



Cheat Sheet

About this resource

This resource provides you with useful information about carbon emissions and the six sections of The Playground. For each section, we've provided key facts, carbon-cutting actions, discussion prompts, and activity ideas designed to support you to incorporate climate action into your teaching with confidence.

What are carbon emissions and what is their impact?



Carbon emissions refer to the release of carbon dioxide equivalent (CO₂e) gases into the atmosphere. Carbon is one of the most abundant greenhouse gases, and therefore when referring to emissions, it is often shortened from 'greenhouse gas' to 'carbon' emissions.

These emissions come from burning fossil fuels to create energy for a range of things including electricity generation, transport, and manufacturing.



Greenhouse gases, like the glass of a greenhouse, trap heat and stop it from escaping the planet.

Every day, humans generate electricity, drive cars, grow food and power factories, all of which release huge amounts of greenhouse gases into the atmosphere.

Unfortunately, more greenhouse gases in the atmosphere means more trapped heat, and this is leading to global warming and creating climate change.



We are already seeing the negative impact of climate change on weather, ecosystems, human health and food supply. The sooner we cut emissions, the smaller the damage will be: every change that we have the power to make, is critical.



What is a Carbon footprint?

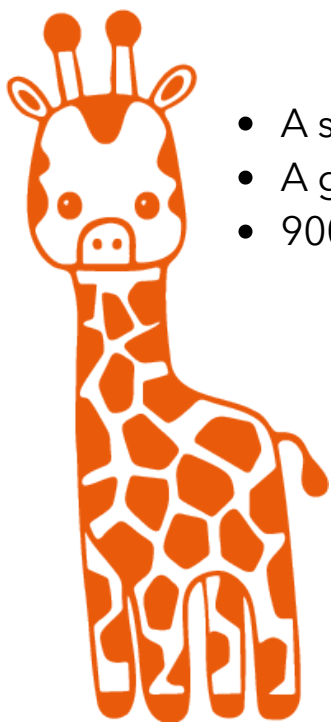
A carbon footprint is the total amount of carbon generated by the actions of an individual, a business, or even a country.

It is represented in tonnes, kilograms, or grams of CO₂e.

CO₂e means 'Carbon Dioxide Equivalent' and represents the combined effect of all 7 gases that contribute to climate change.

In the context of The Playground, your carbon footprint represents the total carbon emissions released into the atmosphere annually because of your school's activities.

What weighs a tonne*?



- A small car
- A giraffe
- 9000 bananas

What produces 1 tonne CO₂e*?



- Boiling an electric kettle 25000 times (40g per boil)
- Using 1370 toilet rolls (730g per roll)
- Approximately 400 beef burgers (2.5kg per burger)

*Figures are approximate

Electricity



Key Facts

- Carbon emissions from electricity depend on how it's generated, as it can come from both renewable and non-renewable sources.
- Non-renewable sources, like fossil fuels and nuclear power, release carbon dioxide, while renewable sources like solar, wind, water, and biomass (food waste) don't.
- To reduce emissions, we should use less electricity and increase the proportion of renewable energy that we use.
- Schools can help by choosing a renewable energy tariff from their provider and installing solar panels or wind turbines.
- Your school may already use 100% renewable energy. Whilst this is positive, we should still aim to reduce our energy usage to reduce pressure on electricity production, and to keep costs down.

Actions

- Increase the proportion of your school's energy that comes from renewable sources
- Appoint energy monitors to regularly check that good practice being maintained
- Increase natural light so that lights can be switched off
- Install a smart meter to help you track and adapt your electrical usage
- Install automated switch off systems for electronic devices and motion sensors for lighting

Prompts

- ❓ What actions could we take in school to reduce our electricity usage?
- ❓ Have you ever seen any examples of renewable energy generation? Where?
- ❓ What electrical device would you be willing to use less at home to reduce emissions?

Activities

- Write a persuasive letter to school leaders about increasing the proportion of renewable energy you use in school
- Design a poster/leaflet/sign to be displayed in school, to raise awareness about energy efficiency and encourage people to take action to reduce your school's energy usage
- Research energy saving tips and share your top five with the class

Notes



Food



Key Facts

- The production and transportation of different foods has a hugely varied impact on the size of our carbon footprints.
- Meat-based meals produce far greater emissions than vegetarian meals, and vegetarian meals produce greater emissions than 100% plant-based meals.
- This is because the production of animal-derived products requires land, feed and water – all these things produce emissions.

