

CARBON FOOTPRINT

Energy

Simple, everyday activities all require **energy**, from the heating of the hot water in the tap when washing our hands to the petrol used on a short car journey. We are constantly using **energy** without necessarily thinking about it. Sometimes, the link can be even harder to identify when **energy** has been used to create, store or transport the everyday items we use.

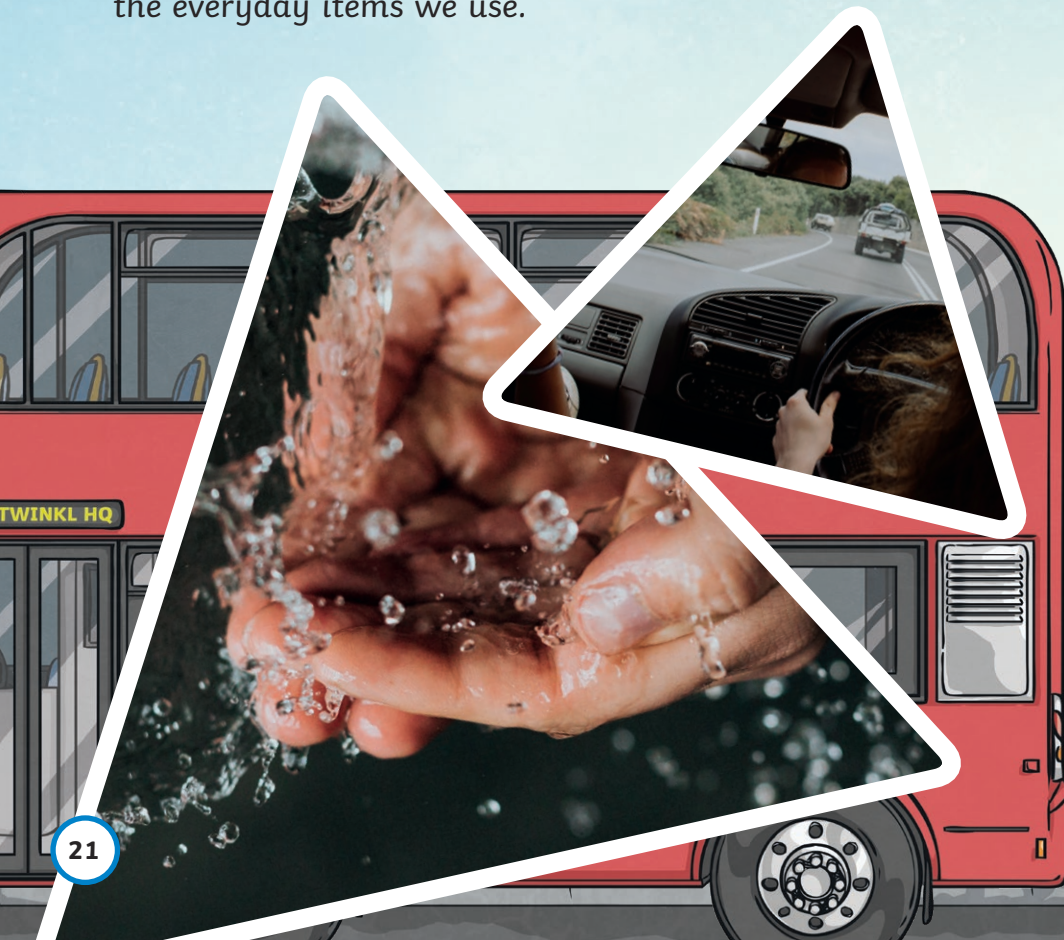
Consider the journey of a simple bottle of orange juice that you may drink. Can you think how **energy** may have been used to make this product?

1 The oranges used to make the juice would most likely have been grown abroad (in a hotter climate).

2 Once the oranges are picked, they are often sorted by machines, cleaned, peeled and squeezed into juice – all of which requires electricity to power the machines.

3 The juice has to then be kept cool in large chilled tanks (run by electricity) and transported long distance by lorry, boat or plane, which use **fossil fuels**, to its destination.

4 **Energy** is also used in the process to produce the plastic bottle and then again in the shop where the juice must be kept chilled in a fridge.

