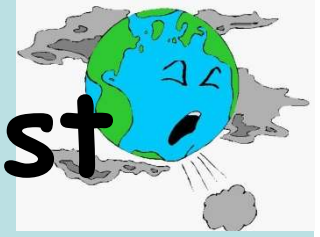




# Global Warming Webquest



**Introduction** The Earth's atmosphere is a complex, dynamic system. Weather conditions affect everything from how we travel on a daily basis to the food that can be produced worldwide each year. For millions of years of Earth history, natural cycles of warming and cooling affected Earth organisms in important ways, about which scientists can only speculate. But what about human impact on the atmosphere? Do humans play a role in climate change? Natural atmospheric cycles have occurred for millions of years. Is it possible that human activities over the last 250 years could significantly impact such an established, large, and complicated system?

The Industrial Revolution, which began in Great Britain in the mid-1700s was a watershed event in human interaction with the atmosphere. As fossil fuels were burned in increasingly greater amounts, the amount of carbon dioxide released into the atmosphere rose significantly. Industrialization and population growth continue today. At what cost? While the topic is hotly debated in the scientific community, scientists agree on several points. Atmospheric concentration of carbon dioxide and other greenhouse gases is increasing at an unprecedented rate, there is a direct connection between the concentration of carbon dioxide in Earth's atmosphere and the average surface temperature, and the average temperature at the Earth's surface currently is increasing. However, there is great debate on how much is a result of human activity. Throughout Earth's history, climate change has been driven by natural processes and events rather than by human activity. Is that still the case?

**Your task...** As you complete this Webquest, you will investigate the nature of the connection between the combustion of fossil fuels, the production of greenhouse gases, and the global warming trend the Earth currently is experiencing. You will conduct internet research to answer questions about the greenhouse effect and changes in Earth's atmosphere and climate.

Finally, based on your evaluation of the information gathered, you will form and write an opinion about the extent of the role humans play in global climate change.

**Questions about Global Climate Change (Support any opinions/findings with facts)**

1. Is the global climate warming?
  2. What role, if any, do humans have in contributing to climate change?
  3. What policy choices can be made to respond to global warming?
4. The greenhouse effect is a natural atmospheric process that has a tremendous impact on Earth. Describe this process, including what causes it, the factors that influence it, and how it affects Earth.
5. Identify the major greenhouse gases found in Earth's atmosphere.
6. While the term greenhouse effect often has a negative connotation when used in the media, the process is crucial to life on Earth. Explain why.
7. Compare the levels of atmospheric carbon dioxide just prior to the beginning of the industrial age in the mid-1700s and in 2004.
8. Changes in the concentration of greenhouse gases can cause changes in Earth's average surface temperature. What other natural factors or events also can cause long-term changes in surface temperature?
9. How long have consistent weather measurements been collected and recorded?

