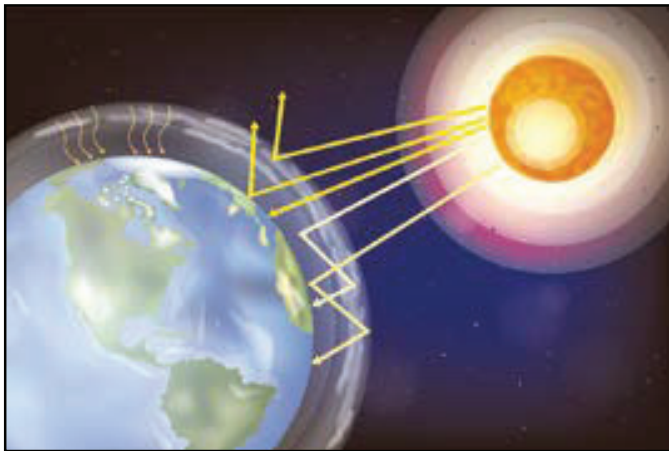


Global warming

The big idea about global warming is that human activities are increasing the Earth's average temperature. This is primarily due to the release of greenhouse gases like carbon dioxide and methane, which trap heat from the Sun in the Earth's atmosphere. Global warming influences weather patterns, sea levels and ecosystems.

To make the most of this idea, relate global warming to everyday experiences and future implications. Discuss how changes in local weather patterns, shifts in seasons, or changes in local wildlife might be connected to global warming. Use concrete examples of human activities that contribute to greenhouse gas emissions, such as burning fossil fuels for transport or electricity.

The key challenge in teaching about global warming is the abstract nature of the greenhouse effect, as well as the scale of its impacts. Pupils often find it difficult to understand how invisible gases can trap heat, or how small changes in average temperatures can lead to dramatic changes in climate. Diagrams and analogies (e.g. visiting a greenhouse) can help to explain these ideas.



The atmosphere traps some heat, but some still escapes into space. To stay at a steady temperature, the heat lost must balance the heat gained from the Sun.

● Key questions

○ What do you understand by the term 'global warming'?

Global warming is when the Earth gets hotter because of gases like carbon dioxide that people release into the air.

○ How do you think global warming affects our planet?

It can make the weather more extreme, with hotter summers and colder winters. It also makes the sea levels rise, which can cause flooding.

○ How might global warming affect the animals and plants around us?

Some animals and plants might not be able to survive if it gets too hot, or if their habitat changes too much because of the weather.

○ **How does global warming impact the weather?**

Global warming can lead to more extreme weather such as heatwaves, heavy rain and snowfall, or even droughts.

○ **Can you name some human activities that contribute to global warming?**

Driving cars, burning coal for electricity, and cutting down forests are all things that can cause global warming.

○ **What are some things that we can do at home or school to reduce global warming?**

We can turn off lights when we leave a room, recycle and compost our waste, walk or ride to school, and plant trees.

○ **Why do you think that some people don't believe in global warming?**

They might not understand the science, or they might find it hard to believe that humans can change the Earth's climate.

● **Common misconceptions**

○ **Global warming and the ozone hole are the same problem.**

While both are environmental issues related to the atmosphere, they are separate problems with different causes.

○ **If it's cold outside, global warming must be wrong.**

This confusion stems from misunderstanding the difference between weather (short-term, local conditions) and climate (long-term patterns).

○ **Not all scientists agree about global warming.**

While individual opinions vary, the overwhelming majority of climate scientists agree that global warming is happening and is primarily caused by human activities.

○ **Global warming only affects polar bears and ice caps.**

Global warming has diverse effects across the planet, influencing weather patterns, sea levels, agriculture and ecosystems everywhere, not just in polar regions.

● **Progression**

Key Stage	Development of ideas
EYFS	• Pupils can begin to understand the basics of weather and seasonal changes, laying the foundation for later understanding of more complex climate concepts.
KS1 (ages 5-7)	• Pupils start learning about daily and seasonal weather patterns in the UK. This could introduce the idea that climate can change over time.
LKS2 (ages 7-9)	• Pupils should start to understand the key aspects of human geography, which can include the influence of human activity on the environment.
UKS2 (ages 9-11)	• Pupils should have the opportunity to experience a more in-depth study of climate zones around the world, and a basic introduction to how human activities can influence climate.
KS3 (ages 11-14)	• Pupils should deepen their understanding of the interaction between human and physical geography, including how human activities contribute to global warming and its effects on different systems of the Earth.