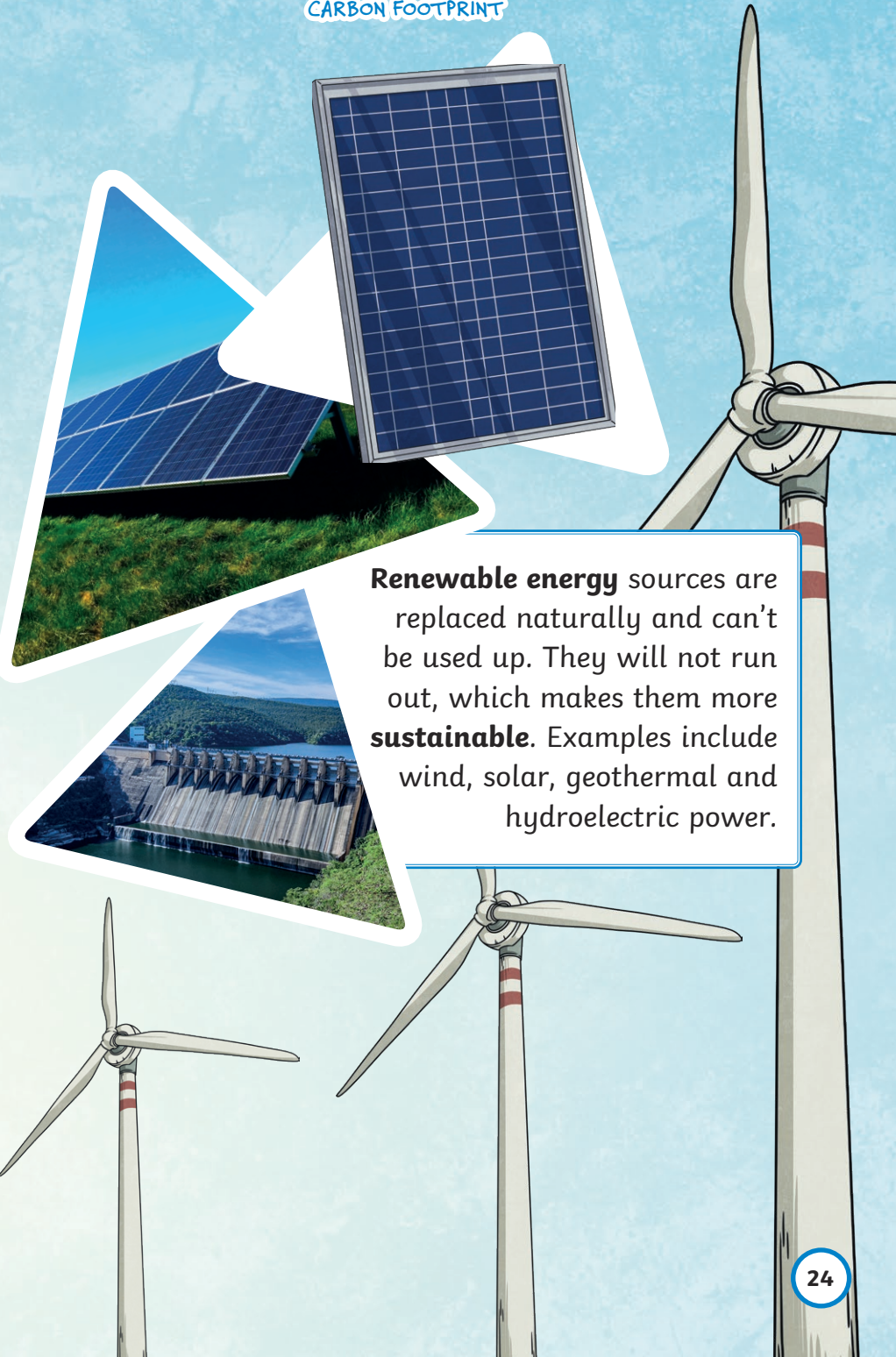
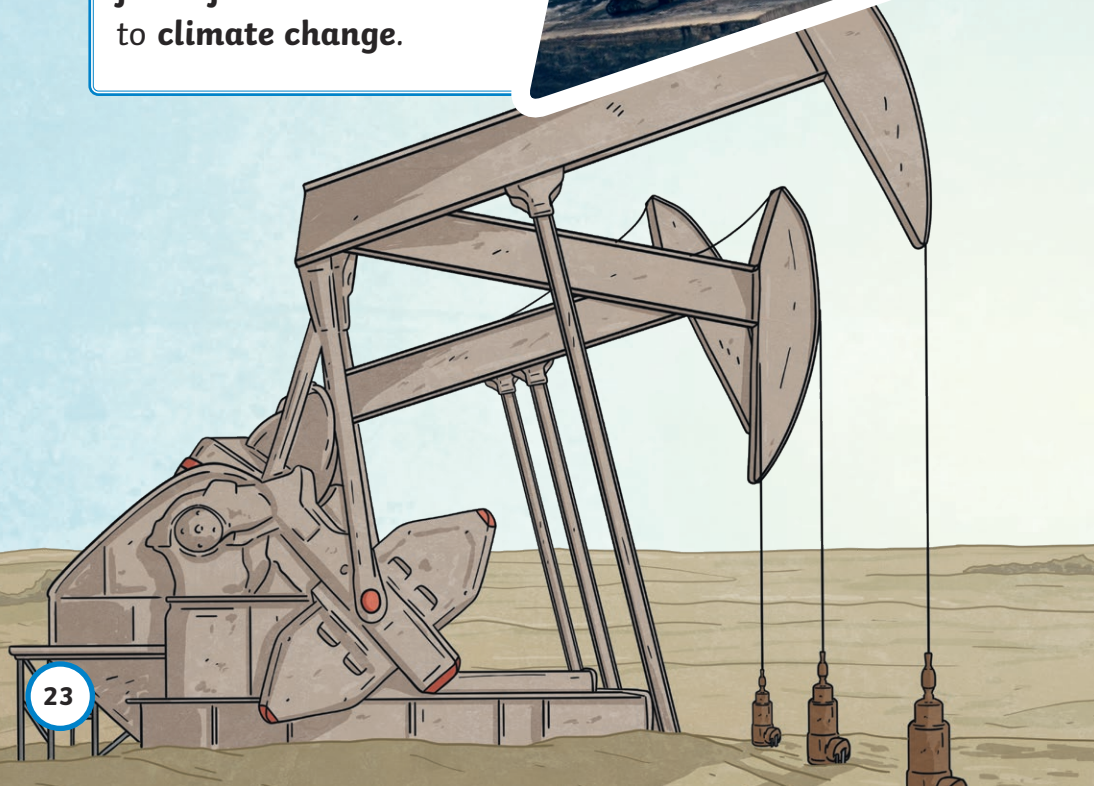
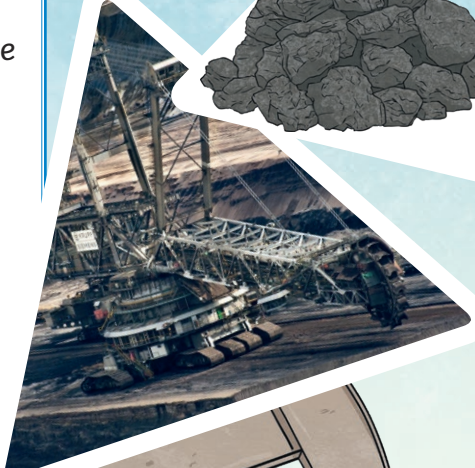


