Year - 9 Topic - Unit 3 - Why is conservation of the world's resources so important but challenging?

1. ● Food, water and energy are all needed for our well-being. ● Water has a range of uses such as drinking, farming and manufacturing - It takes over 10,000 litres of water to make one pair of jeans. ● Energy is used in manufacturing, heating, transport and food processing.	2. ● Africa has the largest levels of undernourishment across the continent. This means that between 25% and 35% of people do not have enough food to eat. ● Water footprint is the amount of water used throughout the day, on average, in a country. This is the largest in HIC's.
3. ● Energy mix refers to the different sources of energy used by households, industry and services such as shops and offices. ● Electricity can be generated by burning fossil fuels such as oil and coal, or using renewable sources such as wind or water. ● Nuclear energy is also part of the UK's energy mix. This involves using uranium to produce heat in a nuclear reactor. ● The UK's energy mix is changing and we have a reduction in the amount of fossil fuels used along with an increase in the amount of electricity produced from renewable energy sources.	4. ● The demand for food in the UK is increasing. ● We have an increased demand for seasonal products all year round - Example; Buying strawberries in December. This means that we have to import food. ● Imported food also increases food miles. Food miles are the distance that food travels from growing/production to the customer buying it in a shop.
5. ● Water demand in the UK is increasing. ● Over the last 100 years our homes now have a lot more appliances and technology - requiring much more water e.g: Dishwashers. ● Water deficit - An area with not enough water to meet the needs of the population. ● Water surplus - An area with more water than needed to meet the needs of the population.	6. ● Water Transfer schemes involve moving water from an area of water surplus to an area of water deficit. ● An example of a water transfer scheme is water from the Lake District provides water to parts of Liverpool and Manchester. ● However, there are concerns that water transfer schemes have a negative impact on the environment, create droughts and disrupt the habitats of plants and animals.

7. ● Using natural resources also has environmental impacts. ● Farming to sell produce for a profit. Cattle and crops. Responsible for 80% of Amazon deforestation. Ruins soil and nutrients. ● The removal of mineral resources from the earth. Gold, Bauxite, Oil and gas. Pollutes rivers and air. Trees above the mines and quarries are removed.	8. ● Energy resource use can be made more sustainable through the use of renewable energy sources. This includes wind power, solar energy and wave energy. ● Sustainable use of food resources includes buying local food which do not have large food miles. ● Sustainable use of water resources include small-scale water management systems and minimising water pollution.

How can I use my knowledge organiser effectively?

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Year - 9 Topic - Unit 4 - What are the challenges of tectonic hazards?

1.

- There are four main types of natural hazard. These include;
- **Tectonic hazards** - Caused by the movement of the plates which make up the Earth's crust.
- **Atmospheric hazards** - Such as Hurricanes.
- **Geomorphological hazards** - These hazards occur on the earth's surface, such as flooding.
- **Biological hazards** such as forest fires.

2.

- At a **Constructive** plate margin the two plates are pulling apart.
- At a **Destructive** plate margin the two plates are **moving towards one another.** Oceanic Crust is denser (heavier) than Continental Crust and so sinks below the Continental crust as they push into each other.
- At a **Conservative** Margin the two plates are sliding past one another.
  The two plates are usually traveling in the **same direction but at different speeds**.
  The friction and pressure built up between the two plates can result in **earthquakes**.

3.

- A plate boundary is the edge of a tectonic plate. It is the boundary between two plates.
- Most of the world's volcanoes and earthquakes are distributed along plate boundaries.
- The Ring of Fire is located in the Pacific Ocean where the majority of the world's volcanoes and earthquakes are located. Below is a map showing it.
- Hotspots are formed when the magma in the mantle is very hot and the crust is thinner e.g. this is how Hawaii was formed

4.

- Amatrice is located in central Italy approximately 30 miles north of L'Aquila, which experienced a major earthquake in 2009.
- 24th August 2016, an earthquake occurred there. It had a magnitude of 6.2 on the Richter Scale.
- Some primary effects were: it killed 299 people, injured 400, and made 4,454 homeless.
- Occurred at 3.36 am so many people were asleep
- Some secondary effects were: unsafe buildings, had to introduce red zones where people couldn't go due to danger. 90% of sheep, goat and cattle barns were destroyed so farmers struggled to earn a living. There was looting. Landslides blocked roads.
- Some of the immediate responses were: 10,000 accommodate in tent camps, rescue workers within the hour, including 70 dog teams and 12 helicopters. Temporary hospitals set up as hospitals were damaged,
- Some of the long-term responses were: schools were re built using pre-made buildings. 42 million euros used to re-build villages with earthquake proof houses.

5.

- Gorkha is located in Nepal which is an Asian country located between China and India.
- 25th April 2015 a 7.9 magnitude earthquake struck there.
- Some of the primary effects were: around 8632 people were killed, 19,009 were injured, centuries old buildings, including Dharahara Tower, were destroyed.
- Some of the secondary effects were: it triggered an avalanche on Mt. Everest and killed 17 people, many landslides occurred.
- Some of the immediate responses were: India and China provided over $1 billion in aid, temporary housing provided & over 100 search and rescuers.
- Long-term responses were: up to $200million provided for rehabilitation.

6.