Vegan: Doesn't include meat, fish, dairy or eggs.

Plant-based: Doesn't include meat or fish but may include dairy or eggs



1kg of...

Beef
Cheese
Fish
Poultry
Eggs
Tofu
Milk
Tomatoes
Peas



Produces

99kgCO₂e
20kgCO₂e
14kgCO₂e
10kgCO₂e
5kgCO₂e
3kgCO₂e
3kgCO₂e
2kgCO₂e
1kgCO₂e

*Figures are approximate and may change on an annual basis. Obtained in 2025

[Our world in data](#)

Actions

- Eat less meat/increase plant-based eating
- Eat seasonal/local produce
- Introduce a regular meat-free day in the school canteen
- Reduce the amount of meat in meat-based meals

Prompts



What do you currently think about the school menu, and do you think it could be changed to encourage people to eat food that produces less carbon emissions?



What factors might influence the food that a school serves in their canteen?



The government currently requires schools to serve meat-based meals a minimum of three days per week. Do you think this should change?

Notes

Activities

- Redesign your schools lunch menu to highlight the choices with the lowest carbon emissions
- Write a persuasive letter to your school leaders asking them to implement a regular meat-free day
- Design a plant-based recipe



Purchasing



Key Facts

- There are five stages to the life cycle of a product; extraction of resources, production, transportation, usage, and disposal. Each of these stages produces carbon emissions. This linear approach represents the typical product life cycle, which results in waste and depletion of the earth's resources.
- Making things this way creates a lot of waste and is using up the Earth's natural resources too quickly.
- To reduce emissions from purchasing, we should adopt a circular economy. This approach focuses on sustainability throughout a product's life cycle, cutting down on waste and the need to extract more raw materials. Buying second-hand and looking after things more can help to reduce our need to buy things too.
- Buying more sustainably when new items are required can cost more, as more sustainable materials may take longer to produce, and workers may be paid a more ethical wage too.
- The waste hierarchy is a useful tool in demonstrating how we can prioritise a more sustainable approach to purchasing.



Actions

- Take good care of school premises and equipment
- Buy second hand
- Buy from sustainable suppliers
- Mend and repair things



Prompts

- ❓ If we did decrease our spending in this area, what changes might you expect to see in school?
- ❓ What could you do as students to help school buy less?
- ❓ In what situations might we need to increase our spending in certain areas?

Notes

Activities

- Design a visual representation of the waste hierarchy
- Write a set of rules for keeping the building, equipment and furniture in good condition
- Create a poster encouraging people to look after the school building, equipment and furniture



Commuting



Key Facts

- Each method of transport creates different amounts of carbon emissions. This depends upon whether vehicles use fuel or electricity, and how many people can travel within one vehicle.
- It is important to acknowledge that some people might not be able to change how they travel to school or work, because of disability, distance, or lack of public transport links.



Travel by (1km)

Average Car

0.17kgCO₂e

Tram/Train

0.03kgCO₂e*

Bus

0.11kgCO₂e*

Walking/Cycling

0kgCO₂e

*per passenger

Actions

- Walk or cycle to school, or implement a 'park and stride' scheme
- Encourage teachers to walk, cycle or use public transport to get to school
- Encourage car-pooling where possible
- Install EV charging ports on-site so that teachers can use electric cars
- Encourage pupils to cycle to school by installing safe and dry bike storage

Prompts

- Think about your own journey to school. Discuss whether there is anything you could do to reduce carbon emissions.
- What factors might influence how students or staff get to school? Could any of these factors be addressed?
- If given the chance, would you choose an electric car or a petrol car, and why?

Notes

Activities

- Research different methods of transport and their carbon footprints
- Design a poster encouraging people to walk or wheel to school
- Research the difference between a standard fuel-powered car, a hybrid car, and an electric car, highlighting the carbon impacts of each one



Water



Key Facts

- Water itself is not a carbon emitter, but for it to be used it must be treated and transported. This is known as the 'urban water cycle'. This process requires energy, and generating energy can emit carbon.
- We should reduce our water consumption in order to reduce energy demand for treating and transporting water.
- In this section, students are provided with your school's water usage in cubic metres (m³). 1 cubic meter (m³) = 1000 litres. To use this amount of water you'd need to flush a toilet 125 times or wash your hands under a running tap 85 times.

