

# The Greenhouse Effect Worksheet

Combined Science - Chemistry - Key Stage 4

C9 - Chemistry of the Atmosphere

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**Can you think of any ways that these gases are produced?**



**Can you think of any ways that these gases are produced?**

**When fossil fuels burn**

- Generating electricity
- Petrol in cars

**Farming cattle**



# What are greenhouse gases?

Option 1

Gases that absorb heat energy in the atmosphere.

Option 2

Gases that are found in a greenhouse.



# How do greenhouse gases work?

## Option 1

They attract heat energy into the atmosphere from space.

## Option 2

They stop heat energy from escaping into space.



# Independent Practice

Select the correct word from each bold pair to complete the sentences.

- In the atmosphere, greenhouse gases **absorb/reflect** heat energy.
- This **helps/stops** heat energy escaping into space.
- This keeps the Earth **warmer/cooler** than it would be.
- Greenhouse gases include **oxygen/carbon dioxide** and **methane/nitrogen**.



# Self-assess

- In the atmosphere, greenhouse gases **absorb** heat energy.
- This **stops** heat energy escaping into space.
- This keeps the Earth **warmer** than it would be.
- Greenhouse gases include **carbon dioxide** and **methane**.



Put these steps into the correct order to create a flow diagram for the greenhouse effect.

**Some of the infrared radiation goes into space.**

**Electromagnetic radiation passes through the Earth's atmosphere.**

**The Earth radiates energy as infrared radiation.**

**The atmosphere warms up.**

**Some of the infrared radiation is absorbed by greenhouse gases in the atmosphere.**

**The Earth absorbs most of the radiation and warms up.**



## Self-assess

Electromagnetic radiation passes through the Earth's atmosphere.



The Earth absorbs most of the radiation and warms up.



The Earth radiates energy as infrared radiation.



Some of the infrared radiation goes into space.



Some of the infrared radiation is absorbed by greenhouse gases in the atmosphere.



The atmosphere warms up.



# Support sheet

1. Describe the correlation seen in the graph.

As the concentration of carbon dioxide increases, the average temperature....  
This shows a \_\_\_\_\_ correlation.

2. Explain the correlation seen in the graph.

Keywords to include:

- Carbon dioxide
- Greenhouse gas
- Atmosphere
- Infrared
- Greenhouse effect
- Temperature



# Self-assess

1. As the concentration of carbon dioxide increases, the average temperature increases too.  
This shows a **positive** correlation.
2. **Carbon dioxide** is a **greenhouse gas**. As the concentration of carbon dioxide in the atmosphere increases, there are more greenhouse gases in the **atmosphere**. These greenhouse gases stop some of the **infrared** radiation from escaping into space, meaning they remain in the atmosphere and cause the global **temperature** to rise further. This is the **greenhouse effect**.



**See you next time.**