- Earthquakes and other hazards occur regardless of the development status of a country. However wealth and the development of a country can have a big effect on the impacts and responses to a natural hazard event.
- There may be more damage caused in LIC's such as Nepal. However the cost to repair will be much lower than in a HIC as the buildings would not be as strong or good quality.
- A HIC such as Italy would have a better response to a natural hazard than an LIC. HIC's have more hospitals and emergency services. This can also mean that the death toll is lower in a HIC as you are less likely to die from injuries.
- LIC's are also more likely to receive aid from other countries to help after a natural disaster.
- Some factors such as the time of day the earthquake happens, the population size and the location are not dependent on wealth or development.

7.

- The 3Ps stand for: Prediction, Protection and Planning.
- Mitigation means to reduce the severity of something (reduce how much damage the natural hazard can do.)
- Methods of prediction include: seismometers, Radon gas levels, studying animal behaviours, looking at previous patterns of the hazards.
- Methods of protection include: building to make buildings more earthquake-resilient e.g. shock absorbers on the base, exclusion zones near the volcano.
- Methods of planning include: earthquake training drills, evacuation routes planned, first aid kits ready to go.

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Year - 9 Topic - Unit 5 - What are the challenges of atmospheric hazards?

1.

Global atmospheric circulation: The way in which air circulates around the earth. Heat from the equator is transferred around the globe in three cells that connect with each other

Features:

- **Hadley Cell-** At the equator, the ground is intensely heated by the sun. This causes the air to rise which creates a low-pressur**e** zone on the Earth's surface. As the air rises, it cools and forms thick cumulonimbus (storm) clouds. The air continues to rise up to the upper atmosphere.
- The air separates and starts to move both north and south towards the poles.
- When it reaches about 30° north and south, the air cools and sinks towards the ground forming the subtropical high-pressure zone.
- As the air sinks, it becomes warmer and drier. This creates an area of little cloud and low rainfall, where deserts are found.
- The Hadley cell is then complete. The air completes the cycle and flows back towards the equator as the trade wind**s**.
- In the northern hemisphere, the winds flow to the right and are called northeast trade winds. In the southern hemisphere the winds flow to the left and are called the southeast trade winds. This is down to the coriolis force and friction.

2.

Global atmospheric circulation continued:

- **Ferrell Cell-**The Ferrel cell occurs at higher latitudes (between 30 degrees and 60 degrees N and 30 degrees and 60 degrees S)
- **Polar Cell-**At the poles, air is cooled and sinks towards the ground forming high pressure

.

Trade winds- Winds that blow from east to west towards the equator.

Intertropical convergence zone- is a band of low pressure around the Earth which generally lies near to the equator.

Coriolis effect- The Coriolis force is where the earth's rotation affects the way that winds travel over the earth.

As air warms, it rises, leading to low pressure at the surface.

As air cools, it sinks leading to high pressure at the surface.

3.

Distribution of tropical storms:

Most tropical storms occur between 5 and 20 degrees north and south of the Equator (but not on the Equator itself).

This is because the water in these areas is above 27c; further north or south the water becomes too cold.

4.

How tropical storms develop:

- Tropical storms form between approximately 5° and 30° latitude. Because of easterly winds they initially move westward.
- The air above the warm ocean is heated. Once the ocean water reaches at least 27°C, the warm air rises quickly, causing an area of

Tropical storms get their energy from the moisture from evaporation of the warm ocean. This provides the conditions for the clouds and rainfall.

Tropical storms also need a low wind shear- this means a low and stable wind. If the wind is too strong it will rip the storm clouds apart.

very low pressure.

- As the air continues to rise quickly it draws more warm moist air up from above the ocean leading to strong winds.
- The rapidly rising warm air spirals upwards, cools, condenses and large cumulonimbus clouds form.
- These clouds form the eye wall of the storm and produce heavy rainfall.
- In the center of the storm, cold air sinks forming the eye of the storm - here, conditions are calm and dry.

5.

<u>Case study:</u>
Typhoon Haiyan was a tropical cyclone that affected the Philippines in SouthEast Asia in November 2013. It was one of the strongest tropical cyclones ever recorded with winds of 313 km/h.

Social effects:

- More than 7,000 people were killed by Typhoon Haiyan.
- 1.9 million people were left homeless and more than 6,000,000 displaced.
- There were outbreaks of disease due to the lack of sanitation, food, water, shelter, and medication.

Economic effects:

- The overall economic impact of Typhoon Haiyan is estimated at $5.8 billion (£3.83 billion).
- Tacloban's city airport was severely damaged, affecting business and tourism.

Environmental impacts:

- Widespread floods damaged and in many cases destroyed homes and businesses in coastal areas.
- The Philippine government estimated that about 71,000 hectares of farmland was affected

6.

Management of tropical storms:

- Hurricane hunters- drones which measure precipitation (rainfall) and wind speed across regions usually near the US to look for signs of a tropical storm.
- Hurricane shutters- window shutters to protect against the wind and rain of a tropical storm.
- Emergency generators- If electricity goes out having a backup is always handy
- First-aid kits ready for evacuations. .

Extreme weather UK:

- Flooding occurs due to heavy and prolonged rainfall in an area. Especially the case when land is already saturated (full of water).
- Flooding is becoming more common in the UK due to warmer temperatures leading to more moisture in the air creating more convectional rainfall.
- Floods in Cumbria have caused mass displacement, unemployment and mental trauma.