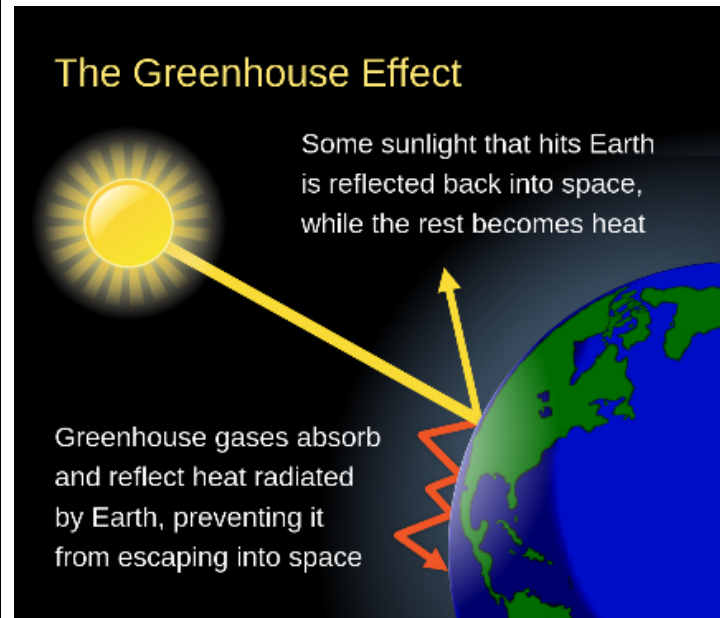




**Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.**

**Topic 1: Climate change - the facts**

- Climate change is the long-term shift in average weather patterns across the world. Since the mid-1800s, humans have contributed to the release of carbon dioxide and other greenhouse gases into the air.
- This causes global temperatures to rise, resulting in long-term changes to the climate.
- The Industrial Revolution began in the mid-1800s when humans began to burn fossil fuels such as coal, oil, and gas for fuel.
- Burning fossil fuels produces energy, but also releases greenhouse gases such as carbon dioxide, methane, and nitrous oxide into the air.



- Over time, large quantities of these gases have built up in the atmosphere.
- Once in the atmosphere, greenhouse gases form a 'blanket' around the planet. This blanket traps the heat from the sun. This is increasing the 'greenhouse effect' and instead of keeping the Earth at a stable temperature, it is causing the planet to heat up.
- One-quarter of human-made greenhouse gas emissions come from burning fossil fuels for electricity and heat production.
- To feed our livestock and ourselves, people have chopped down large areas of the forest and used the land to grow crops. Forests are very good at removing carbon dioxide from the atmosphere, and so cutting down trees allows carbon dioxide to build up in the atmosphere even more.
- Land can also be used to rear livestock, such as cattle for meat and milk. These animals produce additional gases, like methane. They also eat crops that might otherwise have been needed by humans, meaning that even more land is required.

Natural causes?

There is also evidence that natural events such as volcanic activity, changes in solar activity and changes in the Earth's orbit are contributors to climate change but scientists estimate their possible impact to be minimal compared to human activities.



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### Topic 2: The impacts of climate change

#### How is climate change impacting our planet?

From releasing greenhouse gases and aerosols into the atmosphere, to changing the use of land – human activity is the main driver of climate change. This has a range of impacts on the climate system, ecosystems, and people.

- Rising ocean levels – Rising temperatures are causing glaciers and ice sheets to melt, adding more water to the oceans and causing the ocean level to rise. Oceans absorb 90% of the extra heat from global warming: warmer water expands, and so our oceans are taking up more space.
- Ocean acidification – Ocean acidification occurs when the ocean absorbs carbon dioxide and becomes more acidic. It is often called the 'evil twin' of climate change.
- Extreme weather events – Climate change is causing many extreme weather events to become more intense and frequent, such as heatwaves, droughts, and floods.



- Flooding of coastal regions – Coastal cities are at risk from flooding as sea levels continue to rise.
- Food insecurity – High temperatures, extreme weather events, flooding, and droughts can damage farmland. This makes it difficult for farmers to grow crops and means that the number of crops they can grow each year is uncertain.
- Conflict and climate migrants – Climate change is a stress multiplier – it can take existing problems, such as lack of food or shelter, and make them worse. This can cause people to fight over resources (food, water, and shelter), or to migrate to different areas, countries or continents.
- Damage to marine ecosystems – Rising ocean temperatures, ocean acidification, and ocean anoxia (lack of oxygen) are damaging to marine life such as fish and coral reefs.

The most crucial step to limit climate change is to make big and rapid reductions in global greenhouse gas emissions. There are many different ways this can be done and governments, businesses, organisations and individuals around the world can all contribute. In June 2019, the UK became the world's first major economy to pass a law committing the country to a target of 'net zero' emissions by 2050.



