

## 1. Key Words

- **Climate change:** A long- term change in the Earth's climate, especially a change due to an increase in the average atmospheric temperature.
- **Greenhouse effect:** Natural warming of the atmosphere as heat given off from the Earth is absorbed by liquids and gases, such as carbon dioxide.

## 2. Causes of climate change:

Greenhouse gasses lead to climate change. They act like a blanket around the Earth, trapping the heat and keeping the planet warm. They let the sunlight shine onto the Earth's surface but trap the heat that is reflected back up into the atmosphere. This keeps the Earth warm enough to sustain life but its effect is increasing as more gasses are being created.

## 3. Natural causes:

Greenhouse gas is any gas in the atmosphere that takes in or absorbs the heat produced by the sun. They include:

- **Carbon dioxide:** Emitted by volcanoes when they erupt, also emitted by soil and vegetation.
- **Methane:** Is released in low oxygen environments such as swamps and bogs and through the roots of some plants.
- **Nitrous oxide**
- **Water Vapour:** is the most abundant, it occurs as part of the water cycle.

## 4. Human causes:

Gases such as chlorofluorocarbons (CFCs) and hydrofluorocarbons (HFCs) are human-made. Human activity is increasing the natural levels of these gases it is making the greenhouse 'blanket' thicker.

Power stations, factories, homes and cars burn fossil fuels. This releases large amounts of carbon dioxide into the atmosphere. Cutting and burning of forests also contributes by reducing the earth's ability to 'clean' the air by turning carbon dioxide into oxygen.

# What is the Future for Our Planet?

## 7. How can we combat climate change?

Action to tackle climate change requires international agreement and effort as the scale of the issue is global.

The Paris climate agreement in 2016 set forward 7 key points to try and reduce climate change. These were approved by 195 countries and will take effect from 2020.

The 13<sup>th</sup> international sustainable development goal is climate action.

## 5. Consequences for the UK.

- **Severe water shortages:** Are expected as summers get drier. Increasing demand for water 2.5 times greater than what is available!
- **Flooding:** Number of households at risk of flooding will more than double to 1.9 million by 2050 if global temperature rises by 4°C.
- **Sea level rise:** Cause greater coastal erosion.
- **Heatwaves:** Heatwave of 2003 that peaked at 38.5°C will become a normal summer by the 2040's and related deaths will more than triple.
- **Increase in food prices:** Extreme weather can lead to lost crops and price spikes. The UK imports 40% of its food making it vulnerable to weather conditions abroad.

## 6. Consequences of climate change

- **Change in temperature:** Some areas are predicted to get between 5 and 10°C warmer by 2100.
- **Change in precipitation:** Some area predicted to get an extra 2mm of rainfall per day, whilst some areas will get a 2mm reduction.
- **Increase in extreme weather events:** Including flash floods and droughts.
- **Increase in frequency and severity of hurricanes and cyclones.**
- **Reduction of glacial ice:** leading to flooding land and reduction in natural storage of fresh water.
- **Sea level rise:** Leading to flooding of coastal areas and land being lost to the sea.
- **Impacts on human health:** Increases chance of heat stroke in more areas.
- **Disrupting harvest cycles:** Leading to possible famine and undernourishment.

## 8. A Warming world

The data collected by meteorologists and other scientists shows that the average temperature of the planet is rising . It has increased an average of 0.8°C in the past 100 years. 16 of the 17 warmest years have been since 2001. The warmest year was 2016.

This has led to a decrease in the size of the world's glaciers, ice sheets, snow cover and permafrost. Arctic sea ice has decreased 4% (0.6 million kilometres sq) since the late 1970's.

The world's oceans are heating up as they absorb the extra heat. More than 90% of the warming that has happened during the past 50 years has gone into the oceans. Water expands as it warms, leading to sea level rise. Ice melting also adds to the increase – this has led to a rise of between 10 and 20 cm in the past 100 years.

Temperature increase leads to an increase in evaporation and in turn global rainfall. This can lead to greater flood risks.