Greenhouse Gases

How does the greenhouse effect work?

What is the greenhouse effect?

The greenhouse effect has a major impact on the temperature of Earth.

Click "**play**" to find out how the greenhouse effect works.

Global warming

Carbon dioxide is the main **greenhouse gas** involved in the warming of the Earth by the greenhouse effect.

When fossil fuels are burned, they release carbon dioxide and other greenhouse gases, such as methane.

An increase in the amount of greenhouse gases increases the amount of heat trapped in the atmosphere.

Most scientists think that an increase in the greenhouse effect is making the Earth warmer and leading to **global warming**.

What are the effects of global warming?

Effects of global warming

Most scientists predict that global warming will continue, and that it could cause major climate changes:

- **temperature** – some areas may be warmer, others colder
- **coastal flooding** – sea levels could rise as ice caps melt
- **rainfall** – some areas may be wetter and others drier
- **plants** – some crops may be able to grow better, and others, not at all.

Not all scientists agree about global warming. Some think that climate change is just a natural process on Earth.

Extracting fossil fuels

The extraction of fossil fuels from deep underground can cause several environmental problems:

- **land and water pollution** – as fossil fuels are brought to the surface they can contaminate water supplies
- **disturbance** – heavy machinery, roads and tankers are needed to extract and transport freshly-extracted fossil fuels, which can significantly disrupt rural areas
- **subsidence** – poor mining techniques can cause land to collapse, and destroy habitats.

Fossil fuels – oil spills

Transporting raw fossil fuels can also have a damaging effect on the environment. Oil spills from ships or tankers are extremely hazardous to wildlife and the marine environment, and can take many months or years to clean up.

Animals that come into contact with the oil get coated in it, making their feathers and fur less waterproof and insulating. This makes it difficult for them to fly or avoid predators.

Animals and birds are also at risk of ingesting the oil when they try to clean it off, causing damage to internal organs.

Can fossil fuels be reused?

Fossil fuels are **non-renewable**; once a fossil fuel has been burned it cannot be reused. Why is this a problem?

Coal, oil and natural gas took millions of years to form, and are being used up much more quickly than they can ever be replaced.

Current estimates suggest that oil stocks might only last another 60 years, and coal and gas will run out within 150 years.

What is going to happen when we run out of fossil fuels?

Running out of fossil fuels

As fossil fuels begin to run out we will no longer be able to use our existing technology, appliances or transportation networks.

As gasoline becomes more scarce its price will rise. This in turn will increase the cost of almost all everyday goods and services, as well as making oil-based products more expensive to manufacture.

Most economists predict that unless sustainable alternative fuel sources are developed, lack of fossil fuels could lead to economic depression, mass unemployment and famine.

Carbon footprint

The amount of carbon dioxide produced by carrying out activities in everyday life is sometimes called our **carbon footprint**.

Here are the average carbon footprints of people in some different countries.

What do you notice about the size of the CO_2 emissions from each country?

Country	CO_2 emissions*
USA	21
Canada	20
Australia	16
UK	10
China	4
Egypt	2
Bangladesh	0.3

Reducing your carbon footprint

By reducing your carbon footprint, you can help produce less carbon dioxide, and reduce the demand for fossil fuels.

Why is it important to start reducing your carbon footprint now, rather than in 50 years' time?

What are some easy ways to reduce your carbon footprint?

- hang laundry outside to dry rather than using a tumble dryer
- walk or ride a bicycle rather than driving
- turn off lights, computers, etc., when not in use
- only run the dishwasher with a full load
- turn down the central heating by 1 °F.

The greenhouse effect: summary