

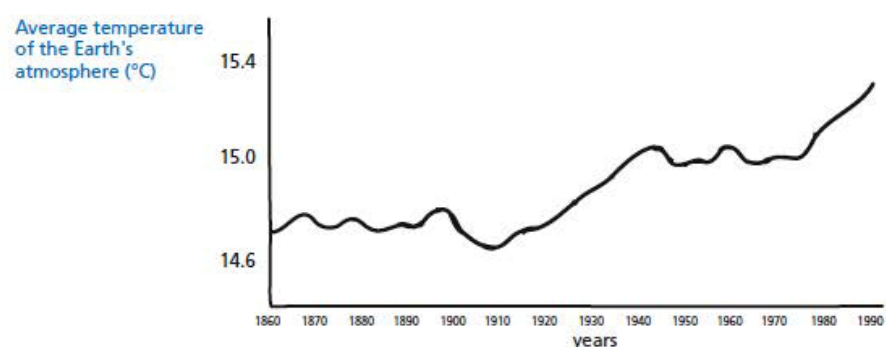
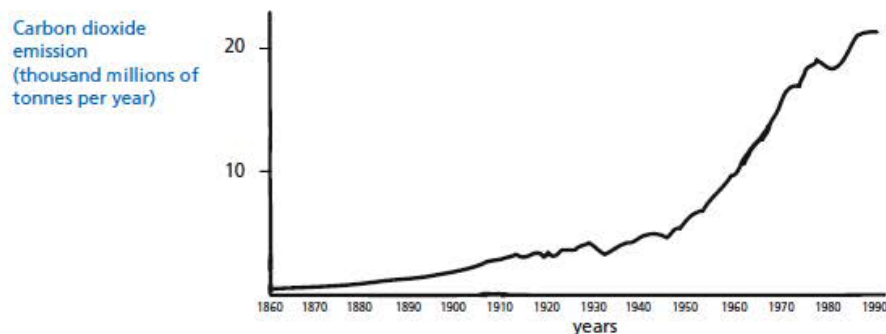
# Greenhouse text

## The greenhouse effect: fact or fiction?

1. Living things need energy to survive. The energy that sustains life on the Earth comes from the Sun, which radiates energy into space because it is so hot. A tiny proportion of this energy reaches the Earth. The Earth's atmosphere acts like a protective blanket over the surface of our planet, preventing the variations in temperature that would exist in an airless world.
2. Most of the radiated energy coming from the Sun passes through the Earth's atmosphere. The Earth absorbs some of this energy, and some is reflected back from the Earth's surface. Part of this reflected energy is absorbed by the atmosphere. As a result of this the average temperature above the Earth's surface is higher than it would be if there were no atmosphere.
3. The Earth's atmosphere has the same effect as a greenhouse, hence the term *greenhouse effect*. The greenhouse effect is said to have become more pronounced during the twentieth century. It is a fact that the average temperature of the Earth's atmosphere has increased. In newspapers and periodicals the increased carbon dioxide emission is often stated as the main source of the temperature rise in the twentieth century.

A student named André becomes interested in the possible relationship between the average temperature of the Earth's atmosphere and the carbon dioxide emission on the Earth.

In a library he comes across the following two graphs.



Task 3: PISA Questions

André concludes from these two graphs that it is certain that the increase in the average temperature of the Earth’s atmosphere is due to the increase in the carbon dioxide emission.

QUESTION 5.1

What is it about the graphs that support André’s conclusion?

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QUESTION 5.2

Another student, Jeanne, disagrees with André’s conclusion. She compares the two graphs and says that some parts of the graph do not support his conclusion.

Give an example of a part of the graphs that does not support André’s conclusion. Explain your answer.

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### QUESTION 5.3

André persists in his conclusion that the average temperature rise of the Earth's atmosphere is caused by the increase in the carbon dioxide emission. But Jeanne thinks that his conclusion is premature. She says: "Before accepting this conclusion you must be sure that other factors that could influence the greenhouse effect are constant".

Name one of the factors that Jeanne means.

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