*Based on 8 litres per flush and 11 litres per hand wash

Actions

- Appoint water monitors
- Install water hippos
- Fix leaks and drips
- Install water butts
- Install motion sensors on taps and set to appropriate time

Prompts

- ❓ What might cause our school to increase water consumption?
- ❓ How could we decrease our water consumption in school and at home?
- ❓ Is the selected decrease realistic for our school? Why? Why not?

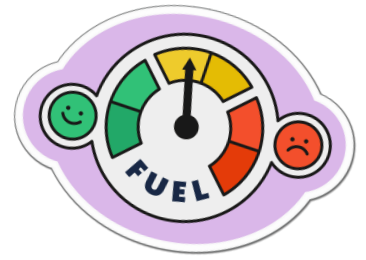
Activities

- Create a poster outlining the urban water cycle
- Survey your school and draw a map of where water butts could be installed
- Design a 'three Ps' poster to display in your school toilets (the three Ps represent the only things that should be flushed down a toilet - paper, pee, poo!)

Notes



Fuel



Key Facts

- A fuel is a substance that is used to provide heat or power, usually by being burned.
- When fuels such as gas, oil, coal and wood are burned to produce heat or power, carbon dioxide is released into the atmosphere, contributing to climate change.
- To prevent climate change, we need to work towards eliminating our use of fossil fuels, and switch to greener, renewable alternatives. An example of such a switch is replacing a boiler with an air source heat pump. If the electricity used to power the pump comes from renewable sources such as wind or solar, then no fuel is burned, so no fuel-related carbon emissions are produced.
- The last coal power plant in the UK closed down in 2024, marking a major step away from fossil fuel usage in electricity generation. Renewable sources such as wind and solar have replaced this.

Actions

- Set heating to recommended temperatures and wear appropriate clothing
- Check heating times and set appropriately
- Add insulation to the school building
- Change your fuel type/install an air source heat pump



Prompts

- ❓ How easy do you think it would be to switch our school's fuel type?
- ❓ Discuss instances where you use fuel outside of school
- ❓ Discuss how we could possibly reduce fuel usage in school or at home

Notes



Activities

- Research the ways that people have stayed warm throughout history
- Prepare a presentation about how to dress appropriately for cold weather
- Research retrofitting and list some improvements that could be made to make your school building more fuel efficient



Glossary



Carbon footprint

The total amount of greenhouse gases (GHGs) released into the atmosphere by a person, organization, product, or event.

Carbon emissions

The release of carbon dioxide (CO₂) and other greenhouse gases into the atmosphere.

GHG (Greenhouse Gas)

GHG stands for greenhouse gas, which is a gas in the Earth's atmosphere that traps heat.

CO₂e

'tCO₂e' or 'CO₂e' tonnes means 'tonnes of Carbon Dioxide Equivalent'. Under the GHG protocol, 7 greenhouse gases are tracked and summarised as the equivalent amount of Carbon Dioxide that would produce the same warming effect.

Simulation

A simulation is a tool that helps us understand how things work by creating a virtual version of them. It's like a virtual lab where you can test different ideas and see the results. This is really helpful for solving problems and making predictions.

Net Zero

Net zero means cutting carbon emissions to a small amount of residual emissions that can be absorbed and durably stored by nature and other carbon dioxide removal measures, leaving zero in the atmosphere. It can also be achieved by carbon offsetting.

Decarbonisation

The process of reducing carbon dioxide (CO₂) emissions to combat climate change.

Carbon neutral

Being carbon neutral means balancing the amount of carbon dioxide (CO₂) emitted with an equivalent amount removed or offset. This is typically done by reducing emissions as much as possible and then using carbon offsets (like tree planting or renewable energy credits) to "neutralise" the remaining emissions. Carbon neutrality focuses on balancing emissions, often with significant use of offsets.

Carbon offsetting

Carbon offsetting is when you compensate for emissions by supporting projects that reduce or remove carbon dioxide elsewhere. Examples include planting trees, funding renewable energy projects, or capturing methane from landfills. While this doesn't reduce emissions directly, it helps balance the impact by supporting climate-positive actions.

EV

EV stands for 'electric vehicle'. An electric vehicle is a battery powered vehicle that can be charged from an external source. You may also hear the term 'PHEV' which stands for 'plug-in hybrid electric vehicle'. These vehicles use a mixture of fuel and electricity.