Where Does Energy Come From?

Sources of **energy** can be used to generate electricity, heat things and power our transport. **Energy** sources can be **renewable** or **non-renewable**.

Non-renewable energy

sources are those which are used up faster than they can be naturally replaced. This means that they will run out. Examples include oil, natural gas and coal, which are also known as **fossil fuels** and contribute to **climate change**.



Renewable energy sources are replaced naturally and can't be used up. They will not run out, which makes them more **sustainable**. Examples include wind, solar, geothermal and hydroelectric power.

Greenhouse Gases and Climate Change

Burning **fossil fuels** to produce the **energy** we need produces large amounts of carbon dioxide and is a major contributor to global **climate change**.

Since 1750, the amount of carbon dioxide in the Earth's atmosphere has increased by 50%. Carbon dioxide is a **greenhouse gas**. **Greenhouse gases** trap heat from the sun and prevent it from escaping back into space – this concept is known as the **greenhouse effect** (because the gases act like a giant greenhouse trapping heat in). Carbon dioxide and methane are the most common **greenhouse gases**.

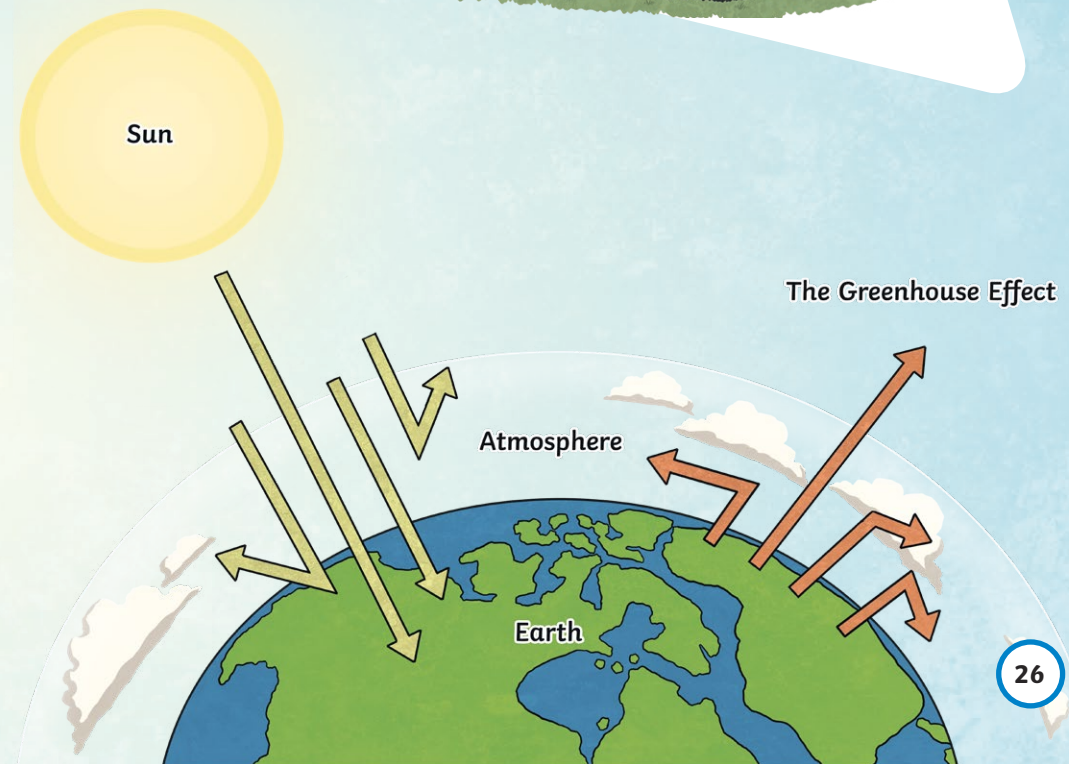
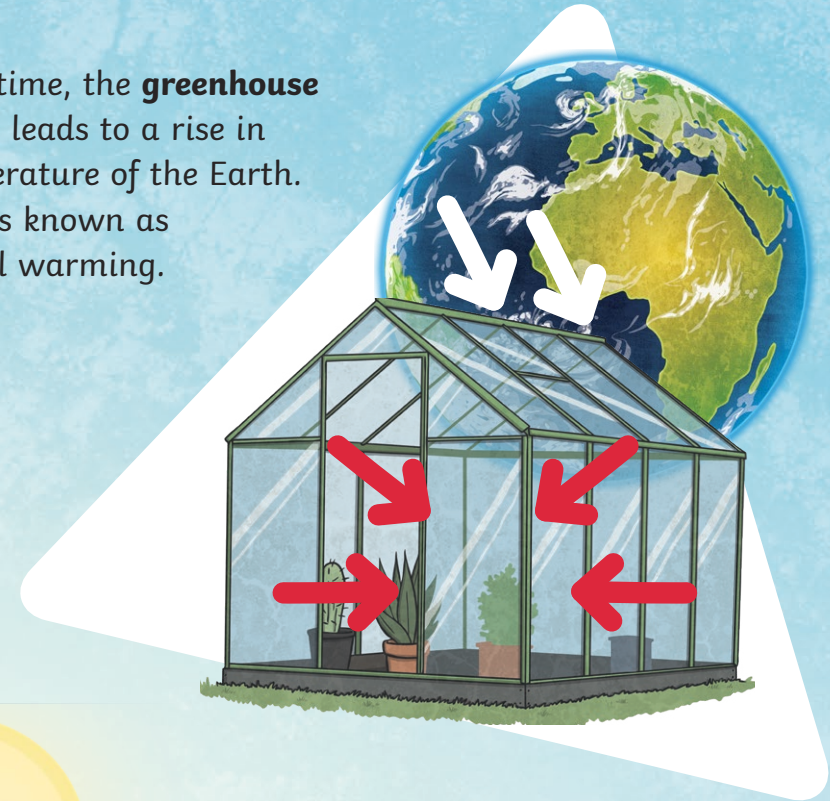


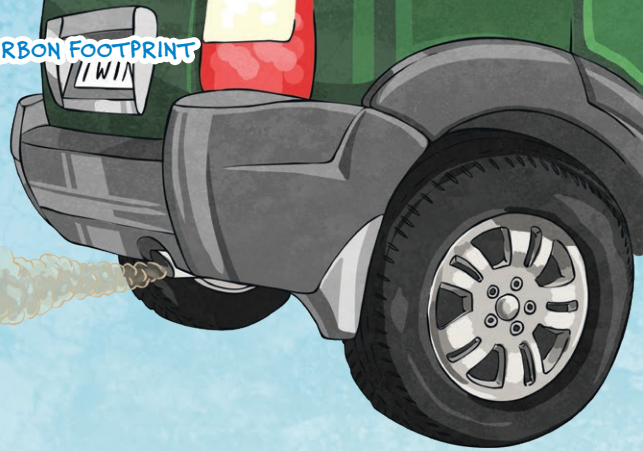
Levels of carbon dioxide in the Earth's atmosphere are the highest they've been for at least two million years.



