



The Greenhouse Effect

- 1 Energy (radiation) from the sun passes through the atmosphere where most of it is absorbed by the Earth.
- 2 Some infrared radiation (heat) is reflected back into space.
- 3 Greenhouse gases act like a blanket, trapping some of this infrared radiation and warming the atmosphere which in turn warms Earth's surface. This process is called the greenhouse effect. Without greenhouse gases, the average temperature on Earth would be 60° F cooler and life on Earth would look very different than it does today.
- 4 Increased amounts of greenhouse gases, produced through human activities, act to strengthen the natural greenhouse gas effect.
- 5 The enhanced greenhouse effect leads to increased average global surface temperatures and climate changes.

Types of greenhouse gases

Greenhouse gases are gases that trap heat in Earth's atmosphere. These gases can be naturally occurring or human-produced.

Major greenhouse gases:

Carbon dioxide (CO₂)
Methane (CH₄)
Water vapor (H₂O)

Other greenhouse gases:

Nitrous oxide (N₂O)
Hydrofluorocarbons (HFCs)
Perfluorocarbons (PFCs)
Sulfur hexafluoride (SF₆)

Sources of greenhouse gases

Activities resulting in anthropogenic (human-produced) greenhouse gas emissions include:

Carbon dioxide (CO₂)

- Burning of fossil fuels including coal, oil and gas in power plants, automobiles and industry
- Deforestation

Methane (CH₄)

- Landfills
- Agriculture
- Coal mines
- Oil and natural gas operations

Nitrous oxide (N₂O)

- Use of nitrogen fertilizers
- Burning of fossil fuels
- Some industrial and waste management processes

Hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs), and Sulfur hexafluoride (SF₆):

- As byproducts of industry
- Through leakage