



CLIMATE CHANGE

Cooking the planet – here's how

Fact Sheets for Home & School



Global Effects

Weather and rain patterns are changing. Nine out of ten of the warmest years on record have occurred since 1990.

The *Intergovernmental Panel on Climate Change* estimates global temperatures could rise by 6°C this century. A degree or two sounds tiny, but the consequences are gigantic. Water expands when it heats up causing floods and storm surges. Already, 50 million people a year are affected by flooding from hurricanes and storms; if the seas rise by just half a metre, this number could double.

A metre rise in sea-level would flood 1% of Egypt, 6% of the Netherlands and 17.5% of Bangladesh. Millions of people living in the low-level coastal areas of Pakistan, India, Sri Lanka, Bangladesh and Burma could lose their homes. Many Pacific Islands could completely disappear.

In the Hindu Kush region and Tibetan Himalayas, the glacial lakes may burst their banks, flooding millions of people living in the valleys below.

Fresh water demand has tripled in the last 50 years, but temperature increases have reduced the amount of consumable water as water-tables drop, rivers die and glaciers retreat.

Animals are also affected. More than 20% of the North Pole Ice Cap has melted away in the last 25 years. Melting glaciers and polar ice are reducing the ice fields where penguins, polar bears and seals live and feed. Some scientists say that polar bears could be extinct by the end of this century.

Thirteen of the 20 largest cities in the world happen to be located at sea-level.

Motor vehicles guzzling fossil fuels have become a major source of greenhouse gas emissions.

In China and India, population growth and car sales are increasing at a huge rate. In China, bicycles, which only a few years ago were the main form of transport, have been replaced by streets jammed with cars.

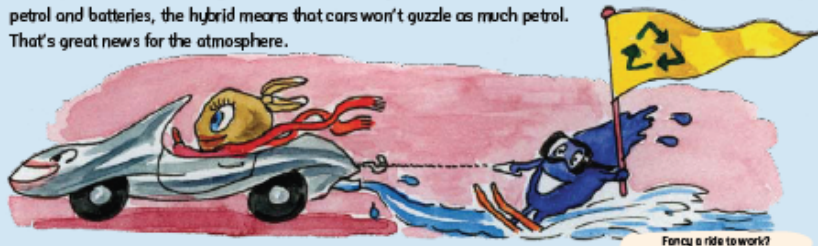
On the other side of the planet, Mexico City is considered the most polluted city in the world. On some days, cars have to be ordered off the roads, factories forced to reduce output, and school children are not allowed to play outside.

How can we stop the waste and pollution from car emissions?

Get Behind the Wheel

Here are some options we've been test-driving, so POCO-looter can take a break.

The hybrid car: Toyota™ and Honda™ have already introduced hybrids for all occasions and in many colours, so no excuses! Using a mixture of technologies such as internal combustion engines, electric motors, petrol and batteries, the hybrid means that cars won't guzzle as much petrol. That's great news for the atmosphere.



Water-wheels: have you ever seen a car that can run on water? Hydrogen cars are less polluting than petrol-powered cars and when you burn hydrogen in an engine, water comes out of the exhaust pipe.

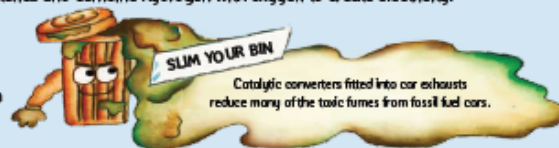


Anyone for salad? There are cars on the road that run on used vegetable oil. Is it a dream? No... biodiesel is made from vegetable oil. It has low emissions and can be used in diesel engines.

Getting there on air. The compressed air car is powered by AIR stored in tanks under the car. If you run out of fuel perhaps you could just blow into the tanks?

Fuel cell technology is another clean, sustainable way to power a car. Fuel cells started as part of the space programme. They operate like batteries and combine hydrogen with oxygen to create electricity.

What comes out of the exhaust is pure water - so clean that astronauts on the space shuttle can drink the water produced from their fuel cells.



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WHO'S GETTING WARMED UP?

The world burns approximately 1.9 billion tons of coal a year to generate electricity. At the moment, more than 85% of the world's energy demands are met by burning fossil fuels.

Three-quarters of human-caused emissions of carbon dioxide are due to the combustion, or burning of fossil fuels.

The USA is home to about 6% of the world's population but produces about 25% of all greenhouse gases and consumes 26% of the world's energy.

China, India, Japan and South Korea - are responsible for 48% of the world's greenhouse gas emissions.

Australia with 20 million people produces more carbon dioxide per person than any other country in the world.

The amount of carbon dioxide in the atmosphere is currently up by 27% on any previous high in the last 650,000 years. US *Science Journal* 2005



Time to clean up your Act

Look at the big picture. This eco-planet has many alternative, eco-friendly sources of power and energy that create little or no waste. Here are just some of the ways people are trying to clean up their act:

- Sweden may be addicted to oil at the moment but it has a plan to kick the habit – by 2020 in fact. Back in 1977, Sweden got 77% of its energy from oil – by 2003, that had dropped to 34%. How? Alternative energy use such as hydropower, tax exemptions for those who switch from oil heating to renewable energy and taxes on fuel and CO₂ emissions are just some of the examples.
- Hydroelectric, wind, solar, tidal and even your rubbish can be used very successfully, to create energy supplies. Energy created this way is called renewable or green energy.
- Did you know that the wind has the power to create electricity? In Denmark, huge windmills power around 6,000 turbines which supply around 20% of the country's total electrical power.
- The sun is another great source of energy. Solar energy taken from the sun, can replace the billions of barrels of fossil fuel oil that currently go up in smoke.
- Scientists have worked out that whole world's demand for electricity could be met today, by covering a 600 square kilometre area of the Sahara desert with solar cell technology.
- Rivers may look slow and sleepy but they contain an enormous amount of energy, which can be converted into hydro-electric power. This form of renewable energy, supplies 20% of the world's electricity. Iceland, Norway, Austria and Canada produce between 70-100% of their electricity this way.
- *Let's all wave.* Around 75% of the earth's surface is covered in water and every wave that crashes to shore contains energy. It's limitless, free and clean: a real alternative to fossil fuel energy in the future.
- *What's for dinner* - fancy cooking up your waste? Millions of tonnes of rubbish sent to landfills could bring power to your home just by cooking it up to a very high temperature. All sorts of rubbish can be used to provide energy – even food scraps and teabags.

Come on... time to come clean: let's look for more ways to use renewable energy. It's a great way to reduce both waste and your eco-footprint.