Did You Know...
?

Over time, the **greenhouse effect** leads to a rise in temperature of the Earth. This is known as global warming.





Climate Change

When humans use cars, lorries, aeroplanes and factories to make and transport things, more **greenhouse gases** are also released. This also happens when habitats such as forests are destroyed, as they naturally hold a lot of carbon, which is released into the atmosphere. These activities are leading to changes in the **climate**.

The **climate** is the average weather pattern in a country or area.

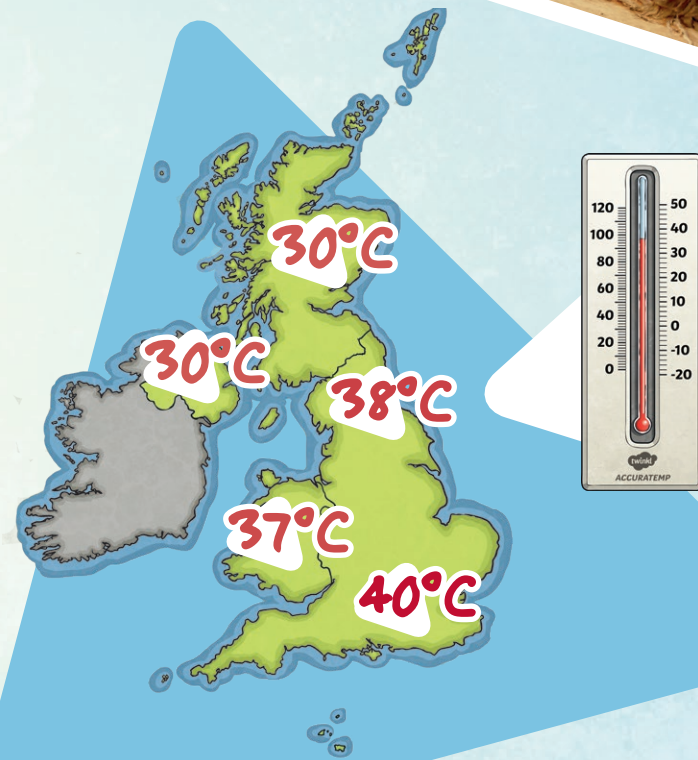


Climate change describes a long-term change in the Earth's **climate** that affects average temperatures and weather patterns.

These changes include the melting of Arctic sea ice, rising sea levels and an increase in extreme weather events, such as flooding, drought, wildfires and hurricanes.

Climate change can also impact on the seasons, which affects plants, animals and the crops we rely on for food.

This map shows the record temperature highs the UK reached in summer 2022.



What Is a Carbon Footprint?

You may have heard the phrase '**carbon footprint**' before but what is a **carbon footprint** and how is it calculated?

Your **carbon footprint** is the amount of carbon dioxide produced as a result of your daily activities.

All these things will affect your **carbon footprint**:

- › the food you eat and where it comes from
- › the amount of electricity you use and how it is produced
- › the amount of water you use
- › the way you travel, how far and how often
- › the things you buy (clothes, toiletries, electronics etc.) and where they come from
- › the amount of rubbish you produce and whether you **recycle**



Everything we do has an impact on the environment!

How Is It Calculated?

Your **carbon footprint** is calculated using estimates of carbon emissions from your daily activities. There are many different calculators available on the Internet that will give you an approximate figure of the tonnes of carbon produced each year based on your lifestyle. In the UK, we have one of the highest **carbon footprints** in Europe.



If we all made small changes to our daily routine, we could **reduce our carbon footprint** and have a positive effect on the environment. What small changes could you make?

Why Does It Matter?

A high **carbon footprint** means greater levels of **greenhouse gases**, which contribute towards **climate change**. Unfortunately, warming of the planet does not simply mean warmer weather! As mentioned earlier, it can lead to more extreme weather events and cause the loss of natural habitats. This habitat loss will affect the species that live there and therefore threaten **biodiversity**.

