# Year 8 – Climate Change



**Climate change** topic builds on previous knowledge developed in the Wild Weather topic and develops ideas around the sustainability of the planet, including the actions we need to complete in order to make changes to future climate patterns.

## <u>What should I already</u> <u>know?</u>

- How different types of rainfall is created.
- The factors which have an impact on climate.
- Where different countries and continents are located.

## **Causes of Climate Change**

#### **Natural Causes**

- Orbital changes the Milankovitch cycles bring the earth closer or further from the sun
- Volcanic activity during a volcanic eruption CO2 is released into the atmosphere. It can also block the sun causing cooling.
  - Milankovitch Cycles



#### Human Causes

- **Burning fossil fuels** e.g. gas, coal, and oil which release carbon dioxide into the atmosphere
- Deforestation trees absorb carbon dioxide during photosynthesis, if they cut down it releases CO2 into the atmosphere
- Dumping waste in landfill when waste decomposes it produces methane
- Agriculture releases nitrogen oxide into the atmosphere

Adaptation	Actions taken to adjust to the changes caused by climate change e.g. managing water supply	
Global warming	A gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants.	
Pollution	Pollution is the introduction of harmful materials into the environment.	
Climate change	Is the long-term shifts in temperatures and weather patterns.	
Atmosphere	The atmosphere is the layer of gas that	

surrounds Earth.



### Key Vocabulary and Definitions

#### The Greenhouse Effect



The **greenhouse effect** is a natural function, but is affected by human activity.

- 1. The atmosphere allows heat from the sun to heat the Earth
- 2. Radiation passes through the atmosphere.
- 3. The Earth absorbs radiation and heats up.
- 4. The Earth reflects radiation back.
- 5. Some radiation goes into space.
- 6. Some of the radiation is trapped in the atmosphere by greenhouse gases.
- 7. The atmosphere warms up

The <u>enhanced greenhouse effect</u> refers to human activities that are adding to the warming of the atmosphere due to the <u>greenhouse</u> <u>effect</u>

- 1. The Earth absorbs most of the radiation and warms up.
- 2. The Earth radiates heat energy.
- 3. Less heat escapes into space.
- 4. More heat is absorbed by greenhouse gases in the atmosphere.
- 5. Greenhouse gases radiate heat in all directions

Positive	Negative
<ul> <li>Energy consumption may decrease (less need for heating)</li> <li>Longer growing seasons for farming (agriculture)</li> <li>Frozen regions such as Canada may be able to grow crops</li> <li>Crops such as oranges, grapes and peaches could be grown in the UK</li> <li>Accidents on roads due to cold weather in winter, may be</li> </ul>	<ul> <li>Sea level rise will affect 80 million people</li> <li>Tropical storms will increase in strength</li> <li>Diseases such as malaria increase, another 280 million people may be affected</li> <li>Species in affected areas (e.g. Arctic may become extinct</li> <li>Sea level rise flowing low areas e.g. east England</li> <li>Scottish ski resorts may have to close due to lack of snow</li> <li>Drought and flooding more likely as extreme weather increases</li> <li>Water supplies under pressure as there is more need for water in hotter summers</li> </ul>
Managing C	limate Change
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<b>Mitigation –</b> limiting or prevent Examples of this are renewable technology, such as electric v	y. ing greenhouse gas emissions. e energy, such as solar panels, and new ehicles.

• 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.

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## Impacts of Climate Change