Geography: Is the world becoming more hazardous?

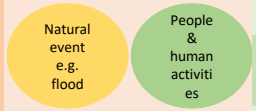
Year 9 Term 1 Trinity MAT

What is a hazard?

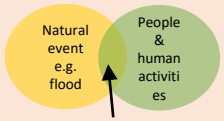
A natural hazard is an event that has a huge **social impact**. If the event, e.g. a volcanic eruption, happened in a remote area where it did not pose any threat to people it would not be considered a hazard.

The deadliest natural hazards are floods, storms, earthquakes and droughts. Between 2002 and 2012 an average of 100,000 people worldwide are killed each year by natural hazards.

No hazard:



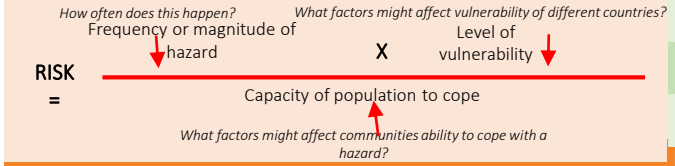
Hazard or disaster:



Natural hazard, possible disaster

What is risk?

Hazard risk is the chance or probability of being affected by a natural event e.g. people who chose to live close to a river may be at risk of flooding.



Shield vs. Composite Volcanoes

Shield

- Constructive plate margins
- Non-viscus (runny) lava
- Gentle sides
- Less violent eruptions
- No layers of ash, just lava layers
- Shorter periods between eruptions

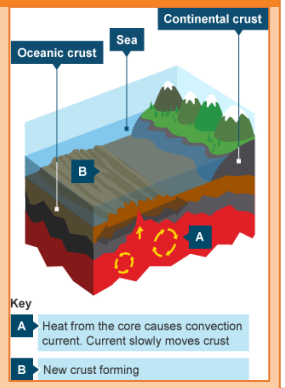
Composite

- Destructive plate margins
- Very viscous (stick) lava
- Steep sides
- Violent eruptions
- Stratovolcanoes = layers of ash and lava
- Longer periods between eruptions

Why do tectonic plates move?

Heat rising and falling inside the mantle creates **convection currents** generated by radioactive decay in the core. The convection currents move the plates. Where convection currents diverge near the Earth's crust, plates move apart. Where they converge, plates move together. This is called **plate tectonics**.

Plate tectonics are what cause earthquakes and volcanoes. They are most likely to occur along or near plate boundaries.

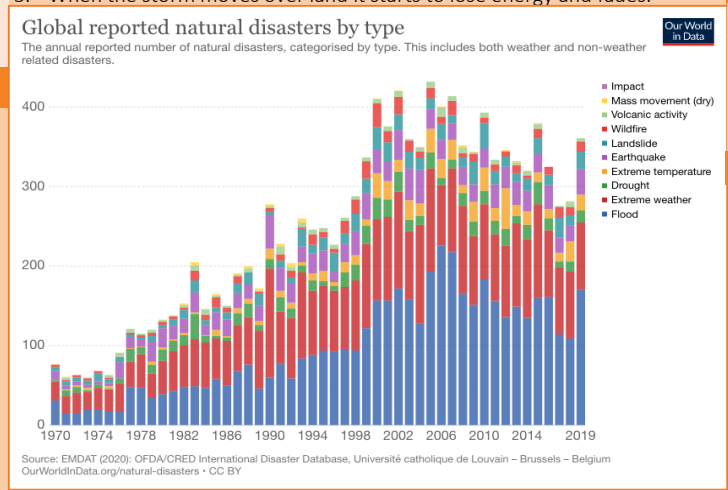


Key Terms

Risk	The probability of a hazard event causing harmful consequences (expected losses in terms of death, injuries, property damage, economy and the environment).
Convection Currents	Heat created in the core by radioactive decay, this causes the magma to rise (as hot elements rise), this cools as it reaches the surface – this movement causes the plates to move.
Shield Volcano	This is a volcano that has a gentle slope and a non-violent eruption, these are often found on constructive plate margins.
Composite Volcano	This is a volcano with a more violent eruption. It has steep sides and is often found on a destructive plate margin.
Vulnerability	The ability to anticipate, cope with, resist and recover from a natural disaster.
Resilience	The ability of places to be able to cope after an event occurs e.g. an earthquake.
Tropical Cyclone	A very intense low-pressure wind system, forming over tropical oceans and with winds of up to 174mph.
Latent Heat	Heat required to convert a solid into a liquid or vapour, or a liquid into a vapour, without change of temperature.
Wildfires	A large, destructive fire that spreads over a forest, bushland or peatland. Often these are stared on purpose.
Impacts	These are the issues that are created as direct result of a natural hazard e.g. homelessness.
Response	These are what are done to deal with the impacts in the short and long term after a hazard event.

How do tropical storms form?

1. Over warm tropical seas, the sun heats the ocean. This causes the air above to rise rapidly which draws up lots of water vapour.
2. The water vapour cools and condenses to form towering cumulonimbus clouds. Small thunderstorms join together to form a giant one.
3. The rising air starts to spin. In the centre of the storm, the eye, it is calm.
4. The rapidly rising air creates an area of intense low pressure. The low pressure sucks in air, causing very strong winds.
5. When the storm moves over land it starts to lose energy and fades.



Case Study 1: Mt. Nyiragongo Eruption

January 2002, Democratic Republic of Congo, Africa.

Impacts:

- 100 deaths
- 12,500 homes destroyed
- Cholera spread
- People lost businesses & jobs

Responses:

- 400,000 evacuated
- Refugee camps built
- $35 million of international aid given

Case Study 2: Mt. Etna Eruption

July 2001-2, Italy, Europe.

Impacts:

- No deaths
- Tourist areas destroyed
- Losses of agricultural land
- Loss of tourism revenue

Responses:

- Dams of soil and rock to divert lava flow from buildings
- $8 million tax breaks for villagers

Case Study 3: Hurricane Irma

September 2017, Caribbean and east coast of USA.

Impacts:

- 134 deaths
- $65 billion damage
- 90% buildings destroyed in Barbuda

Responses:

- US evacuated citizens
- Warnings issued
- UK government sent £57 million and 120 tones of aid

Case Study 4: Australian Bushfire

December-January 2019-20, Australia.

Impacts:

- 34 deaths
- 186,000 square km burnt
- 1 billion animals killed
- $2.8 billion damage

Responses:

- Thousands of firefighters and soldiers tackled the fires
- Over 100 aircraft each day dropping water

Why are natural hazards increasing?

Climate change is a major cause of the increased frequency, intensity and distribution of natural hazards. For example, warmer ocean waters give more fuel to tropical storms and higher temperatures increases the risk of drought in many areas.

Is risk increasing?

As you can see from the formula, risk is dependent on a number of factors. This graph shows that while the number of disasters is increasing, the number of deaths is decreasing. This could be to do with development levels increasing and our ability to cope.