Year 8 Climate Change Knowledge Organiser

**What is climate change?**

Climate change refers to changes in the Earth's average temperature and rainfall. In recent years, temperatures have been increasing more rapidly than in the past. Global temperatures are around 1 °C higher than they were around 300 years ago.

**What is the greenhouse effect?**

The greenhouse effect is a natural process that keeps the planet warm. Energy from the Sun warms the Earth’s surface. The Earth emits some of this heat back out into the atmosphere. Greenhouse gases In the atmosphere such as carbon dioxide, then absorb some of this heat which helps to keep the planet warm.

**What is the enhanced greenhouse effect?**

This is when human activity increases the concentration (amount) of greenhouse gases in the atmosphere. A greater concentration of greenhouse gases leads to a warmer planet and causes climate change.

**What are human activities that lead to climate change?**

* Burning fossil fuels – fossil fuels are things like coal, oil and gas. We burn fossil fuels to make energy which powers electricity. However, burning fossil fuels releases carbon dioxide which traps heat.
* Agriculture – this means farming. There are lots of livestock (farm animals) raised for their meat. When they graze (eat the grass) their digestive systems release methane which is a greenhouse gas.
* Deforestation – during photosynthesis, trees absorb carbon dioxide. Cutting them down means there is more carbon released as the trees are no longer there to store and remove it from the atmosphere.

**Greenhouse gas emissions**

Greenhouse gas emissions are measured in parts per million. There has been an increase in the amount of carbon dioxide in the atmosphere over the last 100 years. In the 19th Century, there was 280 ppm in 2022 it is 421ppm.

**Evidence of climate change**

This means how we know it is happening. Scientists use a variety of methods to show that temperatures have increased.

* Thermometer records – using a thermometer to measure temperature shows temperatures have risen.
* Glacial retreat and sea level rise – as temperatures rise, glaciers are retreating as they melt. This can lead to more water in our oceans resulting in sea level rise.
* Ice cores – these reveal tiny air bubbles which contain greenhouse gases. These can be measured to suggest how warm past climates were.
* Tree rings – the width of a tree ring can tell us how warm/wet past climates were.

**What are the impacts of climate change?**

* Droughts and heatwaves are expected to become more intense
* Some locations will experience an increase in rainfall and therefore flooding.
* Loss of plants and animals
* Damage to infrastructure
* Crops dry out
* Water supplies may decrease
* Loss of life

**Managing climate change**

Climate change can be managed by:

* **Mitigation** – limiting or preventing greenhouse gas emissions. Examples of this are renewable energy, such as solar panels. Afforestation (planting trees) and conserving energy are also useful strategies.
* **Adaptation** – learning to live with climate change. Examples of this include building flood defences to protect against rising sea levels and developing new crops that are drought-resistant or building homes on stilts in coastal areas.

**International Agreements**

Conference of the Parties (COP) is the name given to a group of leaders who have been meeting since 2001 to discuss climate change. They met in Paris (2016) and came up with an agreement to help fight climate change. This became known as the Paris Climate Agreement.

They agreed to:

* Prevent the world from becoming 2℃ warmer
* HICs must provide $100b a year to LICs to help fight climate change.
* HICs must continue take the lead in the reduction of greenhouse gases
* LICs should be supported to help manage the damage caused by climate change
* HICs must continue take the lead in the reduction of greenhouse gases
* HICs must provide $100b a year to LICs to help fight climate change