**Your teacher will tell you which topic you should revise. Read and learn all the information in the topic, ready for a Quiz in lesson.**

### Topic 3: The Great Barrier Reef, Australia



World heritage listed in 1981, the Great Barrier Reef is the world's largest and most complex reef system and one of Australia's most treasured natural wonders. The Great Barrier Reef stretches more than 2300 kilometres along Queensland's coastline and is made up of around 3000 individual coral reefs. Larger than New Zealand (344,400 square kilometres or 70 million football fields), it is home to a breath-taking array of life including a number of rare and threatened species as well as:

- 1625 types of fish
- 600 types of coral
- 100 species of jellyfish
- 3000 varieties of molluscs
- more than 30 species of marine mammals such as whales, dugong and dolphins
- 133 varieties of sharks and rays

The greatest threat to the Reef is climate change. Reef health (coral, seagrass and marine life) has been declining due to poor water quality and the cumulative impacts of climate change, including warmer weather leading to coral bleaching and increased severe weather events, such as cyclones. Over the past two decades, the Great Barrier Reef has experienced several mass coral bleaching events. Bleaching occurs when corals are stressed, in this case from overheating.

- Excess nutrients, fine sediments and pesticides from agricultural run-off and other industries pose the biggest risk to reef water quality.
- Sediment smothers corals and reduces the amount of light reaching seagrasses and other plants, affecting their growth and survival as well as the survival of the marine animals that depend on them for food and shelter.





Vocabulary	Wider Research	Apply
<ol style="list-style-type: none"><li>1. Atmosphere</li><li>2. Carbon</li><li>3. Climate</li><li>4. Conflict</li><li>5. Development</li><li>6. Drought</li><li>7. Earth</li><li>8. Ecosystem</li><li>9. Emissions</li><li>10. Extreme weather</li><li>11. Flooding</li><li>12. Fossil fuels</li><li>13. Glaciers</li><li>14. Greenhouse effect</li><li>15. Heatwave</li><li>16. Human</li><li>17. Hunting</li><li>18. Impact</li><li>19. Infrared radiation</li><li>20. Infrastructure</li><li>21. Marine</li><li>22. Mass tourism</li><li>23. Non-renewable</li><li>24. Ocean acidification</li><li>25. Overfishing</li><li>26. Physical</li><li>27. Poaching</li><li>28. Renewable</li><li>29. Resources</li><li>30. Sustainable</li></ol>	<p><a href="https://www.geographyinthenews.org.uk/issues/issue-31/investigating-what-causes-climate-change/ks3/">https://www.geographyinthenews.org.uk/issues/issue-31/investigating-what-causes-climate-change/ks3/</a></p> <p><a href="https://www.bbc.co.uk/bitesize/clips/z7wnvcw">https://www.bbc.co.uk/bitesize/clips/z7wnvcw</a></p> <p><a href="https://www.bbc.co.uk/bitesize/clips/zp6g9j6">https://www.bbc.co.uk/bitesize/clips/zp6g9j6</a></p> <p><a href="https://www.youtube.com/watch?v=pJ1HRGA8g10">https://www.youtube.com/watch?v=pJ1HRGA8g10</a></p> <p><a href="https://www.youtube.com/watch?v=uOMRF7t5Vn0">https://www.youtube.com/watch?v=uOMRF7t5Vn0</a></p> <p><a href="https://www.youtube.com/watch?v=7ZnvFkiZmDM">https://www.youtube.com/watch?v=7ZnvFkiZmDM</a></p> <p><a href="https://www.youtube.com/watch?v=7sJHnwpXFV8">https://www.youtube.com/watch?v=7sJHnwpXFV8</a></p> <p><a href="https://www.bbc.co.uk/news/science-environment-62758811">https://www.bbc.co.uk/news/science-environment-62758811</a></p>	<p><b>Get creative</b></p> <ol style="list-style-type: none"><li>1. Create a poster about the causes of climate change.</li><li>2. What steps is the UK government taking to reduce our impact on the climate change? Complete your own research.</li><li>3. Where is climate change having the biggest effect? HINT: Look at Australia, Pakistan and the African continent.</li><li>4. Create a leaflet to show the dangers of over-fishing and poaching. What key messages do you need to get across for these issues?</li></ol> <p><b>GCSE Style Questions:</b></p> <ol style="list-style-type: none"><li>1. Explain the greenhouse effect. [3 marks]</li><li>2. What are the social impacts of immigration? [3 marks]</li><li>3. Describe the impact of climate change on the planet. [4 marks]</li><li>4. Why is the Great Barrier Reef valuable to humans? [4 marks]</li><li>5. What are the threats to the Great Barrier Reef? [6 marks]</li><li>6. How does tourism impact the planet in both positive and negative ways? [6 marks]</li><li>7. To what extent do you agree that a changing climate is the biggest threat the planet faces in 2022? [8 marks]</li></ol>