes convection currents in the mantle. These cause the mantle to move as it heats and cools. These currents slowly move the crust around.



Tectonic Plates

The crust is made up of a number of plates.

There are two types of crust:

Oceanic crust – dense and thin.

Continental crust –less dense and thick.

Plates move due to convection currents.

Why do people live in hazardous areas?

Hazards don't happen that often so people don't see them as a threat.

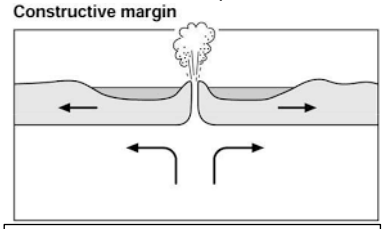
Poverty – people have other things to worry about and can't afford to move.

Volcanoes bring benefits like fertile soils, hot water and jobs in tourist areas.

Plate Boundaries.

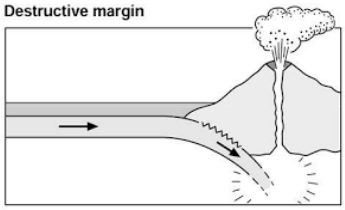
There are three different types of plate boundary: destructive, constructive and conservative. Which type they are depends on how the plates move at this boundary. Different plate boundaries have different landforms, such as volcanoes and fold mountains.

Constructive margin

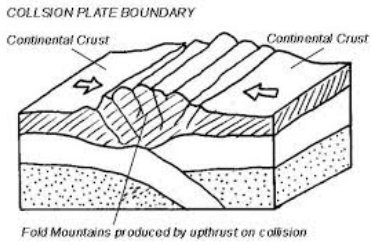


Rising magma adds new material to plates that are diverging or moving apart.

Destructive margin

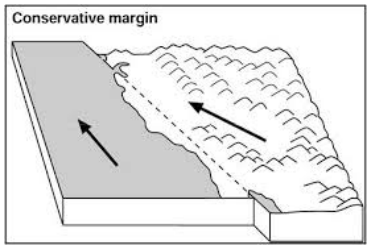


Two plates are converging or coming together and oceanic plate is subducted. It can be associated with violent earthquakes and explosive volcanoes.



Two continental plates are converging or coming together, neither is subducted so the land above is forced and folded upwards. Earthquakes and fold mountains are created.

Conservative margin



Two tectonic plates slide past each other.

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Nepal - LIC Case Study.

- 25th April 2015
- Destructive plate boundary
- 7.9 Richter scale

Primary Effects
- 9000 people died
- 3 million people homeless
- Electricity and water supply and sanitation affected.
- US$5 billion cost of damage
- 1.4 million people needed food, water and shelter in the days and weeks after the earthquake.
- 7000 schools destroyed and hospitals overwhelmed.
- International airport became congested as aid arrived.
- 50% of shops destroyed, affecting food supplies and people's livelihoods.

Secondary Effects
- Ground shaking triggered landslides and avalanches.
- Avalanche killed 19 people
- Landslides blocked roads and stopped rescue attempts.
- Risk of flooding from the Gandaki river.

Immediate Responses
- Search and rescue teams arrived from UK, India and China.
- Helicopters rescued people on Mount Everest.
- Half a million tents needed to provide shelter for the homeless.
- Financial aid pledged from many countries.
- Field hospitals set up to support overcrowded main hospitals.
- 300 000 people migrated from Kathmandu to seek shelter and support.
- Social media widely used in search and rescue operations and satellites mapped damaged areas.

Longer term Responses
- Roads repaired and landslides cleared.
- People re-housed, damaged homes repaired.
- Stricter controls on building codes.
- Heritage sites reopened to help boost tourism.

Chile - HIC Case Study.

- 27th February 2010
- Destructive plate boundary
- 8.8 Richter scale

Primary Effects
- 500 people died
- 220 000 homes, 4500 schools, 53 ports, 56 hospitals and public buildings destroyed.
- Much of Chile lost power, water supplies and communications.
- US$30 billion cost of damage.

Secondary Effects
- 1500km of roads damaged.
- Several coastal towns devastated by tsunami waves.
- Fire caused people to be evacuated in Santiago.

Immediate Responses
- Emergency services acted swiftly. International help supplied field hospitals, satellite phones and floating bridges.
- Temporary repairs made to main roads within 24hours.
- Power and water restored to 90% of homes within 10 days.
- National appeal raised US$60 million – enough to build 30 000 small emergency shelters.

Longer term Responses
- Housing reconstruction to help nearly 200 000 households.
- Chiles economy was rebuilt without foreign aid.
- Chile expected to be fully recovered within 4 years.

Reducing the risk.

- **Monitoring** – Looking for warning signs from volcanoes – changes in shape, gases released etc. Warning signs for earthquakes are more difficult, small changes in water pressure, ground shape and minor tremors can be felt.
- **Prediction** – scientific monitoring can help predict volcanic eruptions. Earthquakes are more difficult to predict as there is very little warning.
- **Protection –** Volcanoes are difficult to control; embankments can be created to divert lava. Earthquake protection is the main way to reduce risk. Buildings and bridges built to resist ground shaking.
- **Planning –** Areas to be evacuated in the event of volcanic eruptions have been identified. High risk areas are identified in earthquake zones and high value land uses are protected in those areas.