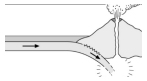
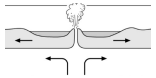
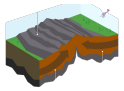
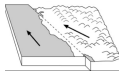
HAZARDS– YEAR 8

Plate boundaries

Plate Boundary	Name of feature:	How is it formed?	Example:
Destructive 	Ocean Trench Volcano	Subduction takes place	Mariana Trench, Western Pacific
Constructive 	Mid Ocean Ridge	Where two continental plates pull apart	Mid-Atlantic Ridge
Collision 	Fold mountains Earthquakes	Two continental plates push into each other and push upward	Himalayas
Conservative 	Earthquakes	Plates slide past each other	San Andreas fault line

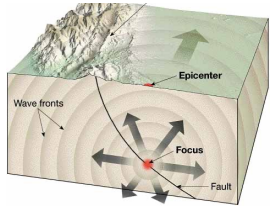
2010 Haiti Earthquake

Causes:
Conservative plate boundary between the Caribbean and North American Plates.

Effects:
- 46,000 to 85,000 deaths
- 300,000 homeless
- Port damages
- Sewage leaked into surrounding fields
- Bridges collapsed

Responses:
- People were evacuated
- The USA sent ships, helicopters, 10 000 troops and $100 million in aid.
- American engineers and diving teams were used to clear the worst debris within the country

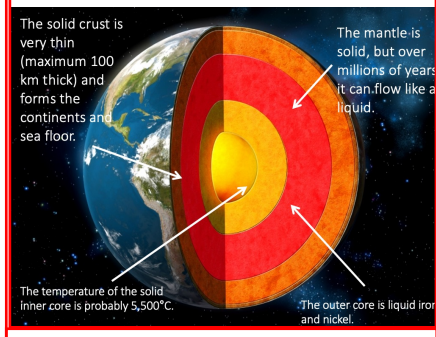
Earthquake



1. The movement of tectonic plates along fault lines creates stresses in rocks underground.
2. Friction sticks the two sides of the fault together.
3. The strain builds up-until it is greater than the frictional forces locking the fault.
4. The fault suddenly slips, releasing the stored elastic energy as seismic waves, which causes the ground to shake

Earthquakes are measured on a seismograph

Earths structure

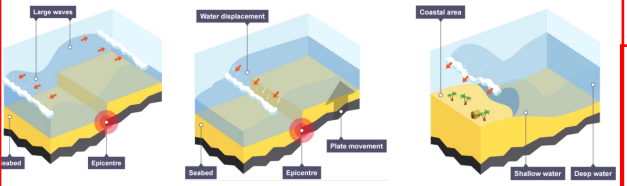


Super- volcano

1. Magma cannot escape to the surface and collects under the lower crust
2. An uplifting bulge forms under the lower crust
3. Cracks appear on the surface.
4. The magma chamber collapses, and a depression is formed called a caldera

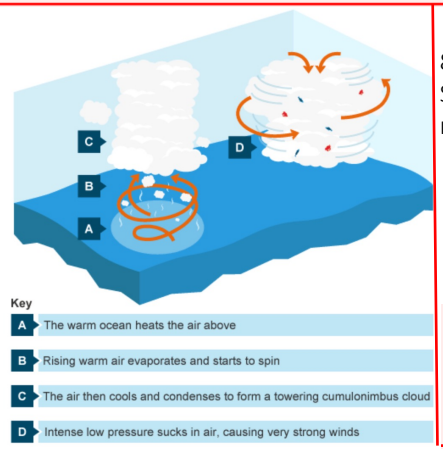
Tsunami

Most tsunamis are caused by earthquakes at destructive plate boundaries. This movement causes friction, which in turn causes the plates to stick. Energy accumulates. When the energy exceeds the friction, the plates snaps back into position.



Tropical storms

- 5 degrees North and South of the equator
- 27ºc ocean
- Deep water
- Trade winds



Typhoon Haiyan

8 November 2013
Strongest tropical typhoon on record made landfall.

Effects:
- 10,000 deaths in one day
- 40,000 homes destroyed
- 30,000 fishing boats destroyed
- 400mm of rain

Responses:
- Over 100 evacuation centres were set up to help the homeless
- Charities supported injured

Managing tectonics hazard

- Monitoring – noticing any changes
- Prediction – using monitoring to guess when will happen
- Protection – buildings that are resistant
- Planning – earthquake practise days

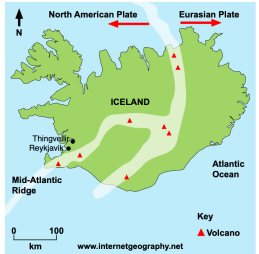
Yellowstone– USA

Evidence to suggest magma is shifting.

If it erupted :
- 10,00km of land destroyed
- Global climate lowers temp by 20ºc
- UK would receive ash 5 days after eruption

Iceland

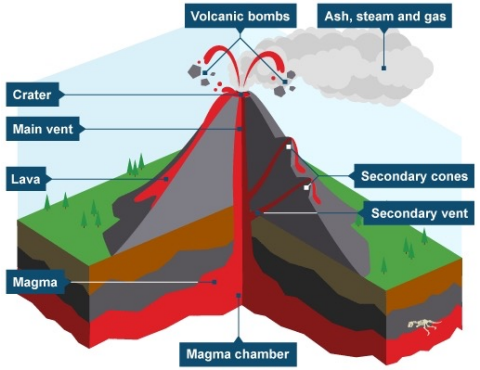
Found on the boundary of the North American plate and Eurasian plate, known as the Mid-Atlantic ridge. There are 30 active volcanoes.



Volcano-

Hazards include =
- Lahars
- Ash clouds
- Volcanic gases
- Pyroclastic flow

White Island –
Located in New Zealand. It is part of the Pacific room of fire. There were 22 deaths in total from different nationalities as people were having tours of the volcano.



2004 Boxing Day Tsunami

Causes:
On 26 December 2004, a magnitude 9 earthquake occurred in Indian Ocean. Indo-Australian plate under Eurasian plate.

Effects:
- 230,000 deaths
- Fishing boats destroyed
- Crops and habitats destroyed

Responses:
•The authorities ordered quick burial or burning of the dead to avoid the spread of disease
•$7 billion (just under £4.5billion) of aid was promised by foreign governments

Key words:

Hazard = something that is a potential risk to human life or property

Earthquake = Sudden violent shaking of the ground.

Fault Line – A fracture in the ground that occurs when the Earth's tectonic plates move or shift

Epicentre – The point directly above the focus on the earths surface.

Seismic waves – travel from the focus through the crust to the surface. Their intensity decreases over distance.

Focus – The point underground where the fault in the tectonic plate moves.

Volcano - is a fissure (opening) in the earth's crust through which molten lava, ash, and gases are ejected.

super- volcano= an unusually large volcano having the potential to produce an eruption with major effects on the global climate and ecosystem.

tsunami = a series of large waves which travel very quickly across oceans caused by an underwater earthquake

Monitoring - Measuring ground deformation, changing gases and seismic activity

Prediction - Involves trying to forecast when a volcano will erupt

Protection - Buildings are designed to withstand hazards

Planning - Educating people on what to do if a natural hazard occurs

Drought - This is a period when there is little or no rainfall

Water stress – this occurs when the demand for water exceeds the available amount during a certain period.

Water scarcity – this can mean scarcity in availability due to physical shortage or due to the failure of institutions to ensure a regular supply.

Water shortage – refers to the lack of sufficient water resources, including a lack of access to safe water to meet the needs within a region.

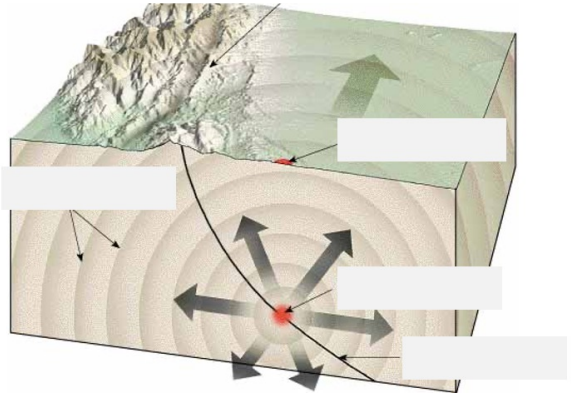
Revision Tasks:

- Make a mindmap/ poster/ revision cards/notes/ presentation/ song/ answer the following questions.

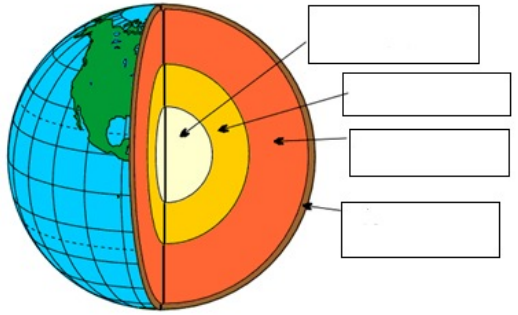
1. Define a hazard.
2. Name all four plate boundaries
3. What is a drought?
4. What are earthquakes measured on?
5. What is Yellowstone?
6. Name the hazards a volcano causes.
7. Give methods of managing hazards
8. State three things needed to form a tropical storm
9. Explain the difference between weather and climate
10. Name the tropical storm you have studied
11. What hazards are found at a collision plate boundary?
12. Using the blank earthquake structure below, annotate the features of an earthquak
13. Using the blank earths structure annotate to show the layers of the earth.
14. State the country found on the Mid-Atlantic Ridge
15. Describe the effects of an earthquake you have studied (separate into social, economic and environmental)
16. Explain the formation of a tropical storm
17. How did people respond to the 2004 boxing day tsunami
18. Explain how tsunamis occur
19. Give a statement explaining what happened at White Island
20. Describe the economic effects of typhoon Haiyan
21. Compare the effects of a tsunami to a volcanic eruption
22. Discuss the differences between a super-volcano and a volcano.
23. Explain why earthquakes occur
24. Compare a destructive plate boundary to a collision plate boundary
25. Justify the authority's burning bodies immediately as a response to the boxing day tsunami.

Command Words:

Analyse - Take apart an idea, concept or statement and criticise it.
Assess - Come to a conclusion about the overall value or significance of something; discuss its positive and negative aspects to show balance.
Compare - Identify similarities and differences.
Define - State the meaning of an idea or concept.
Describe - Set out the main characteristics of something; DON'T EXPLAIN.
Discuss -Set out both sides of an argument (for and against) and come to a conclusion; there should be some evidence of balance.
Evaluate - Make a judgement about the effectiveness of something; discuss its strengths **and** weaknesses and come to a conclusion about its overall success or importance.
Explain - Give reasons why something happens.
Give - Produce an answer from recall.
Justify - Support an idea or argument with evidence; for the outcome chosen, the positives must outweigh the negatives.
State = name



Structure of the Earth



Label the diagram: Mantle, Inner Core, Outer Core, Crust.